Media Coverage and IPO Pricing Around the World

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Abstract

We study how media coverage impacts pricing of initial public offerings (IPOs) around the world. High media coverage in the pre-IPO period leads to lower IPO initial returns. The effect is mitigated in countries with better financial reporting quality, greater shareholder rights protection, and for IPOs certified by reputable intermediaries, while accentuated in countries with higher level of media penetration and for articles discussing IPO firms' fundamentals. Further, when media coverage is high, information is more fully impounded in price revisions. Taken together, our findings are consistent with media coverage alleviating informational frictions among investors, resulting in less underpriced IPOs.

JEL Classification: G10, G14, G15, G30

Keywords: Media coverage, IPO pricing, information asymmetry

I. Introduction

In recent years, the role of media in financial markets has become a focus of increasing attention by academics, practitioners, and regulators. While there is a general consensus that "media reporting can exert a large causal influence on financial markets" (Tetlock 2015, p. 703), the mechanisms through which that influence occurs as well as its implications for stock prices remain a subject of ongoing debate. One stream of research posits that, by disclosing and disseminating information to a broad population of investors, media coverage reduces information asymmetry and enhances informational efficiency of stock prices (Tetlock, Saar-Tsechansky, and Macskassy 2008; Drake, Guest, and Twedt 2014; Peress 2014; Twedt 2016). Another stream of research asserts that, by placing a firm in the spotlight of investor attention, media may exacerbate investor biases, causing stock prices to deviate from their fundamental values (Barber and Odean 2008; Dougal et al. 2012; Engelberg, Sasseville, and Williams 2012; Chen, Pantzalis, and Park 2013; Hillert, Jacobs, and Müller 2014).

Research examining the role of media in financial markets is predominantly U.S.-centric. In contrast, there has been little work published exploring the role of media in non-U.S. markets. As Griffin, Hirschey, and Kelly (2011, p. 3941) note:" Despite the perceived importance of the financial media, there has been little attempt to quantify its importance internationally or to understand why the impact of media varies across countries." Scarce evidence on the role of media in international financial markets constitutes an important gap in the literature given a sharp increase in the amount of capital raised in non-U.S. stock markets over the past two decades (Doidge, Karolyi, and Stulz 2013). We address this gap by examining the impact of media coverage on the pricing of initial public offerings (IPOs) around the world.

International IPOs provide an appealing platform for exploring the impact of media coverage on stock prices for several reasons. First, IPO firms are typically young, immature, and relatively informationally opaque (Ljungqvist 2007). Reflecting these features of IPO firms, both information asymmetry and investor limited attention—the mechanisms through which prior research suggests media influences stock price formation—play an important role in theories of IPO pricing, as we discuss below. Second, legal institutions and the information environment—the "building blocks of efficiency" (Hung, Li, and Wang 2015)—both exhibit substantial variation across countries, thereby providing a powerful setting to explore the mechanisms through which media coverage affects stock price formation of IPOs.[1] Third, prior research suggests that, to enhance interest in news stories, media coverage may be systematically biased toward stocks that experience substantial price changes (Shiller 2000; Bhattacharya et al. 2009), making causal inferences regarding the effect of media on stock prices problematic. Since IPOs do not have a share price history, the issue of reverse causality in the media coverage–stock price formation relation is mitigated in the IPO setting.

Prior research offers competing insights regarding the sign of the media coverage-IPO pricing relation. On the one hand, high pre-IPO media coverage may reduce the "underpricing discount" in the offer price, resulting in lower IPO initial returns.[2] Prior research (Rock 1986; Benveniste and Spindt 1989; Benveniste and Wilhelm 1990; Spatt and Srivastava 1991; Michaely and Shaw 1994; Busaba and Chang 2010) shows that, in the presence of informed investors, IPO allocations have to involve underpriced stock. In the Rock (1986) model, some investors are assumed to be better informed about the true value of the shares on offer. This imposes a "winner's curse" on uninformed investors: they bid

[1] In this context, it is important to emphasize that, due to fairly unique institutional features of the U.S. IPO market, evidence on the role of media from U.S.-based IPO studies (e.g., Cook, Kieschnik, and Van Ness 2006; Bajo et al. 2016) may not be generalizable for IPOs in markets outside the U.S. Our focus is solely on the non-U.S. IPOs. We return to this issue later in this section.

[2] IPO initial return is measured as the percentage difference between the price at which the IPO shares are sold to investors (the offer price) and the first-day closing price of shares in the aftermarket (Ellul and Pagano 2006; Colak, Durnev and Qian 2017).

successfully for unattractive offerings, while in attractive offerings their demand is crowded out by informed investors. To prevent uninformed investors' withdrawal from the IPO market, new issues must be underpriced to allow uninformed investors to earn normal returns. Benveniste and Spindt (1989), Benveniste and Wilhelm (1990), and Spatt and Srivastava (1991) develop models in which underwriters elicit indications of interest from investors, which are then used in setting the offer price. However, in the absence of inducements, informed investors have strong incentives to misrepresent positive information. To induce informed investors to reveal truthfully their information, the offer price needs to be discounted.

By disclosing and disseminating information, the media leads to a more homogeneous distribution of information among investors, thereby reducing the information gap between informed and uninformed investors. Further, disclosure and dissemination of information reduces the level of ex-ante uncertainty regarding the value of the IPO firm. Since informed investors view information production as a call option on the IPO (Beatty and Ritter 1986), reduction of valuation uncertainty by the media mitigates investor incentives to engage in costly information gathering, thereby alleviating the impact of informational frictions among investors on IPO pricing. The above discussion suggests that high pre-IPO media coverage should reduce the magnitude of the underpricing in the offer price induced by informational frictions, and thus should be negatively associated with IPO initial returns.

An alternative perspective suggests that, by making an IPO firm more visible to retail investors in the aftermarket trading, high pre-IPO media coverage should lead to higher IPO initial returns. Attention is a scarce cognitive resource (Kahneman 1973). Consequently, there are cognitive and temporal limits to how much information an investor can process (Odean 1999; Barber and Odean 2008), making visibility of a firm's stock to investors an important attribute influencing their investment decisions. The role of limited attention—and, by

inference, the impact of firm visibility on investment decisions—is particularly pronounced among individual (or retail) investors, who lack resources such as manpower and formal models to attend to and process information that is available to institutional investors (Battalio and Mendenhall 2005; Barber and Odean 2008; Frederickson and Zolotoy 2016). Further, limited attention has a stronger impact on buying, as individual investors search across thousands of stocks, than selling, where individual investors generally choose only from the set of stocks they own (Frieder and Subrahmanyam 2005; Barber and Odean 2008).[3]

The role of media coverage as a primer of investor attention could be particularly important in the context of IPOs, where most of the companies going public are relatively young and, therefore, less visible to investors. As discussed above, by placing a firm in the spotlight of public discussion, media coverage catches investors' attention (Engelberg and Parsons 2011; Solomon, Soltes, and Sosyura 2014; Hillert, Jacobs, and Müller 2014). Further, such an effect is expected to be particularly pronounced among the retail investors, who are net buyers of attention-grabbing stocks due to their lack of ability and resources to attend to and process information in a timely manner (Barber and Odean 2008). Consequently, by attracting retail investor attention to a new issue, higher pre-IPO media coverage may boost the price of a new issue in early aftermarket trading relative to the offer price, resulting in higher IPO initial returns.[4]

[3] For instance, Frieder and Subramanyam (2005) find that individual investors are more likely to hold stocks of highly visible companies. Barber and Odean (2008) show that individual investors are net buyers of "attention-grabbing" stocks—namely, stocks that experienced attention-grabbing events such as news, unusual trading volume, or extreme returns.

[4] The models of Derrien (2005) and Ljungqvist, Nanda, and Singh (2006) are relevant to understanding the potential effect of media on IPO pricing in the presence of retail investors. These models assume that there are two types of investor, informed institutional investors and individual investors (referred to as "noise traders" in the Derrien (2005) model and "sentiment investors" in the Ljungqvist, Nanda and Singh (2006) model) who are assumed to be bullish at the time of the offering. The investment banker sets the offer price above its true value but below the valuation of individual investors. This allows the issuer to benefit from a higher valuation than appropriate, given the intrinsic value of the issue (as reflected in institutional investor valuations). In turn, institutional investors benefit from flipping their shares to individual investors in the early aftermarket trading. Hence, by promoting a new issue to retail investors, high media coverage of a firm in the pre-IPO period may lead to higher IPO initial returns.

In summary, insights from prior research offer competing theoretical predictions regarding the impact of media coverage on IPO pricing. The information asymmetry reduction mechanism suggests that high pre-IPO media coverage alleviates informational frictions among the parties involved in an IPO, resulting in lower IPO initial returns. The visibility enhancement mechanism suggests that, by attracting retail investor attention to a new issue in the aftermarket trading, high pre-IPO media coverage leads to higher IPO initial returns. Since it is not clear a priori which of the two mechanisms dominates, we frame the impact of media coverage on IPO pricing as an empirical question.

Using a comprehensive sample of 10,257 IPOs across 38 countries for the period 2000–2014, we find that high pre-IPO media coverage is associated with lower IPO initial returns. This finding is in line with the information asymmetry reduction mechanism. The documented effect of media coverage is economically meaningful. In our sample, a one-standard-deviation increase in pre-IPO media coverage, on average, is associated with a decrease of 4.75 percentage points (or 475 basis points) in IPO initial returns. The results of multiple robustness tests indicate that the documented effect of media coverage is robust to inclusion of additional controls, alternative model and sample specifications, and continues to hold in country-by-country and year-by-year regression analyses.

The level of pre-IPO media coverage may not be exogenous to IPO initial returns. For instance, the IPO offer price and the level of pre-IPO media coverage, could both be driven by firm or underwriter attributes not accounted for in our analysis. Hence, endogeneity is a potential concern in our setting. To address this concern, we conduct two tests. First, we adopt a quasi-natural experiment approach, using national media strikes as exogenous shocks to media coverage (Peress 2014). Second, we estimate our model using an instrumental variable estimation approach. Following Dai, Parwada, and Zhang (2015), we use a firm's geographic proximity to a Dow Jones branch as an instrument for media coverage. The

results of both tests are consistent with those of our baseline analysis, in that we continue to document a negative association between pre-IPO media coverage and IPO initial returns. Therefore, we conclude that our findings are unlikely to be driven by endogenous effects.

We further explore cross-sectional patterns in the strength of the documented media coverage–IPO pricing relation. The purpose of these tests is to provide a richer understanding of the documented media coverage–IPO pricing relation, as well as to seek further corroborating evidence for information asymmetry reduction as the mechanism that drives our findings. If our arguments are valid, then the documented effect of media coverage on IPO pricing should be mitigated (accentuated) in settings where the role of media in generating and disseminating information among investors is less (more) salient. Consistent with this line of reasoning, and building on insights from prior research, we examine whether the effect of pre-IPO media coverage on IPO initial returns (1) is mitigated in countries with higher quality of financial reporting and stronger legal protection of shareholder rights, (2) is accentuated in countries with higher level of media penetration, and (3) is mitigated for IPOs with a greater level of "certification" by third parties associated with a new issue.

We commence by examining the role of country-specific financial reporting quality and shareholder rights protection in the media coverage–IPO pricing relation. Higher quality of financial reporting system enhances the transparency of financial reports (Bhattacharya et al. 2003; Barth, Konchitchki, and Landsman 2013) and thus should reduce information asymmetry associated with an IPO. The legal rules of the jurisdictions in which securities are issued and the quality of their enforcement are important determinants of what rights securities holders have and how well these rights are protected, which in turn determines their willingness to finance firms (LaPorta et al. 1998). Therefore, we reason that investor exposure to information asymmetry–related risks—and, by inference, the role of media in reducing information asymmetry around new issues—should be mitigated in countries with

better financial reporting quality and countries with stronger legal protection of investors. Supporting this prediction, we find that negative association between pre-IPO media coverage and IPO initial returns is mitigated in countries with greater accounting conservatism, higher levels of anti-director shareholder rights, and stronger securities laws, while it is amplified in countries with higher earnings opacity and countries with civil law.[5]

Next, we examine the impact of media penetration on the relation between media coverage and IPO pricing. Media penetration facilitates dissemination of news through media channels among investors (Zingales 2000; Dyck and Zingales 2004). In our setting, these insights suggest that the role of media coverage in reducing information asymmetry around new issues should be more pronounced in countries with higher level of media penetration. Consistent with this line of reasoning, we find that the negative association between pre-IPO media coverage and IPO initial returns is accentuated in countries with higher levels of subscription to the newspapers and the internet.

We further explore the impact of IPO certification on the media coverage–IPO pricing relation. Prior research suggests that the presence of prestigious intermediaries (e.g., prestigious underwriters and/or reputable auditors) reduces information asymmetry faced by investors (Booth and Smith 1986; Titman and Trueman 1986; Carter and Manaster 1990; Michaely and Shaw 1994; Amihud, Hauser and Kirsh 2003). A broad assertion in this stream of research is that, by agreeing to be associated with an offering, prestigious intermediaries "certify" the quality of the issue, thereby reducing investor incentives to produce their own information (Ljungqvist 2007). In a similar vein, the presence of venture capitalists as investors in a firm going public plays an important certification role for a new issue (Megginson and Weiss 1991; Loughran and Ritter 2004). Applying these insights to our

[5] Civil law countries generally have weaker legal investor protection compared to common law countries (LaPorta et al. 1998). Therefore, investor exposure to information asymmetry-related risks and, by inference, the role of media coverage in reducing information asymmetry is expected to be more pronounced in these countries.

setting, we reason that the role of pre-IPO media coverage in alleviating informational frictions, and thus, the documented effect of pre-IPO media coverage on IPO initial returns, should be mitigated for IPOs with stronger certification characteristics. Consistent with these arguments, we find that the negative association between pre-IPO media coverage and IPO initial returns is mitigated for IPOs that are underwritten by investment banks with strong reputation, IPOs audited by a Big 4 auditing firm, and IPOs backed by venture capitalist investors.

To further gauge the mechanism underlying the documented media coverage–IPO pricing relation, we supplement our analysis with two sets of additional tests. In the first set of tests, we examine the impact of media coverage on the extent to which information is reflected in IPO price revisions. Prior research shows that IPO price revisions only partially impound the private information revealed during bookbuilding, with the rest of the adjustment coming in the form of underpricing, which compensates investors for supplying the information (Hanley 1993; Bradley and Jordan 2002). We reason that, by disclosing and disseminating information, media coverage should mitigate investors' incentives to engage in costly gathering of private information (e.g., Beatty and Ritter 1986). Consequently, we predict that the partial adjustment effect in IPO prices should be less evident for IPOs with higher media coverage. Our findings lend support to this prediction.

In the second set of supplemental analyses, we examine whether the effect of media coverage on IPO initial returns varies depending on news content and type of article. We reason that if the documented effect of media coverage on IPO pricing occurs through the information asymmetry reduction mechanism, such an effect should be particularly pronounced for articles that focus on an IPO firm's earnings, as firm earnings play a pivotal role in investor assessment and valuation of an IPO (Brau and Fawcett 2006; Willenborg, Wu, and Yang 2015). We further reason that the documented effect of media coverage should

be stronger for the full articles category (i.e., articles that provide news analysis and that are, thus, more informative) compared to other, less informative, types of articles, such as news flashes and short press releases. Our results provide support for both predictions.

We contribute to the literature along several important dimensions. Our first contribution is to the literature examining the impact of media coverage on capital markets (see Tetlock 2015 for a review). So far, this strand of literature has been predominantly U.S.-centric, thereby offering limited insight regarding the role of media in non-U.S. markets (Griffin, Hirschey, and Kelly 2011). We advance this literature by generating comprehensive evidence on the role of media in reducing information asymmetry within the context of international IPOs. In this context, our study relates to Griffin, Hirschey, and Kelly (2011), who also investigate the role of media in global financial markets. While Griffin, Hirschey, and Kelly (2011) focus on the interplay between media and stock market volatility around news events, we examine the impact of media coverage on IPO pricing.

Second, by using international IPOs as a platform to examine the impact of media on stock price formation, we contribute to the literature on IPO pricing (see Ritter 2003 and Ljungqvist 2007 for reviews). Understanding the determinants of IPO pricing in the non-U.S. markets is particularly important given a substantial increase in the share of world IPO activity by non-U.S. firms (Doidge, Karolyi, and Stulz 2013; Gao, Ritter, and Zhu 2013). In the context of U.S. IPOs, prior research shows that higher media coverage leads to greater aftermarket IPO valuations and higher IPO initial returns, consistent with media coverage enhancing visibility of a new issue to retail investors (Cook, Kieschnick, and Van Ness (2006), Bajo et al. (2016)). In contrast, our findings suggest that, for the non-U.S. IPOs, higher media coverage leads to lower IPO initial returns, consistent with media coverage reducing information asymmetry associated with a new issue. When considered within the context of Cook, Kieschnick, and Van Ness (2006) and Bajo et al. (2016) results, our findings

suggest that relative importance of the two channels through which media may impact IPO pricing—information asymmetry reduction versus visibility enhancement—is different for the U.S. versus non-U.S. IPOs. While in the highly litigious and highly active U.S. IPO market visibility enhancement channel dominates the information asymmetry reduction channel, the situation appears to be reverse in less active and less litigious non-U.S. IPO markets.[6] In this context, our study addresses the Ljungqvist (2007) call to examine the determinants of IPO pricing in a cross-country setting as well as cautions against extrapolating findings from research on U.S. IPOs to the non-U.S. IPO setting.

Third, by examining the interplay between country-specific institutional factors and media coverage in IPO pricing, our study contributes to the growing literature on the role of financial reporting quality and legal institutions in capital markets (LaPorta et al. 1998; Djankov et al. 2008; Spamann 2010; He and Hu 2014). Our findings suggest that the role of media in reducing information asymmetry among investors is particularly pronounced in countries with poorer quality financial reporting and weak shareholder rights protections. These results highlight the importance of media as an informal institution that alleviates informational frictions in settings where formal institutions offer limited protection to investors, thus potentially carrying policy implications for regulators.

[6] Prior research shows that the role of firm visibility is particularly pronounced in a setting where investors have to interpret multiple signals coming from a large number of firms (Hirshleifer, Lim, and Teoh 2009; Frederickson and Zolotoy 2016) —conditions that are similar to those faced by investors in the U.S. IPO market which is considered the most active IPO market in the world by the number of companies going public (Ljungqvist 2007). Also, compared to the non-U.S. markets, the environment for floating new-share capital in the U.S. is highly litigious, offering significant protection to investors against misinformation and fraud, and thus reducing information asymmetry-related risk faced by the IPO investors (Tiniç 1988; Keloharju 1993; Lowry and Shu 2002). In the context of media coverage-IPO pricing relation, these insights suggest that, in the U.S. IPO market, the visibility enhancement channel is likely to dominate the information asymmetry reduction channel. In a similar vein, these insights also suggest that, in less active and less litigious non-U.S. IPO markets, the information asymmetry reduction channel is likely to dominate the visibility enhancement channel.

II. Sample and Variables

A. Sample

We obtain media coverage data from RavenPack, a leading global media database widely used in recent finance and accounting research (e.g., Shroff, Verdi, and Yu 2014; Dai, Parwada, and Zhang 2015; Dang, Moshirian, and Zhang 2015; Twedt 2016; Bushman, Williams, and Wittenberg-Moerman 2017; You, Zhang, and Zhang 2018). Starting in 2000, RavenPack has gathered and analysed news articles around the world from three major sources: (1) Dow Jones newswires, regional editions of *The Wall Street Journal*, and *Barron's*; (2) business publishers, national and local news, blog sites, and government and regulatory updates; and (3) press releases and regulatory, corporate, and news services, including PR Newswire, the CNW Group (formerly the Canadian News Wire), and the Regulatory News Service.

We obtain IPO data from the Security Data Company's (SDC) Platinum New Issue Database. Firm-level financial information and stock returns data are obtained from Datastream and Worldscope. Data on country-level economic development and quality of listing stock exchange are obtained from the World Bank's World Development Indicator database. Following prior literature (Cook, Kieschnick, and Van Ness 2006; Liu, Sherman, and Zhang 2014), we exclude unit offers (IPOs with warrants), closed-end funds, real estate investment trusts, and limited partnerships. We follow prior research on international IPOs (e.g., Lin, Pukthuanthong, and Walker 2013; Espenlaub, Goyal, and Mohamed 2016) by excluding issues with a converted offer price below US$1.00. Further, we require IPO firms to have information in Datastream or Worldscope at least in the IPO year. We also require each country in our sample to have at least 10 IPOs. Since our focus is on international (i.e., non-U.S.) IPOs, we exclude U.S. IPOs from our sample. Our final sample consists of 10,257 IPOs from 38 countries spanning the period 2000–2014. To mitigate the effect of potential

outliers, we winsorize all variables (except for dummy variables) at both the upper and lower 1-percentile.

B. Variables

Our dependent variable is IPO first-day return (*First-day return*). Following prior studies (e.g., Ellul and Pagano 2006; Ljungqvist 2007; Colak, Durnev and Qian 2017), we calculate *First-day return* as the first-day closing price of an IPO minus its offer price scaled by the offer price. In the robustness tests, we show that using initial returns estimated over longer time windows has no material impact on our findings.

Our explanatory variable of interest is media coverage in the pre-IPO period (*Media coverage*). In constructing this variable, we follow Liu, Sherman, and Zhang (2014) and count the total number of news articles about the IPO firm within the 30-day period prior to the IPO date.[7] We use the log-transformed number of news articles as our measure of pre-IPO media coverage, defined as the natural logarithm of 1 plus the number of news articles about the IPO firm in a 30-day window prior to the IPO date. RavenPack assigns a relevance score for each news article (ranging from 0 to 100), indicating how strong the news article is related to a specific firm.

Following prior studies (e.g., Drake, Guest, and Twedt 2014; Dang, Moshirian, and Zhang 2015), we focus on the news articles with a relevance score of 100 to ensure that these articles are primarily about the firm under discussion. We further utilize the event similarity key and RavenPack story identification code to identify the original news releases and exclude duplicate entries. If an IPO firm has no reported news articles during the 30-day period, we set the number of news articles to zero following prior studies (e.g., Cook, Kieschnick, and Van Ness 2006; Liu, Sherman, and Zhang 2014). In robustness tests, we

[7] We focus on 30-days prior to the IPO date because investor interest in the IPO is more likely to "heat-up" in a short window leading up to the firm's listing (Liu, Sherman, and Zhang 2014). In the robustness tests, we use the total number of articles 60-days and 90 days prior to the IPO date and obtain qualitatively similar results.

show that exclusion of IPOs with no reported news articles during the 30-day period from our sample has no material impact on our findings.

Our selection of IPO firm-level control variables follows prior literature (e.g., Ellul and Pagano 2006; Boulton, Smart, and Zutter 2010; Lin, Pukthuanthong, and Walker 2013; Colak, Durnev and Qian 2017). *Firm size* is calculated as the natural logarithm of total assets of the IPO firm. *Profitability* is defined as earnings before interest and taxes divided by total assets. *Leverage* is measured as the ratio of total debt over total assets. *Market-to-book* is calculated as market value of assets divided by the book value of assets. *Asset turnover* is calculated as sales divided by total assets. *Bookbuilding* is a dummy variable equal to 1 if the IPO is conducted using a bookbuilding method, and zero otherwise. We collect data required for construction of these variables from each IPO prospectus, available at SDC Platinum database.

Following prior research (e.g., Ellul and Pagano 2006; Doidge, Karolyi, and Stulz 2013), we also include several country-level control variables capturing the state of the economy and the level of capital market development in the country where an IPO takes place. Specifically, we include *GDP per capita growth*, measured as growth in annual GDP per capita, and *Market size*, measured as the ratio of annual total value of stocks traded to GDP. To control for stock market liquidity, we include *Market turnover*, measured as the aggregate stock market turnover ratio[8].

C. Summary Statistics

Table 1 reports the sample distribution and summary statistics of the variables in the analysis. Panel A presents the distribution of IPOs across the 38 countries in our sample. The panel shows that China has the largest number of IPOs, followed by Japan, U.K., and Australia. The countries with the fewest IPOs in our sample are Argentina, Finland, Mexico,

[8] Detailed variable definitions are provided in Appendix A.

and Portugal. The panel also shows that China has the highest average first-day return (70.4%), while Portugal has the lowest average first-day return (-8.9%).[9] In terms of pre-IPO media coverage, the panel shows that Taiwan has the largest average number of news articles (24.553), while Ireland has the smallest average number of news articles (6.409).

[Insert Table 1 about here]

Panel B presents the distribution of IPOs across time in our sample. The panel shows that the global IPO market reached its peak in 2007 in terms of the number of IPOs and declined gradually thereafter. This observation is in line with recent industry reports (e.g., Spears, David, and Hu 2012; Ernst and Young 2016) showing that the average number of IPOs experienced a significant decline between 2008 and 2014. Average IPO first-day return was highest in 2010 (72.9%) and lowest in 2000 (24.8%). The average number of articles covering an IPO firm in the 30-day window prior to the listing day reached its peak in 2009 (20.18) and was lowest in 2000 (10.03).

Panel C presents the summary statistics of the variables. The panel shows that the average *First-day return* in our sample is 38.9%.[10] The average number of articles is 12.563 and the average value of the log-transformed number of articles (i.e., average *Media coverage*) is 1.581. At the time of listing, the average IPO firm in our sample has *Firm size* of 4.59, *Profitability* of 0.052, *Leverage* of 0.109, *Market-to-book* of 3.591, and *Asset turnover* of 0.798. The highest Variance Inflation Factor (VIF) among the explanatory variables (untabulated) is 1.83, which is well below the commonly used threshold of 5 (O'Brien 2007), suggesting that multicollinearity is not a concern in our analysis.

[9] High average first-day return in China is in line with prior studies on Chinese IPOs (e.g., Tian 2011; Feng and Johansson 2015). Tian (2011) points to regulatory intervention with IPO pricing and government control of IPO share supplies as potential drivers of high first-day returns of Chinese IPOs.

[10] Average IPO first-day return in our sample is higher than that reported in prior studies (e.g., Lin, Pukthuanthong, and Walker 2013; Boulton, Smart, and Zutter 2010). This is because these studies do not include Chinese IPOs, which have exceptionally high IPO first-day return (Tian 2011). When Chinese IPOs are excluded from our sample, the (untabulated) average IPO first-day return is similar to the average first-day return documented in prior literature.

III. Empirical Results

A. Univariate Analysis

We commence our analysis with a simple univariate test of the relation between pre-IPO media coverage and IPO initial returns. We divide sample IPO firms into 11 groups based on the number of news articles about an IPO firm appearing within the 30-day window prior to the IPO date. We assign IPOs with no news articles to Group 0 and then divide the remaining IPOs into 10 equal groups based on the number of news articles. Group 1 has the lowest number of news articles while Group 10 has the highest. We then calculate the average IPO first-day return for each of the 11 groups and plot the results in Figure 1.

[Insert Figure 1 about here]

Figure 1 shows that the average IPO first-day return in Group 0 (i.e., IPOs with no news articles in the 30-day window prior to listing date) is 55%, whereas the average IPO first-day return in Group 10 (i.e., IPOs with the largest number of news articles in the 30-day window prior to listing date) is only 18.5%. The difference between the average returns in the two groups is statistically significant (t-statistic=5.314, p-value<0.01). This figure also shows that average IPO first-day return decreases monotonically when moving from Group 0 to Group 10. As discussed earlier, the negative relation between pre-IPO media coverage and IPO first-day return is consistent with the notion that media coverage reduces information asymmetry among investors, which, in turn, results in a lower degree of IPO underpricing. Next, we explore whether this effect persists in a multivariate framework.

B. Baseline Regression Analysis

Here, we examine the relation between pre-IPO media coverage and IPO first-day return using regression analysis. The specification of our baseline regression is as follows:

$$
\begin{aligned}
&First\ day\ return_{i,j,t} = \alpha + \beta_1 Media\ coverage_{i,j,t} + \beta_2 Firm\ size_{i,j,t} \\
&+\beta_3 Profitability_{i,j,t} + \beta_4 Leverage_{i,j,t} + \beta_5 Market-to-book_{i,j,t} \\
&+\beta_6 Asset\ turnover_{i,j,t} + \beta_7 Book\ building_{i,j,t} + \beta_8 GDP\ per\ capita_{j,t} \\
&+\beta_9 Market\ size_{j,t} + \beta_{10} Market\ turnover_{j,t} + \sum FE + \varepsilon_{i,j,t}
\end{aligned} \quad (1)
$$

where *i* denotes IPO firm, *j* denotes country, *t* denotes year, $\sum FE$ denotes fixed effects, and ε is the error term. The model is estimated with year, country, and industry fixed effects included. We use the 10 industry classifications as detailed on Kenneth French's website.[11] The model is estimated using pooled ordinary least squares (OLS). The standard errors and corresponding *t*-statistics are adjusted for heteroskedasticity.[12] The explanatory variable of interest is *Media coverage*, defined as the natural logarithm of 1 plus the number of news articles about the IPO firm during the period up to 30 days prior to the IPO date.

We report the results in Table 2 using a set of nested models. Column (1) of Table 2 presents the results with industry, year, and country fixed effects but with no control variables. Column (2) presents the results with additional firm-level control variables (i.e., *Firm size*, *Profitability*, *Leverage*, *Market-to-book*, *Asset turnover*, and *Bookbuilding*). Column (3) presents the results of our full baseline model, which also includes country-level control variables (i.e., *GDP per capita growth*, *Market size*, and *Market turnover*). In all three specifications, the coefficient of media coverage is negative and statistically significant (highest *p*-value < 0.01), suggesting that higher pre-IPO media coverage is associated with lower IPO first-day return. The results from the regression analysis confirm our findings from the univariate analysis and are consistent with the notion that media coverage alleviates information asymmetry faced by investors, which in turn reduces the magnitude of IPO underpricing.

[11] http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/

[12] Since for each firm, there is only one IPO observation, we do not adjust standard errors for clustering at the firm level. In (untabulated) robustness test, we repeat all our analyses with standard errors clustered at the country level and obtain qualitatively similar results.

In terms of economic magnitude, the coefficient of *Media coverage* in Column (3) suggests that a one-standard-deviation increase in *Media coverage* (1.319) reduces IPO first-day return by 0.036*1.319 = 0.0475 or 4.75 percentage points. Given that the mean IPO first-day return is 0.389 in our sample, this constitutes a 12.34% reduction compared to the mean. Hence, we conclude that the effect of media coverage on IPO pricing is not only statistically significant, but also economically meaningful.

The results for the control variables are largely consistent with prior studies (e.g., Ellul and Pagano 2006; Boulton, Smart, and Zutter 2010; Doidge, Karolyi, and Stulz 2013; Colak, Durnev and Qian 2017). IPO first-day return is positively and significantly related to *Firm size*, *Profitability*, *Leverage*, *Market-to-book*, and *Market size*, while negatively and significantly related to *Asset turnover* and *Bookbuilding*.

[Insert Table 2 about here]

C. Country- and Year-Specific Regressions

As discussed earlier, our baseline model (i.e., Equation (1)) is estimated using pooled OLS and thus includes IPO observations from multiple countries and multiple years. Hence, a potential concern is that the documented effect of media coverage could be driven by IPO observations from a particular country or a particular year. To examine this issue, we conduct two tests.

First, we estimate our baseline regression model for each country. Each country-specific regression includes all the control variables from Equation (1), industry fixed effects, and year fixed effects. To account for the appropriate level of degrees of freedom, we perform tests only for countries with at least 50 IPOs in our sample, which results in 23 country-by-country regressions. We present the results in Panel A of Table 3. For brevity, we report only the coefficient of *Media coverage*. We show that the coefficient of *Media coverage* is negative in 19 out of the 23 countries. Despite a sharp reduction in sample size

available to estimate country-specific regression models, the coefficient of *Media coverage* is significantly negative at the 10% level or better in 16 countries, suggesting that the documented effect of media coverage is not limited to IPOs from a particular country.

Second, we estimate our baseline regression model for each year. Each year-specific regression includes all the IPO-firm-level control variables from Equation (1), industry fixed effects, and country fixed effects. The results are reported in Panel B of Table 3 and show that the coefficient of *Media coverage* is significantly negative at the 10% level or better in 12 out of 15 year-specific regressions.[13] Based on these results, we conclude that the documented effect of media coverage is not driven by IPO observations from a particular year.

[Insert Table 3 about here]

IV. Robustness Tests

To further assess the robustness of our findings, we conduct a battery of sensitivity tests. For brevity, we report only the coefficient of *Media coverage*. Control variables and fixed effects are included in all regressions but are not tabulated.

First, we explore the robustness of our findings to alternative time windows over which IPO initial returns are measured. As discussed earlier, we follow the literature in using IPO first-day return as our dependent variable. However, Ljungqvist (2007) notes that in less developed capital markets, or in the presence of daily volatility limits that restrict price fluctuations, aftermarket prices may take some time before they equilibrate supply and demand. When interpreted within the context of our research setting, these insights suggest that, under some circumstances, using first-day return may underestimate the impact of media coverage on IPO pricing.

[13] The coefficient of *Media coverage* is not significant in 2000, 2002, and 2008, possibly due to high turbulence in stock markets during the dot-com bubble and the Global Financial Crisis periods.

To examine this issue, we follow prior research (Ellul and Pagano 2006; Ljungqvist 2007; Lin, Pukthuanthong, and Walker 2013) and repeat our analysis using IPO initial returns measured over longer time windows. Specifically, we re-estimate our baseline model twice: once using IPO returns measured over one week following listing day; and once using IPO returns measured over two weeks following listing day. The results reported in Panel A of Table 4 show that the coefficient of *Media coverage* remains negative and significant in both tests (highest *p*-value < 0.01) and that the magnitude of the coefficient is qualitatively similar to that reported in Table 2 for our baseline model. Based on these results, we conclude that our findings are not sensitive to the choice of time window over which IPO initial return is measured.[14]

Second, we examine the sensitivity of our results to alternative measures of pre-IPO media coverage. As outlined earlier, and consistent with prior research (e.g., Liu, Sherman, and Zhang (2014)), we construct our media coverage measure by counting the number of news articles over the 30-day window prior to the IPO date. To ensure that our results are not driven by specific choice of pre-IPO time window, we re-estimate our baseline model twice: once with media coverage constructed using a 60-day pre-IPO window, and once with media coverage constructed using a 90-day pre-IPO window. As an additional robustness test, we re-estimate our baseline model using decile rank of number of news articles as our media coverage measure. We conduct this test to confirm that the results are not driven by potential outliers or skewness in the *Media coverage* variable. The results, reported in Panel B of Table 4, show that the coefficient of *Media coverage* remains negative and statistically significant in all tests (highest *p*-value < 0.01).

Third, we modify our baseline model to include a number of additional control variables. The purpose of this test is to mitigate concern that the documented effect of media

[14] As an additional robustness test, we repeat our analysis with initial IPO return measured over a four-week time window following listing day. The (untabulated) results remain identical to those reported in the paper.

coverage is driven by some variable (or variables) not included in the baseline regression model (Equation (1)).[15] Specifically, we include *Advertising intensity*, calculated as the ratio of advertising expenditure to sales revenue (Chemmanur and Yan 2017). We also include *IPO float*, measured as the percentage of regular shares issued by the firm to the public and available to trade (Brennan and Franks 1997), and *Hot issue market*, measured as average IPO initial return for IPOs issued over the three months prior to the month of a firm's IPO (Bradley and Jordan 2002). We further include *IPO size*, measured as the ratio of total IPO proceeds scaled by the book value of total assets at the time of listing (Lin, Pukthuanthong, and Walker 2013), and *IPO age*, measured as the natural logarithm of 1 plus the number of years from the year when the firm was founded up to the year of listing (Ellul and Pagano 2006). Finally, we include *Cash balance*, measured as the ratio of cash holdings of the IPO firm scaled by total assets (Ljungqvist and Wilhelm 2003). The results, reported in Panel C of Table 4, show that the coefficient of media coverage remains negative and statistically significant (p-value < 0.01).[16]

Fourth, we examine the robustness of our results to exclusion of IPOs with no information in RavenPack during the 30-day window. As discussed earlier, we follow prior research (Cook, Kieschnick, and Van Ness 2006; Liu, Sherman, and Zhang 2014) by setting the number of news articles to zero if an IPO has no information in RavenPack. To ensure that our findings are not driven by this practice, we re-estimate our baseline regression model after excluding these IPOs from the sample. The results of this test are reported in Panel D of Table 4 and show that the coefficient of *Media coverage* remains negative and statistically significant (p-value < 0.01), suggesting that exclusion of IPOs with no information in RavenPack from our sample has no material impact on our findings.

[15] We conduct additional tests to examine the potential endogeneity issue in Section V.

[16] We do not include these additional control variables in our main design because of their effects on our sample size. Our baseline sample has 10,257 observations (see Table 2). When additional controls are included, the sample size reduces to 6,440 observations.

Finally, we examine the possibility that the relation between media coverage and IPO initial returns is non-monotonic. Such an effect may arise if there is a "tipping point" in the level of media coverage where the visibility enhancement mechanism overtakes the information asymmetry reduction mechanism, causing the sign of the media coverage-IPO initial returns relation to change from negative to positive. To explore this issue, we estimate our baseline model using semiparametric technique (Robinson 1988). This technique estimates the link function between the dependent variable (in our setting, *First-day return*) and the explanatory variable of interest (in our setting, *Media coverage*) nonparametrically, thereby imposing no assumptions (such as monotonicity or linearity) on the functional form of the examined relation. The results of semiparametric estimation (untabulated for brevity) suggest negative and monotonic relation between media coverage and IPO initial returns, providing further re-assurance that our findings are robust.

[Insert Table 4 about here]

V. Potential Endogeneity

A potential concern regarding our findings is that the documented media coverage–IPO pricing relation could be driven by some attribute (or attributes) correlated with both the number of news articles covering the firm and IPO first-day return. For example, to capture readership, business media may cater to public demand and report sensational news (Jensen 1979). As a result, media coverage could be high for IPOs with certain characteristics, which could also impact IPO first-day return. While the results reported in the previous section partially alleviate these omitted variable concerns, they do not rule them out completely. To further examine this issue, we conduct two tests.

In the first test, we use national media strikes as exogenous shocks to media coverage (Peress 2014). Consistent with Peress (2014), we focus on strikes that affect the press on a

national scale and involve the media sector only. These strikes are called by journalists, print, or distribution workers, and typically relate to their profession's economic conditions (i.e., employment, pay, pensions, tax breaks, state subsidies, and other benefits). Therefore, these media strikes are not driven by—and thus are exogenous to—stock market movements and/or economy-wide conditions during the period of the strike (Peress 2014).

We use the list of media strikes reported by Peress (2014, Table 1). During our sample period, we identify 31 eligible national media strikes that meet the criteria discussed in the previous paragraph. To perform the test, we proceed as follows. First, we identify 581 IPOs that were conducted in the countries where the media strikes took place during our sample period. Then, we assign each of these IPOs to either the "strike" group or the "non-strike" group. The "strike" group includes the IPOs with at least one media strike taking place in the same country during the 30-day window prior to the IPO date. This results in 62 IPOs in this group. The "non-strike" group includes all the remaining 519 IPOs. Finally, we construct a strike dummy (*Strike*) equal to 1 if the IPO is in the "strike" group, and zero if it is in the "non-strike" group.

To assess the validity of using media strikes as exogenous shocks to media coverage in our setting, we first test whether there is a significant difference in media coverage between the "strike" and "non-strike" groups. The results presented in Panel A of Table 5 show that the mean number of news articles for IPOs in the "strike" ("non-strike") group is 9.726 (14.202), and the difference between the two groups is statistically significant (*p*-value < 0.04). This finding is consistent with media strikes reducing the level of pre-IPO media coverage. Next, we examine the impact of media strikes on IPO first-day return. To perform the test, we estimate the same regression specification as in Equation (1), but with the strike dummy as the explanatory variable of interest. The results, presented in Panel B of Table 5, show that the coefficient of the strike dummy is positive and statistically significant (*p*-value

< 0.03), suggesting that a lower level of pre-IPO media coverage resulting from media strikes leads to higher IPO first-day return. These findings support the causal effect of pre-IPO media coverage on IPO first-day return.[17]

[Insert Table 5 about here]

In the second test, we estimate our baseline regression model using an instrumental variable approach. As documented by Gurun and Butler (2012), the media coverage of a firm is dependent on the distance between the firm and news outlets. Therefore, we follow Dai, Parwada and Zhang (2015) by using a firm's geographic proximity to a Dow Jones branch as an instrumental variable. Specifically, we construct a categorical variable *Proximity to DJ branch*, which equals 2 if the IPO firm is headquartered in a metropolitan area with at least one Dow Jones news branch, 1 if the IPO firm is headquartered in a country with at least one Dow Jones news branch but in a metropolitan area without any Dow Jones news branch, and zero otherwise. We obtain information about the location of Dow Jones news branches around the world from the Dow Jones website (https://www.dowjones.com/).

In our setting, a valid instrumental variable should meet the following two selection criteria (Larcker and Rusticus 2010): (1) it should be significantly correlated with *Media coverage*, and (2) it should not be correlated with the residuals of our baseline regression model (i.e., it should not have a direct effect on IPO first-day return). Consistent with the first criterion, the results reported in Column (1) of Table 6 show that the coefficient of *Proximity to DJ branch* in the *Media coverage* regression is significantly positive. The (untabulated) partial *F*-statistic for the exclusion test of *Proximity to DJ branch* from the *Media coverage* regression is above the critical value of 8.96 (Stock, Wright, and Yogo 2002), suggesting that the weak instrument issue is not a concern in our setting. Consistent with the second criterion,

[17] To ensure that our results do not reflect economic effects of media strikes on IPO firms in media-related industries, we repeat the analysis in Table 5 after excluding these IPOs from our sample. In our sample, we have seven IPOs in media-related industries (SIC codes 2711, 3663, and 4833). The (untabulated) results indicate that exclusion of these IPOs from our sample has no material impact on our findings.

there is no ex-ante economic reason to suggest that, after controlling for *Media coverage*, the distance between the IPO firm headquarters and a Dow Jones news branch has a direct effect on IPO first-day return. Therefore, we conclude that *Proximity to DJ branch* is a valid instrument in our setting.

We report the results of instrumental variable estimation in Column (2) of Table 6. We show that the coefficient of *Media coverage* is significantly negative (p-value < 0.01), consistent with the view that higher pre-IPO media coverage leads to lower IPO first-day return. This result provides further reassurance that our findings are not driven by endogenous effects.

[Insert Table 6 about here]

VI. Cross-Sectional Tests

A. Moderating Effects of Country-Level Institutions

In this section, we examine the effects of country-level financial reporting quality and shareholder rights protection on the media coverage–IPO pricing relation. Higher quality financial reporting alleviates information asymmetry among investors and mitigates associated agency problems (Mahoney 1995). In terms of shareholder rights protection, legal rules of each jurisdiction and the quality of their enforcement at a country-level where an IPO is carried out determine what rights securities holders have and how well these rights are executed, which in turn determines the willingness of investors to finance firms (LaPorta et al. 1998). Given the above discussion, we forward that the role of media in alleviating information asymmetry-related risks—and thus, the documented effect of media coverage on IPO pricing—is mitigated in countries with higher quality financial disclosure, or stronger legal protection of investors.

We begin this section by examining the effect of country-specific financial reporting quality on the media coverage–IPO pricing relation. Following Boulton et al. (2011, 2017), we use earnings opacity (*Earnings opacity*) and accounting conservatism (*Accounting conservatism*) scores of the country where the IPO takes place as our measures of country-specific financial reporting quality.[18] A higher value of *Earnings opacity* indicates lower quality of financial disclosure, whilst a higher value of *Accounting conservatism* indicates higher quality of financial disclosure. To examine the effect of country-level financial reporting quality on the media coverage–IPO pricing relation, we modify our baseline model to include the interaction term between the two measures and *Media coverage*, respectively. The results, reported in Columns (1) and (2) of Table 7, show that the coefficient of the interaction term between *Earnings opacity* and *Media coverage* is negative and significant (*p*-value < 0.01), while the coefficient of the interaction term between *Earnings opacity* and *Media coverage* is positive and significant (*p*-value < 0.01). This finding supports our prediction that the effect of media coverage on IPO pricing is mitigated in countries with higher financial reporting quality.

Next, we examine the effect of shareholder rights protection on the media coverage–IPO pricing relation. Building on prior research (LaPorta et al. 1998, 2006; Djankov et al. 2008; Spamann 2010), we employ three measures that capture the level of shareholder rights protection. Our first measure is *Security law*, which measures the average number of country-specific disclosure requirements by stock exchange, liability standards, and public

[18] Earnings opacity score for each country captures the extent of earnings aggressiveness, loss avoidance, and earnings smoothing. Higher earnings opacity score reflects lower quality of information conveyed by firms' earnings to investors (Boulton et al. 2011). Accounting conservatism refers to accounting practices, policies, and tendencies through which firms reported net asset values are understated relative to their market values. Boulton et al. (2017) show that IPOs are underpriced less in markets where accounting conservatism is more prevalent, consistent with accounting conservatism providing investors better information about IPO firms. The earnings opacity score is not available for Chile, Poland, and Russia. The accounting conservatism score is not available for China, Poland, and Russia. Therefore, we exclude IPOs from these countries in tests using the two measures.

enforcement of legal contracts (LaPorta et al. 2006).[19] We obtain the data required for the construction of *Security law* from the World Bank's Doing Business Indicators. Our second measure is *Shareholder right*s, which is the anti-director self-dealing rights index of the country where the IPO occurs. We obtain the index values from Djankov et al. (2008) and Spamann (2010). Higher values for *Security law* and *Shareholder right*s indicate better investor protection. Our third measure is *Civil law*, which is a dummy variable equal to one if the IPO occurs in a civil law country in our sample, and zero otherwise.[20] In civil law countries, the interests of minority shareholders are not well protected, thereby exposing them to greater risk of managerial expropriation (LaPorta et al. 1998). We interact each of these variables with *Media coverage* and include the interaction terms separately in the regression specification in Equation (1).

We report the results in Table 7.[21] Columns (3) to (5) of Table 7 show that the coefficients of the interaction terms of *Media coverage* with *Security law* and *Shareholder rights* are positive and significant (highest *p*-value < 0.01). We also find that the coefficient for the interaction term of *Media coverage* with *Civil law* is negative and significant (*p*-value < 0.01). These results support our prediction that the effect of media coverage on IPO pricing is mitigated in countries with stronger levels of shareholder rights protection.

[Insert Table 7 about here]

[19] *Security law* is an equally weighted average of the following three key factors that safeguard the financial interests of stakeholders while investing in IPOs: (1) the extent to which managers disclose information when issuing securities (disclosure requirements); (2) ease with which investors recover their losses from misleading or omitted information released by managers (liability standards); and (3) extent of public enforcement of good practices during the process of securities issuance (public enforcement).

[20] We identify civil law countries following LaPorta et al. (1998). In our sample, the civil law countries are Argentina, Austria, Belgium, Brazil, Chile, China, Denmark, Finland, France, Germany, Greece, Indonesia, Italy, Japan, Mexico, Netherland, Norway, Philippines, Poland, Portugal, Russia, Spain, Sweden, Switzerland, South Korea, Taiwan, and Turkey.

[21] We do not control for country fixed effects in regressions reported in Tables 7 and 8 to avoid perfect collinearity between the stand-alone effect of the country-specific time-invariant moderator and country fixed effect dummies. As an (untabulated) robustness test, we re-estimate all models in Tables 7 and 8 with country fixed effects included and without stand-alone effect of the country-specific moderator. Using this alternative specification has no material impact on our findings.

B. Moderating Effects of Country-Level Media Penetration

In this section, we explore the impact of country-level media penetration on the relation between media coverage and IPO pricing. As discussed earlier, we interpret our findings as being consistent with media coverage disseminating news among investors, which, in turn, reduces information asymmetry-driven underpricing of IPOs. Insights from prior research (e.g., Zingales 2000; Bushman, Piotroski, and Smith 2004; Dyck and Zingales 2004; Mullainathan and Shleifer 2005) suggest that the breadth of news dissemination through media depends on the level of media penetration among the investors—namely, the extent to which investors have access to and use the media channels to obtain the information. Applying these insights to our setting, we reason that the role of media in disseminating information among investors—and thus, the documented effect of media coverage on IPO pricing—should be accentuated in countries with greater level of media penetration.

We employ two measures that capture the level of media penetration. Our first measure, *Newspaper users*, is designed to capture country-level penetration of press (Dyck and Zingales 2004) and is calculated as the proportion of people subscribing to newspapers in a country. Our second measure, *Internet users*, captures country-level internet penetration (Boulton et al. 2015), and is calculated as the proportion of people subscribing to the internet in a country. We obtain the data for the construction of these variables from World Bank's World Development Indicators database. To test our prediction, we interact each of the two variables with *Media coverage* and include the interaction terms separately in the regression specification in Equation (1).

The results are reported in Table 8. The coefficient of the interaction term between *Media coverage* and *Newspaper users* is significantly negative and so is the coefficient of the interaction term between *Media coverage* and *Internet users* (highest *p*-value = 0.025).

Collectively, the results lend support to our prediction that the effect of media coverage on IPO pricing is accentuated in countries with greater level of media penetration.

[Insert Table 8 about here]

C. Moderating Effect of IPO Certification

In this section, we examine the effect of IPO certification on the relation between media coverage and IPO pricing. The IPO process involves a substantial degree of information asymmetry between insiders and outside investors. To mitigate information asymmetry, outside investors attempt to obtain information about the IPO firm from various sources. In particular, the literature suggests that investors infer the quality of the IPO firm based on indicators such as whether the IPO firm is backed by venture capital firms (Megginson and Weiss 1991; Loughran and Ritter 2004), whether the firm is audited by a high-quality auditor prior to the IPO (Menon and Williams 1991), or whether there is a high-quality underwriter that underwrites the IPO (Carter and Manaster 1990). Said differently, the presence of venture capital firms and/or prestigious intermediaries (such as a high-quality auditor or reputable underwriter) "certifies" the quality of the issue by mitigating information asymmetry and the associated agency concerns. Therefore, we reason that the role of media coverage in alleviating informational frictions—and thus, the documented effect of media on IPO pricing—should be mitigated for IPOs with greater levels of certification by the third parties associated with the IPO.

Drawing on prior research, we employ three measures of IPO certification (Carter and Manaster 1990; Megginson and Weiss 1991; Menon and Williams 1991; Loughran and Ritter 2004; Lin, Pukthuanthong, and Walker 2013). Our first measure is the venture capital indicator variable (*VC back*), which is equal to 1 if the IPO firm is backed by a venture capital firm, and zero otherwise. Our second measure is the Big 4 auditor indicator variable (*Big 4 auditor*), which is equal to 1 if the IPO firm is audited by one of the Big 4 auditing

firms, and zero otherwise. Our third measure is the reputable underwriter indicator variable (*Underwriter*), which is equal to 1 if the investment bank underwriting the IPO is in the top quartile based on combined global IPO proceeds, and zero otherwise. To test our prediction, we interact each of the three IPO certification variables with *Media coverage* and include the interaction terms separately in the regression specification in Equation (1).

The results are reported in Table 9. Column (1) shows that the coefficient of the interaction term between *Media coverage* and *VC back* is significantly positive (*p*-value < 0.01), suggesting that the effect of media coverage on IPO first-day return is mitigated for IPOs backed by venture capital firms. Column (2) shows that the coefficient of the interaction term between *Media coverage* and *Big 4 auditor* is significantly positive (*p*-value = 0.03), suggesting that the effect of media coverage on IPO first-day return is mitigated when the IPO firm is audited by a Big 4 auditing firm. Finally, Column (3) shows that the coefficient of the interaction term between *Media coverage* and *Underwriter* is significantly positive (*p*-value < 0.01), suggesting that the effect of media coverage on IPO first-day return is mitigated when the IPO is underwritten by a prestigious underwriter. Collectively, these results are consistent with our prediction that the effect of media coverage on IPO pricing is mitigated for IPOs with strong certification characteristics.

[Insert Table 9 about here]

VII. Additional Analysis

A. Media Coverage, Price Revisions, and Partial Adjustment to Information

In this section, we examine the effect of media coverage on the magnitude of partial adjustment effect in IPO prices. The Benveniste and Spindt (1989) model predicts that private information acquired by underwriters during the filing period is only partially incorporated into the offer price, leaving the IPO underpriced to reward institutional investors for

truthfully revealing their information about the value of the IPO firm during the bookbuilding process. Put differently, the final offer price only partially adjusts to information revealed during the bookbuilding process, with the remaining adjustment coming in the form of the listing day underpricing to compensate the suppliers of information (Bradley and Jordan 2002). Consistently, prior research documents that IPO initial returns are increasing in the revision of the offer price from the mid-point of the pricing range indicated in the prospectus (Hanley 1993; Cornelli and Goldreich 2003).

Prior research suggests that informed investors view information production as a call option on the IPO (e.g., Beatty and Ritter 1986). By disclosing and disseminating information, the media reduces the level of ex-ante uncertainty regarding the value of the IPO firm, and thus should mitigate investor incentives to engage in costly information gathering. Therefore, we reason that partial adjustment in the final offer price that compensates investors for revealing this information should be less evident for IPOs with higher media coverage. Building on this line of reasoning, we predict that the positive association between IPO price revision and IPO initial returns should be weaker for IPOs with higher media coverage.

To test this prediction, we regress the *First-day return* on *Price revision*, *Media coverage*, interaction between *Media coverage* and *Price revision*, and the control variables. Consistent with prior research (Bradley and Jordan 2002; Cook, Kieschnick, and Van Ness 2006; Colak, Durnev and Qian 2017), we calculate *Price revision* as the difference between IPO offer price and mid-point of the initial filing range, divided by the mid-point of the initial filing range. The SDC Platinum database (our source of IPO data) does not provide dates when initial filing ranges were submitted. Therefore, for robustness purposes, we consider three measures of *Media coverage*: one estimated in the 30-day window prior to IPO date, one estimated in the 60-day window, and one estimated in the 90-day window. The

explanatory variable of interest in this test is the interaction term between *Media coverage* and *Price revision*, which we predict to load negatively in the regression. Since we focus only on IPOs conducted using the bookbuilding method, the sample size for this test is reduced to 3,389 observations.

The results are reported in Table 10 and show that the coefficient of *Price revision* is positive and significant, consistent with the partial adjustment effect documented in the literature (Hanley 1993; Cornelli and Goldreich 2003). More importantly, the coefficient of the interaction term between *Media coverage* and *Price revision* is significantly negative for each of the three media coverage measures (*p*-value = 0.06 for *Media coverage 30 days*; *p*-value = 0.05 for *Media coverage 60 days*; and *p*-value = 0.03 for *Media coverage 90 days*). These results lend support to our prediction, suggesting that for IPOs with higher media coverage, information revealed during the bookbuilding process is more fully impounded in the final offer price.

[Insert Table 10 about here]

B. Effects of News Content and Article Type

In this section, we examine whether the impact of media coverage on IPO first-day return varies depending on news content and article type. Prior research suggests that a firm's fundamentals, in particular, a firm's earnings, play a pivotal role in investor assessment and valuation of an IPO (Brau and Fawcett 2006; Willenborg, Wu, and Yang 2015). Building on these insights, we reason that if the documented effect of media coverage on IPO pricing occurs through the information asymmetry reduction mechanism, such an effect should be particularly pronounced for news articles that focus on IPO firm earnings.

To test this prediction, we use the RavenPack classification scheme to divide the total number of news articles covering the firm into three categories based on the news content of the article. The first category includes news articles about the IPO firm's earnings (e.g.,

earnings releases and earnings revisions), which we label *Earnings news*. The second category includes articles with news specific to the IPO (e.g., news about IPO approval, delay, and extension), which we label *IPO news*. The third category (labelled *Other news*) includes news articles that do not belong to either of the two aforementioned categories. In our sample, 37.88% of the news articles are classified as earnings news, 55.99% as IPO news, and 18.11% as other news. We count the number of news articles in each of these three categories and include the three (log-transformed) counts in Equation (1).

The results, reported in Column (1) of Table 11, show that for each of the three news content categories, the coefficient of media coverage is negative and significant. Moreover, the coefficient of *Earnings news* is significantly larger (in absolute terms) than the coefficient of *IPO news* (*p*-value of the difference test is 0.02) and *Other news* (*p*-value of the difference test is 0.02). These results are consistent with the notion that news about IPO firm earnings play a dominant role in reducing information asymmetry among investors.

We further explore whether the magnitude of the documented effect of media coverage varies depending on article type. RavenPack classifies news articles into five types: full article, hot news flash, news flash, press release, and tabular material. In contrast to the other four types, news articles in the full article category have both a headline and textual material in the body. Since full articles provide analytical news content and thus are more informative, we expect the effect of media coverage on IPO pricing to be stronger for news articles in the full article category compared to news articles in other categories.

To test this prediction, we divide the total number of news articles covering the firm into two categories based on article type. The first category, labelled *Full articles*, includes news articles classified by RavenPack as full articles. The second category, labelled *Other articles*, includes news articles in the other four categories. In our sample, 52.22% of news articles are classified as full articles, and 47.78% as other articles. We count the number of

news articles in each of these two categories and include the (log-transformed) counts in Equation (1).

The results reported in Column (2) of Table 11 show that the coefficient of media coverage is negative and significant for both news type categories. Moreover, the coefficient of *Full article* is significantly larger (in absolute terms) than the coefficient of *Other articles* (*p*-value of the difference test is 0.02). These results are consistent with the notion that more informative news articles play a more pronounced role in mitigating information asymmetry between the parties in the IPO process.

[Insert Table 11 about here]

VIII. Conclusions

We examine the effect of media coverage on IPO pricing in markets around the world. We find that higher pre-IPO media coverage, on average, leads to lower IPO initial return. The documented effect of media coverage is mitigated in countries with higher financial reporting quality and stronger shareholder rights protection, while accentuated in countries with higher level of media penetration. The effect is also weaker for the IPOs backed by venture capital firms and reputable intermediaries while it is amplified for news articles that discuss an IPO firm's earnings and for news articles with analytical content. Further, for the IPOs with higher pre-IPO media coverage, information is more fully impounded in price revisions. Collectively, our findings are consistent with the argument that higher pre-IPO media coverage reduces information asymmetry among investors, leading to less underpriced IPOs.

We contribute to the emerging literature that examines the impact of media on capital markets (see Tetlock 2015 for a review). So far, this stream of literature has been predominantly U.S.-centric, thus offering limited insights on the role of media in the non-

U.S. markets (Griffin, Hirschey, and Kelly 2011). We advance this literature by providing the large-scale evidence on the impact of media coverage on stock price formation within the context of IPOs in markets around the world. We also contribute to the literature on IPO pricing (see Ljungqvist 2007 for a review) by showing that, in non-U.S. markets, higher level of pre-IPO media coverage results in less underpriced IPOs, consistent with media coverage reducing information asymmetry of a new issue. Our findings also contribute to the literature that examines the role of financial disclosure standards and legal institutions in capital markets (LaPorta et al. 1998; Djankov et al. 2008; Spamann 2010; He and Hu 2014). We contribute to this strand of literature by documenting the importance of media as an informal institution that alleviates frictions in settings where formal institutions offer limited protection to investors. Taken together, our findings highlight the role of media as an important "informational intermediary" in IPO pricing in markets around the world, and thus should be of interest to academic researchers, investors, and regulators.

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Appendix A: Variable Definitions

Variable	Definition
Accounting conservatism	Country-specific accounting conservatism score, based on Boulton et al. (2017).
Advertising intensity	Advertising expenses divided by sales of the IPO firm at the time of listing.
Age	Log transformation of 1 plus the difference in years since the firm was established up to the year of listing.
Asset turnover	Sales divided by total assets of the IPO firm at the time of listing.
Big 4 auditor	Dummy variable equal to 1 if the IPO firm is audited by a Big 4 auditing firm, and 0 otherwise.
Bookbuilding	Dummy variable equal to 1 if IPO uses bookbuilding method, and 0 otherwise.
Cash balance	Cash and short-term investments divided by total assets of the IPO firm at time of listing.
Civil law	Dummy variable equal to 1 if IPO firm is listed in a civil law country, and 0 otherwise.
Earnings opacity	Country-specific earnings earning opacity score, based on Boulton et al. (2011).
Firm size	Log transformation of total assets of IPO firm (in million US$) at time of listing.
First-day return	IPO first-day closing price minus offer price, scaled by offer price.
Float	Regular shares issued to the public for trading divided by total number of outstanding shares.
GDP per capita growth	Country-specific GDP per capita growth in year of IPO firm listing.
Hot issue market	Average initial return for IPOs issued during the three months prior to month of firm IPO.
Internet users	Country-specific proportion of people subscribing to internet in year of IPO firm listing.
IPO size	Total IPO proceeds divided by Total Assets of the IPO firm at time of listing.
Leverage	Total Debt divided by total assets of the IPO firm at time of listing.
Market-to-book	Market-to-Book value of the IPO firm at time of listing.
Market size	Country-specific total value of stock traded divided by GDP at year of IPO listing.
Market turnover	Country-specific turnover ratio of the year of IPO firm listing.
Media coverage	Log transformation of number of times IPO firm is cited in media up to 30 days prior to listing.
Media coverage_Earnings news	Log transformation of number of times news cited in media up to 30 days prior to listing is earnings related.
Media coverage_IPO news	Log transformation of number of times news cited in media up to 30 days prior to listing is IPO related.
Media coverage_Other news	Log transformation of number of times news cited in media up to 30 days prior to listing is something other than IPO/earnings related.
Media coverage_Full article	Log transformation of number of times there is a full article about the IPO firm in media up to 30 days prior to listing.
Media coverage_Other article	Log transformation of number of times there is an article other than a full article *i.e.* newsflash, hot newsflash, press release and tabular material about the IPO firm in the media up to 30 days prior to listing.
Newspaper users	Country-specific proportion of people subscribing to news papers.

Price revision	Difference between IPO offer price and mid-point of initial filing range, divided by the mid-point of initial filing range.
Profitability	EBIT divided by total assets of the IPO firm at the time of listing.
Proximity to DJ branch	Categorical variable equal to 2 if the IPO firm is headquartered in a metropolitan area with at least one Dow Jones office, equal to 1 if the IPO firm is headquartered in a country with at least one Dow Jones office but in a metropolitan area with no Dow Jones office, and 0 otherwise.
ROA	Net income divided by total assets of IPO firm, measured at the end of the first fiscal years after IPO listing.
Security law	Country-specific Securities Law variable for the year of IPO firm listing, based on LaPorta et al. (2006).
Shareholder right	Country-specific Shareholder Rights Index, based on Djankov et al. (2008) and Spamann (2010).
Underwriter	Dummy variable equal to 1 if the investment bank underwriting the IPO is in top quartile, and 0 otherwise, based on Lin et al. (2013).
VC back	Dummy variable equal to 1 if the IPO firm is backed by venture capital, and 0 otherwise.

FIGURE 1
Media Coverage and IPO First-Day Return: Univariate Analysis

Figure 1 plots average IPO first-day return for deciles by media coverage. Our sample consists of 10,257 IPOs across 38 countries spanning the period 2000 to 2014. We divide the sample into deciles of number of times an IPO firm is cited up to 30 days prior to the listing date, and plot the mean first-day return for each decile. Variable definitions are presented in Appendix A.

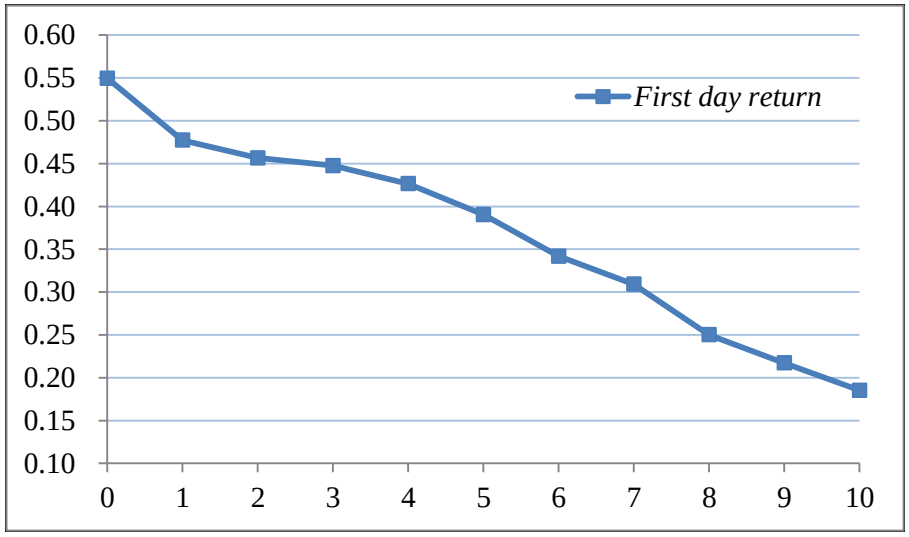

TABLE 1
Sample Distribution and Summary Statistics

Table 1 presents the sample distribution and summary statistics for the variables used in this study. Our sample consists of 10,257 IPOs across 38 countries spanning the period 2000 to 2014. Variable definitions are presented in Appendix A.

Panel A: Country Distribution

Country	No. of IPO	Average First-day Return	Average No. of News Articles
Argentina	10	0.321	12.700
Australia	868	0.322	11.561
Austria	28	0.186	14.714
Belgium	47	0.181	8.936
Brazil	111	0.202	7.919
Canada	578	0.298	13.054
Chile	20	0.240	12.250
China	1,463	0.704	8.648
Denmark	36	0.339	11.250
Finland	17	0.031	17.529
France	314	0.161	13.908
Germany	246	0.111	13.841
Greece	106	0.098	19.406
Hong Kong	452	0.375	10.907
India	460	0.296	12.104
Indonesia	165	0.431	11.739
Ireland	22	0.788	6.409
Italy	131	0.166	9.122
Japan	1,191	0.470	13.219
Malaysia	449	0.283	16.744
Mexico	17	0.323	8.529
Netherland	52	0.328	19.673
New Zealand	38	0.130	13.079
Norway	72	0.283	12.417
Philippines	30	0.425	12.433
Poland	150	0.486	11.687
Portugal	10	-0.089	17.900
Russia	49	0.148	10.673
Singapore	364	0.320	12.665
Spain	39	0.158	12.487
Sweden	70	0.187	15.457
Switzerland	53	0.129	9.962
Taiwan	739	0.186	24.553
Thailand	256	0.252	12.395
Turkey	46	0.025	19.065
South Africa	23	0.487	17.087
South Korea	601	0.407	13.388
U.K.	934	0.397	6.687
Total	10,257	0.389	12.563

Panel B: Year Distribution

Year	No. of IPOs	Average First-day Return	Average No. of News Articles
2000	983	0.248	10.033
2001	584	0.255	12.832
2002	551	0.270	13.662
2003	585	0.349	11.603
2004	1,001	0.352	12.076
2005	993	0.327	11.272
2006	1,154	0.319	11.153
2007	1,332	0.363	12.641
2008	537	0.280	10.434
2009	335	0.610	20.182
2010	657	0.729	12.341
2011	563	0.636	14.036
2012	368	0.520	17.951
2013	349	0.546	16.673
2014	265	0.548	12.804
Total	10,257	0.389	12.563

Panel C: Summary Statistics

	Mean	Std. Dev.	5%	Median	95%
First-day return	0.389	0.557	-0.228	0.217	1.571
Media coverage	1.581	1.319	0.000	1.386	4.220
Firm size	4.590	1.728	1.957	4.438	7.644
Profitability	0.052	0.166	-0.333	0.060	0.298
Leverage	0.109	0.173	0.006	0.031	0.492
Market-to-book	3.591	4.444	0.690	2.350	10.230
Asset turnover	0.798	0.809	0.000	0.594	2.460
Bookbuilding	0.532	0.499	1.000	0.000	0.000
GDP per capita growth	0.043	0.036	-0.002	0.030	0.107
Market size	1.054	0.878	0.221	0.858	2.230
Market turnover	1.084	0.565	0.334	0.940	2.098

TABLE 2

Media Coverage and IPO First-day Return: Baseline Regression Results

Table 2 presents the regression results for the relation between media coverage and IPO first-day return. Our sample consists of 10,257 IPOs across 38 countries spanning the period 2000 to 2014. The regressions are performed by OLS, with *t*-statistics computed using standard errors robust to heteroskedasticity. Constant, industry fixed effects based on Kenneth French's 10-industry classification, year of listing fixed effects, and country of listing fixed effects are included in all the regressions. Variable definitions are presented in Appendix A.

Dependent Variable:	*First-day return* (1)		*First-day return* (2)		*First-day return* (3)	
	Co-eff.	*t*-stat.	Co-eff.	*t*-stat.	Co-eff.	*t*-stat.
Media coverage	-0.038	-10.79	-0.036	-10.36	-0.036	-10.26
Firm size			0.008	2.18	0.008	2.07
Profitability			0.098	2.68	0.104	2.82
Leverage			0.287	7.29	0.297	7.48
Market-to-book			0.002	1.93	0.003	2.05
Asset turnover			-0.022	-2.75	-0.022	-2.80
Bookbuilding			-0.143	-10.71	-0.150	-11.10
GDP per capita growth					-0.354	-0.97
Market size					0.064	4.81
Market turnover					0.032	1.52
Industry FE	Yes		Yes		Yes	
Year FE	Yes		Yes		Yes	
Country FE	Yes		Yes		Yes	
Observations	10,257		10,257		10,257	
Adjusted R^2	0.180		0.196		0.200	

TABLE 3

Media Coverage and IPO First-day Return: Country and Year Regressions

Table 3 presents country-by-country and year-by-year regression results for the relation between media coverage and IPO first-day return. For brevity, the table only reports the coefficient of media coverage. Our sample consists of 10,257 IPOs across 38 countries spanning the period 2000 to 2014. In Panel A, we only include the regression results for countries for which we have at least 50 or more IPOs over the sample period. The regressions are performed by OLS, with *t*-statistics computed using standard errors robust to heteroskedasticity. Control variables and fixed effects are included in all the regressions but not tabulated for brevity. Variable definitions are presented in Appendix A.

Panel A: Country Regressions

Country	Co-eff.	*t*-stat.	Adjusted R^2	Observations
Australia	-0.027	-2.30	0.251	868
Brazil	-0.066	-1.87	0.366	111
Canada	-0.050	-2.62	0.140	578
China	-0.128	-10.01	0.334	1,463
France	-0.053	-3.67	0.244	314
Germany	-0.028	-0.98	0.299	246
Greece	0.000	0.01	0.413	106
Hong Kong	-0.015	-0.74	0.293	452
Indonesia	-0.091	-2.15	0.327	165
India	-0.046	-2.67	0.432	460
Italy	0.006	0.18	0.436	131
Japan	-0.061	-6.12	0.215	1,191
Malaysia	-0.071	-5.51	0.257	449
Netherland	-0.127	-1.81	0.494	52
Norway	0.008	0.22	0.680	72
Poland	-0.114	-3.18	0.473	150
Singapore	-0.044	-2.69	0.277	364
South Korea	-0.069	-4.66	0.230	601
Sweden	-0.067	-1.79	0.353	70
Switzerland	0.108	1.49	0.337	53
Thailand	-0.026	-1.69	0.268	256
Taiwan	-0.011	-1.30	0.213	739
U.K.	-0.026	-1.99	0.282	934

Panel B: Year Regressions

Year	Co-eff.	*t*-stat.	Adjusted R^2	Observations
2000	-0.013	-1.07	0.364	983
2001	-0.027	-2.02	0.278	584
2002	-0.010	-0.79	0.218	551
2003	-0.031	-2.24	0.227	585
2004	-0.041	-3.85	0.240	1,001
2005	-0.018	-1.82	0.301	993
2006	-0.027	-2.82	0.179	1,154
2007	-0.014	-2.50	0.268	1,332
2008	0.005	0.34	0.229	537
2009	-0.121	-4.50	0.389	335
2010	-0.137	-7.98	0.466	657
2011	-0.083	-4.52	0.427	563
2012	-0.063	-2.85	0.379	368
2013	-0.078	-2.39	0.362	349
2014	-0.049	-1.70	0.404	265

TABLE 4
Media Coverage and IPO First-Day Return: Robustness Checks

Table 4 presents the regression results for various robustness checks for the relation between media coverage and IPO first-day return. For brevity, the table only reports the coefficient of media coverage. Our sample consists of up to 10,257 IPOs across 38 countries depending upon the model specification spanning the period 2000 to 2014. The regressions are performed by OLS, with *t*-statistics computed using standard errors robust to heteroskedasticity. Control variables, constant, industry fixed effects based on Kenneth French's 10-industry classification, year of listing fixed effects, and country of listing fixed effects are included in all the regressions but not tabulated for brevity. Variable definitions are presented in Appendix A.

Panel A: Alternative measures of IPO initial return		
(1) IPO return over 1-week after listing		
Dependent variable:	*One-week return*	
Media coverage	Co-eff.	*t*-stat.
	-0.044	-4.14
(2) IPO return over 2 weeks after listing		
Dependent variable:	*Two-week return*	
Media coverage	Co-eff.	*t*-stat.
	-0.043	-3.10
Panel B: Alternative measures of media coverage		
(1) Log number of news articles in 60 days prior to IPO		
Dependent variable:	*First-day return*	
Media coverage	Co-eff.	*t*-stat.
	-0.034	-9.96
(2) Log number of news articles in 90 days prior to IPO		
Dependent variable:	*First-day return*	
Media coverage	Co-eff.	*t*-stat.
	-0.031	-9.42
(3) Decile ranking of number of news articles in 30 days prior to IPO		
Dependent variable:	*First-day return*	
Media coverage	Co-eff.	*t*-stat.
	-0.144	-9.80
Panel C: Additional control variables		
(1) Include additional control variables – IPO float, age, size, cash balance, advertising intensity and hot issue market		
Dependent variable:	*First-day return*	
Media coverage	Co-eff.	*t*-stat.
	-0.046	-11.08
Panel D: Alternative sample specifications		
(1) Exclude IPOs with zero media coverage		
Dependent variable:	*First-day return*	
Media coverage	Co-eff.	*t*-stat.
	-0.078	-20.03

TABLE 5

Media Coverage and IPO First-Day Return: National Media Strikes as Exogenous Shocks

Table 5 presents the regression results using national media strikes as exogenous shocks to media coverage. Our sample consists of 581 IPOs that were listed between 2000 and 2014 in the countries that experienced at least one media strike during this period. *Strike* is a dummy variable equal to one if the IPO has at least one media strike taking place in the same country during the 30-day window prior to the IPO date, and zero otherwise. The regressions are performed by OLS, with *t*-statistics computed using standard errors robust to heteroskedasticity. Constant, industry fixed effects based on Kenneth French's 10-industry classification, year of listing fixed effects, and country of listing fixed effects are included. Variable definitions are presented in Appendix A.

Panel A: Comparison of IPOs with and without media strike

	Strike = 0 (n = 519)	*Strike* = 1 (n = 62)	Difference	*t*-stat.
Mean number of news articles	14.202	9.726	4.476	2.09

Panel B: Regression analysis on the effect of media strikes

Dependent Variable:	*First-day return* (1)	
	Co-eff.	*t*-stat.
Strike	0.160	2.18
Firm size	-0.047	-3.32
Profitability	0.178	1.47
Leverage	0.569	3.10
Market-to-book	-0.003	-0.74
Asset turnover	-0.046	-1.98
Bookbuilding	0.037	0.76
GDP per capita growth	6.148	1.79
Market size	-0.507	-2.49
Market turnover	0.228	1.70
Industry FE	Yes	
Year FE	Yes	
Country FE	Yes	
Observations	581	
Adjusted R^2	0.199	

TABLE 6

Media Coverage and IPO First-Day Return: Instrumental Variable Estimation

Table 6 presents the results for the instrumental variable estimation, with *t*-statistics computed using standard errors robust to heteroskedasticity. Our sample consists of 10,257 IPOs across 38 countries spanning the period 2000 to 2014. Constant, industry fixed effects based on Kenneth French's 10-industry classification, year of listing fixed effects, and country of listing fixed effects are included in all the regressions. Variable definitions are presented in Appendix A.

Dependent Variable:	*Media coverage* (1)		*First-day return* (2)	
	Co-eff.	*t*-stat.	Co-eff.	*t*-stat.
Proximity to DJ branch	0.029	2.71		
Media coverage			-0.406	-3.61
Firm size	0.038	4.10	-0.065	2.12
Profitability	-0.095	-2.04	0.146	1.75
Leverage	0.008	0.10	0.293	5.13
Market-to-book	-0.002	-0.62	0.003	1.56
Asset turnover	0.029	1.46	-0.035	-1.56
Bookbuilding	0.127	3.82	-0.206	-2.36
GDP per capita growth	2.866	3.08	-1.621	-0.81
Market size	-0.064	-1.97	0.093	1.96
Market turnover	0.061	1.36	0.005	0.09
Industry FE	Yes		Yes	
Year FE	Yes		Yes	
Country FE	Yes		Yes	
Observations	10,257		10,257	
Adjusted R^2	0.182		-	

TABLE 7

Media Coverage and IPO First-Day Return: The Moderating Effect of Country-Level Institutions

Table 7 presents the regression results for the effects of country-level institutions on the relation between media coverage and IPO first-day return. Our sample consists of up to 10,257 IPOs across 38 countries depending upon the model specification spanning the period 2000 to 2014. The regressions are performed by OLS, with *t*-statistics computed using standard errors robust to heteroskedasticity. Constant, industry fixed effects based on Kenneth French's 10-industry classification and year of listing fixed effects are included in all the regressions. Variable definitions are presented in Appendix A.

Dependent Variable:	*First-day return* (1)		*First-day return* (2)		*First-day return* (3)		*First-day return* (4)		*First-day return* (5)	
	Co-eff.	*t*-stat.	Co-eff.	*t*-stat.	Co-eff.	*t*-stat.	Co-eff.	*t*-stat.	Co-eff.	*t*-stat.
Media coverage	-0.897	-0.49	-0.056	-7.62	-0.115	-9.10	-0.125	-4.81	-0.002	-0.36
*Media coverage*Earning opacity*	-0.264	-8.10								
Earnings opacity	0.123	6.28								
*Media coverage*Accounting Conservatism*			0.143	5.22						
Accounting Conservatism			0.446	0.36						
*Media coverage*Shareholder right*					0.021	6.63				
Shareholder right					-0.075	-2.00				
*Media coverage*Security law*							0.479	3.41		
Security law							0.683	0.78		
*Media coverage*Civil law*									-0.056	-7.89
Civil law									0.200	1.79
Firm size	0.008	2.23	0.002	0.48	0.007	1.98	0.006	1.57	0.007	1.79
Profitability	0.105	2.82	0.111	2.93	0.105	2.85	0.127	3.24	0.104	2.83
Leverage	0.289	7.15	0.367	8.50	0.296	7.48	0.337	7.44	0.296	7.47
Market-to-book	0.003	2.06	0.003	2.56	0.003	2.15	0.002	1.86	0.003	2.21
Asset turnover	-0.018	-2.28	-0.004	-0.51	-0.022	-2.79	-0.017	-2.00	-0.023	-2.92
Bookbuilding	-0.146	-10.66	-0.079	-5.49	-0.143	-10.63	-0.166	-11.12	-0.144	-10.65
GDP per capita growth	-0.493	-1.34	-0.039	-0.10	-0.361	-0.99	-1.349	-3.36	-0.303	-0.83
Market size	0.069	5.12	0.050	3.67	0.059	4.40	0.074	5.32	0.059	4.44
Market turnover	0.031	1.46	0.023	1.03	0.042	2.03	0.025	1.11	0.039	1.89
Industry FE	Yes		Yes		Yes		Yes		Yes	
Year FE	Yes		Yes		Yes		Yes		Yes	
Country FE	No		No		No		No		No	
Observations	10,038		8,595		10,257		10,257		10,257	
Adjusted R^2	0.210		0.126		0.204		0.210		0.204	

TABLE 8
Media Coverage and IPO First-Day Return: The Moderating Effect of Country-Level Media Penetration

Table 8 presents the regression results for the effects of country-level media penetration on the relation between media coverage and IPO first-day return. Our sample consists of up to 10,257 IPOs across 38 countries depending upon the model specification spanning the period 2000 to 2014. The regressions are performed by OLS, with *t*-statistics computed using standard errors robust to heteroskedasticity. Constant, industry fixed effects based on Kenneth French's 10-industry classification and year of listing fixed effects are included in all the regressions. Variable definitions are presented in Appendix A.

Dependent Variable:	*First-day return* (1)		*First-day return* (2)	
	Co-eff.	*t*-stat.	Co-eff.	*t*-stat.
Media coverage	-0.029	-3.82	-0.037	-4.11
*Media coverage*Newspaper users*	-0.056	-2.38		
Newspaper user	0.031	0.48		
*Media coverage*Internet users*			-0.025	-2.25
Internet user			0.044	0.88
Firm size	0.021	5.70	0.013	3.51
Profitability	0.114	3.10	0.100	2.61
Leverage	0.315	7.88	0.309	7.52
Market-to-book	0.003	2.76	0.004	2.90
Asset turnover	-0.015	-1.90	-0.016	-1.82
Bookbuilding	-0.065	-5.46	-0.081	-6.49
GDP per capita growth	1.253	6.88	2.663	10.34
Market size	0.021	2.89	0.006	0.77
Market turnover	0.087	6.85	0.102	7.87
Industry FE	Yes		Yes	
Year FE	Yes		Yes	
Country FE	No		No	
Observations	10,257		9,518	
Adjusted R^2	0.2302		0.2778	

TABLE 9

Media Coverage and IPO First-Day Return: The Moderating Effect of IPO Certification

Table 9 presents the regression results for the effect of IPO certification on the relation between media coverage and IPO first-day return. Our sample consists of 9,288 IPOs for which we have data on certification characteristics across 38 countries spanning the period 2000 to 2014. The regressions are performed by OLS, with *t*-statistics computed using standard errors robust to heteroskedasticity. Constant, industry fixed effects based on Kenneth French's 10-industry classification, year of listing fixed effects, and country of listing fixed effects are included in all the regressions. Variable definitions are presented in Appendix A.

Dependent Variable:	*First-day return* (1)		*First-day return* (2)		*First-day return* (3)	
	Co-eff.	*t*-stat.	Co-eff.	*t*-stat.	Co-eff.	*t*-stat.
Media coverage	-0.042	-9.75	-0.044	-9.73	-0.039	-9.06
*Media coverage*VC back*	0.036	4.28				
VC back	-0.059	-2.81				
*Media coverage*Big 4 auditor*			0.095	2.17		
Big 4 auditor			-0.074	-3.66		
*Media coverage*Underwriter*					0.061	3.70
Underwriter					-0.021	-1.02
Firm size	0.006	1.46	0.007	1.76	0.006	1.62
Profitability	0.096	2.44	0.097	2.47	0.098	2.48
Leverage	0.295	7.29	0.298	7.39	0.303	7.50
Market-to-book	0.003	2.08	0.003	1.95	0.003	2.09
Asset turnover	-0.030	-3.57	-0.030	-3.63	-0.030	-3.56
Bookbuilding	-0.150	-10.67	-0.147	-10.45	-0.151	-10.77
GDP per capita growth	-0.501	-1.30	-0.439	-1.14	-0.505	-1.32
Market size	0.062	4.56	0.061	4.48	0.064	4.67
Market turnover	0.021	0.94	0.024	1.07	0.022	1.01
Industry FE	Yes		Yes		Yes	
Year FE	Yes		Yes		Yes	
Country FE	Yes		Yes		Yes	
Observations	9,288		9,288		9,288	
Adjusted R^2	0.202		0.203		0.201	

TABLE 10
Media Coverage, Price Revision, and Partial Adjustment to Information

Table 10 presents the regression results for the effect of media coverage on the relation between price revision and IPO first-day return. Our sample consists of 3,389 IPOs that were priced using the bookbuilding approach for which we have price revision data available across 38 countries spanning the period 2000 to 2014. The regressions are performed by OLS, with *t*-statistics computed using standard errors robust to heteroskedasticity. Constant, industry fixed effects based on Kenneth French's 10-industry classification, year of listing fixed effects, and country of listing fixed effects are included in all the regressions. Variable definitions are presented in Appendix A.

Dependent Variable:	*First-day return* (1)		*First-day return* (2)		*First-day return* (3)	
	Co-eff.	*t*-stat.	Co-eff.	*t*-stat.	Co-eff.	*t*-stat.
Media coverage 30 days	-0.060	-8.82				
*Media coverage 30 days*Price revision*	-0.122	-1.85				
Media coverage 60 days			-0.060	-8.81		
*Media coverage 60 days*Price revision*			-0.126	-1.93		
Media coverage 90 days					-0.058	-8.57
*Media coverage 90 days*Price revision*					-0.138	-2.16
Price revision	0.489	2.84	0.512	2.86	0.537	2.99
Firm size	-0.009	-1.48	-0.009	-1.47	-0.009	-1.46
Profitability	0.054	0.75	0.054	0.75	0.051	0.71
Leverage	0.229	4.10	0.226	4.04	0.227	4.07
Market-to-book	0.004	1.72	0.004	1.72	0.004	1.75
Asset turnover	-0.020	-1.44	-0.021	-1.47	-0.020	-1.45
GDP per capita growth	-0.553	-0.84	-0.570	-0.86	-0.567	-0.85
Market size	0.018	0.68	0.018	0.69	0.018	0.70
Market turnover	0.073	1.51	0.072	1.50	0.073	1.52
Industry FE	Yes		Yes		Yes	
Year FE	Yes		Yes		Yes	
Country FE	Yes		Yes		Yes	
Observations	3,389		3,389		3,389	
Adjusted R^2	0.229		0.228		0.226	

TABLE 11

Media Coverage and IPO First-Day Return: News Content and the Type of Article

Table 11 presents the regression results for the effects of news content and article type on the relation between media coverage and IPO first-day return. Our sample consists of 10,257 IPOs from 38 countries spanning the period 2000 to 2014. The regressions are performed by OLS, with *t*-statistics computed using standard errors robust to heteroskedasticity. The results are presented in two columns. In column (1), we split the media coverage in the last 30 days prior to listing based on the nature of news into three different categories – if the news is related to forthcoming IPO, earnings of the IPO firm, or anything else related to the firm. In column (2), we split the media coverage in the last 30 days prior to listing into two different types of news items - full articles and other articles. Other articles include newsflash, hot newsflash, press release and tabular material. Constant, industry fixed effects, year fixed effects, and country fixed effects, are included in all the regressions. Variable definitions are presented in Appendix A.

Dependent Variable:	*First-day return* (1)		*First-day return* (2)	
	Co-eff.	*t*-stat.	Co-eff.	*t*-stat.
Media coverage_Earnings news	-0.034	-6.99		
Media coverage_IPO news	-0.024	-4.30		
Media coverage_Other news	-0.013	-2.69		
Media coverage_Full article			-0.035	-6.67
Media coverage_Other article			-0.011	-2.16
Firm size	0.006	1.73	0.007	1.81
Profitability	0.103	2.79	0.1043	2.82
Leverage	0.297	7.51	0.296	7.48
Market-to-book	0.003	2.12	0.003	2.10
Asset turnover	-0.022	-2.73	-0.022	-2.78
Bookbuilding	-0.148	-11.04	-0.150	-11.18
GDP per capita growth	-0.390	-1.07	-0.365	-1.00
Market size	0.064	4.82	0.065	4.91
Market turnover	0.032	1.54	0.032	1.54
Industry FE	Yes		Yes	
Year FE	Yes		Yes	
Country FE	Yes		Yes	
Observations	10,257		10,257	
Adjusted R^2	0.205		0.202	