Multiple Lead Underwriter IPOs and Firm Visibility

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Abstract

One of the main goals of a firm going public is to create a greater visibility to investors in general. Using a sample of 809 IPOs from 2001-2010, we empirically examine and find that multiple lead underwriters (MLUs) have greater visibility through our five pre- and post-IPO visibility measures. This also holds after accounting for potential endogeneity. In addition, MLU-IPOs do not have more underpricing. Our results suggest that issuers with MLUs can increase firms' familiarity to the investment community and expand investor base, and this increased firm visibility is not a trade-off for a greater level of underpricing.

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1. Introduction

Investors trade only in securities with which they are familiar; otherwise they are mean-variance maximizers (Merton (1987)). This suggests that, in equilibrium, a highly visible firm is better positioned to reap the benefits of capital markets. One of the main goals of a firm going public is to have better access to capital through the creation of greater visibility to investors in general.[1] In this paper, we argue and provide empirical evidence that firms choosing to go public with multiple lead underwriters (MLUs) may attain greater firm visibility.

It was extremely rare for IPOs to be led by more than one lead underwriter prior to 2000. The repeal of the Glass-Steagall Act ushered in commercial banks (CBs) in a market traditionally dominated by investment banks (IBs). Concurrently, there has also been a power shift from IBs to issuers after the bursting of the technology bubble and the ensuing bearish IPO market. This increased competition and greater bargaining power of the issuer have brought in a fundamental change in the underwriting business. How the IPO firms use this newly found bargaining power can shed light on various pre- and post-IPO activities in the financial markets. Hu and Ritter (2007) argue that an issuer benefits from this greater bargaining power primarily through negotiating a better offer price, resulting in lower underpricing. We posit that this bargaining works on several dimensions, but can be captured through IPO firm's overall visibility.

Mehran and Peristiani (2010) find that firm visibility is a critical factor for young IPO firms to stay public, as failure to gain sufficient visibility accelerates the firms' public-to-private decision. Brau and Fawcett (2006) examine various motives for going public via a survey of CFOs (chief financial officers); the majority of these motives are either directly or indirectly related to enhanced visibility. Similarly, based on a survey of CFOs from 12 European countries, Bancel and Mittoo (2008) find that greater visibility is the most important motive for going public. Griffin, Harris and Topaloglu (2007) report that secondary market purchases of IPO-firm-shares by institutional clients of the lead underwriter (bookrunner) significantly exceed their sales of IPO-firm-shares.[2] Moreover, this pattern of net buying by bookrunner's clients is strikingly opposite to small net selling by clients of other syndicate members. This fact points to the possibility that the presence of MLUs may create a larger investor base. Given that lead

[1] Section 2.1 has more detailed discussion on the motives to go public.

[2] In this paper we use the two terms lead underwriter and bookrunner interchangeably.

underwriters usually do more extensive work with a greater effort level and commitment, adding an additional lead underwriter would be more effective for the issuer to achieve their intended goals in IPOs than adding an additional co-manager.

Achieving greater visibility is certainly not the only objective that an issuer—seeking MLUs—may have during the time of the IPO. A firm may decide to retain an underwriter as a co-lead underwriter due to past lending relationships and future borrowing needs (see Corwin and Schultz (2005) and Hu and Ritter (2007)). Or, MLUs may be needed simply because of the size of the offer. Issuers of relatively smaller IPOs may not have much choice but to go with a single lead underwriter, for it may be the only one that is willing to underwrite their IPOs (see Krigman, Shaw and Womack (2001)). But for larger IPOs, issuing firms can choose from a number of potential bookrunners. The main driving forces for MLU IPOs during this last decade are also often attributed to lower deal volume, excess underwriting capacity due to competition, and issuers' willingness to trade-off (for example, trade-off of all-star analyst coverage for a higher offer price), among other factors (see, e.g., Hu and Ritter (2007) and Tunick (2004)). Thus, whether MLU IPOs lead to higher firm visibility is an empirical question.

Anecdotal evidence also supports the idea that multiple bookrunners help IPOs to attain enhanced visibility. For instance, IPO firms backed by private equity or venture capitals—with greater negotiating power (i.e., with strong principals and repeat players)—can assure greater visibility. Tom Fox, then co-head of U.S. equity capital markets at UBS AG states in the *Wall Street Journal* that private-equity firms who want to ensure adequate research coverage can do so by using multiple lead managers.[3] It should also be noted that this greater bargaining power does not need to stem from repeat players, but can simply be the outcome of multiple bookrunners' presence. Greg Stanger, erstwhile CFO of Expedia Inc, is quoted in the *Wall Street Journal* stating that—typically, an investment "bank will work hard to win a piece of business then, once they've been hired, they sometimes feel demonstrating their ability isn't as crucial", but in multiple bookrunner IPOs, investment banks "really competed continually to deliver value."[4]

Our notion of IPO's overall visibility is motivated by the prior literature.[5] First, an underwriter's ability to promote the IPO, particularly to the individual 'sentiment' investors, is desirable to the issuer and institutional investors (see, e.g., Ljungqvist, Nanda and Singh (2006)). To capture this, we study the *pre-IPO visibility* by examining the media coverage of the IPO firm. Second, analyst coverage is a valuable

[3] Smith, Randall, "Year-End Review of Markets & Finance 2005; Underwriting Volume Sustains Record Pace; More Private-Equity Deals, Global Spending Lift Fees, But U.S. Issuance Falls 13%," *Wall Street Journal*, January 3, 2006, p. R.10.

[4] McGee, Suzanne "Deals & Deal Makers: As 'Joint Bookrunning' Grows, The Complications Rise as Well," *Wall Street Journal*, April 13, 2000.

[5] We discuss the relevant literature in greater detail in section 2.

service to the issuer as it enhances the firm's *post-IPO visibility*; the issuer expects this from the underwriter either in the form of star analyst coverage, simply greater coverage overall, or both. Pursuing star analyst coverage may cede significant bargaining power to the underwriter (Loughran and Ritter (2004)), yet an issuer may secure greater analyst coverage with MLUs. Hence, we examine the relative level of analyst coverage provided by lead underwriter(s) to the IPO firm during the one-year post-IPO period.

Third, the underwriter's main selling effort is geared towards institutional investors. An IPO firm would want these institutions to keep invested in the firm and increase their ownerships over time. Fourth, higher stock turnover of a firm can be attributed to greater investor interest and thus to greater firm visibility. So we use the proportion of institutional ownership and stock turnover as proxies for *post-IPO market visibility*, resulting symptoms of enhanced firm visibility (see Mehran and Peristriani (2010)). Finally, in the absence of adequate market visibility, a firm cannot justify the cost of being public and consequently can be acquired by another firm, go bankrupt, be liquidated, or be taken private (Mehran and Peristiani (2010), Bharath and Dittmar (2010), and Aslan and Kumar (2011)). So we examine the delisting of IPO firms during our sample period and the reasons for delisting in relation to multiple lead–underwriter-led IPOs (MLU-IPOs).

We use a sample of 809 IPOs from 2001-2010 for this empirical study. First, we examine the determinants that lead issuers to hire more than one lead underwriter, and find that the main determinant is the IPO size, as proxied by IPO offer size and firm total assets. We also find that the presence of the big four auditors is directly and significantly related with MLU-led IPOs, but the number of co-managers is inversely related. Next, we examine the consequences of a firm taken public by MLUs. We find that MLU-IPOs have greater pre-IPO media visibility. MLU-IPOs, compared to single lead underwriter-led IPOs (SLU-IPOs), are able to attain a relatively greater proportion of analyst coverage from both stock analysts and all-star analysts employed by lead-underwriters. During the one year post-IPO period, a relatively greater proportion of MLU-IPO firms' shares, compared to that of SLU-IPO firms', are owned by institutional investors. Also, the MLU-IPO firms' shares have a greater average daily turnover measured over different windows during the six-month post-IPO period. Finally, we find that MLU-IPO firms have much lower odds of being taken over compared to their SLU-IPO counterparts, after controlling for other variables. These results as a whole indicate that firms that go public with multiple lead underwriters can achieve greater visibility by increasing their familiarity to the investment community and through expanding their investor base.

A firm opting for MLUs for its IPO is potentially an endogenous choice. So, to account for possible endogeneity bias and to estimate the average treatment effect for the treated (ATT), we employ two

different matching methodologies—propensity score matching (PSM) and Abadie and Imbens matching (AIM). These matching methodologies are discussed at length in section 4.7. The results from these estimated ATT are essentially the same as our regression based results.

Next we examine whether the increased firm visibility comes at a cost, particularly at a greater level of underpricing. Our results appear to show no such trade-offs. MLU-IPOs exhibit significantly lower underpricing in just one of the matching methods but show consistently negative relationship. However, we find that MLU-IPOs have significantly lower offer price revisions using both regressions and matching methods. This indicates two possibilities: either the IPO syndicate's institutional clients convey negative information about an IPO's prospects (as modeled by Benveniste and Spindt (1989)) or the issuer negotiates a higher filing price range. The former possibility is unlikely on a systematic basis. So we interpret this result as issuers using MLUs not only achieve greater firm visibility but also negotiate a better IPO price. We also observe significantly lower underpricing for MLU-IPOs that receive star analyst coverage from their lead underwriters. This runs counter to the trade-off argument posited by Hu and Ritter (2007).

This paper makes several contributions to the current literature. First, we develop a framework to gauge a firm's overall visibility surrounding its public offering. Second, we attempt to portray a broader picture of the issuer's bargaining power with the lead underwriter(s) by examining firm visibility. Lastly, we explore the effect of achieving visibility through MLUs on IPO underpricing. We find that, using the newly found bargaining power, MLU IPOs achieve greater visibility even without the expense of higher underpricing.

The rest of the paper is organized as follows. Section 2 reviews related literature and develops hypotheses and their implications. Section 3 describes the sample and data. Section 4 provides empirical results. Section 5 summarizes our findings and concludes.

2. Prior literature and hypotheses

2.1. Why firms go public: the importance of visibility

Theories and empirical research have generated several strands of interrelated literature identifying motivations for firms to go public, many of which are associated with a desire for increased firm visibility. First, the literature on capital structure argues that the firm goes public in order to lower the cost of capital through a better mix of debt and equity, or, equivalently, to maximize the value of the firm (e.g., Modigliani and Miller (1963), Scott (1976), and Holmstrom and Tirole (1993)). According to the pecking order theory, firm goes public to finance as a last resort after internal and debt financing are

exhausted (Myers and Majluf (1984)). Typically, firms do so to finance their growth (Mikkelson, Partch, and Shah (1997), Ritter and Welch (2002) and Kim and Weisbach (2008)). But, the visibility obtained from becoming public is often a prerequisite for further capital appropriation (Pickens (1987) and Barath and Dittmar (2010)). On the flip side, Mehran and Peristiani (2010) find that one of the primary reasons firms go private is precisely because they are not able to achieve the visibility necessary to obtain debt and attract investor interest after going public.

Second, firms go public as a way for insiders or venture capitals (VCs) to cash out (Zingales (1995), Black and Gilson (1998), and Mello and Parsons (1998)). The increased visibility of the firm to additional investors by going public naturally creates the higher liquidity necessary for insiders and VCs to sell their shares. IPOs also facilitate M&As (Zingales (1005), Brau, Francis, and Kohers (2003), and Celikyurt, Sevilir, and Shivdasani (2010)), which received the strongest support in the CFO survey in Brau and Fawcett (2006). Brau and Fawcett's analysis indicates that IPOs fuel both stock and cash acquisitions. Vijh and Yang (2009) and Brisker, Colak, and Peterson (2013) suggest that added visibility provides certain advantages in M&A.

Third, firms go public to take advantage of windows of opportunity in the markets (Ritter (1991), Ritter (2003), and Kim and Weisbach (2008)). Under this hypothesis, IPOs are timed to exploit favorable market conditions for overpriced share prices. Brau, Ryan, and Degraw (2005) conduct a survey finding that the two primary reasons CFOs cite for going public are the desire to increase the visibility of the firm, and market timing. While this does not suggest that one causes the other, it directly links visibility and market timing for IPOs, suggesting an important synergistic relationship.

Other explanations for why firms initiate an IPO include enhancing bargaining power with banks (Pagano, Panetta, and Zingales (1998), ownership dispersion (Chemmanur and Fulghieri (1999)), establishing a market price (Zingales (1995) and Brau and Fawcett (2006)), and getting analyst coverage (Bradley, Jordan, and Ritter (2003)). All of these additional motivations are directly or indirectly linked to firm visibility. Thus, visible firms would have a lower cost of capital, provide more opportunities to cash out for insiders and VCs, create more currency for acquisitions, better take advantage of market conditions, enjoy a better bargaining position with banks, and attract a stronger analyst following. To wit, firm visibility in almost all explanations positively affects the motivations for going public.

2.2. Multiple lead underwriters and IPO visibility

There is a dearth of studies on causes and consequences of choosing multiple bookrunners. The most relevant study to date is Hu and Ritter (2007), which argues using a bargaining model that the primary benefit of MLUs to an issuer is lower underpricing. But it does not address the question of firm visibility.

Corwin and Schultz (2005) find that having more co-managers in underwriting syndicates results in greater subsequent analyst coverage and more market makers, suggesting greater firm visibility. However, co-managers are included in the syndicate for precisely that reason. Ljungqvist, Marston and Wilhelm (2009) find that investment banks that enhance firm visibility through analyst coverage are more likely to ascend underwriter hierarchy in future underwriting mandates.

2.3. Pre-IPO visibility

With limited research capability, time, and cost constraints, investors frequently limit their search to a certain number of stocks and tend to buy stocks with more publicity or media coverage (Barber and Odean (2008)). Both institutional and retail investors' decision to purchase IPO shares are significantly influenced by the opinion they form during the '25-minute' roadshow presentation (Kuhn (1990)), and firms spend a fortune on pre-IPO publicity and marketing activities to create demand. Theoretical models of Derrien (2005) and Ljungqvist et al. (2006) show that the presence of sentiment investors benefits issuers, and Cook, Kieschnick and Van Ness (2006) empirically validate this. Media coverage such as news during the pre-offer period is quite an effective tool to enhance firm visibility of an IPO. Baker, Nofsinger and Weaver (2002) and Cook et al. (2006) use the firm's news coverage as one of the measures for visibility. From the interviews with investor relations (IR) professionals, Bushee and Miller (2011) find that most of the interviewees consider media coverage an effective tool to build firm visibility, and that the coverage also helps attract more analyst coverage in the aftermarket. Bhattacharya, Galpin, Ray and Yu (2009) show that media coverage is more effective in primary markets than in secondary markets, which implies that the reliance on media coverage in the pre-IPO period is much greater for investors. So, given that the lead underwriter typically has a greater effort level and higher media influence, MLU-IPOs may have greater media coverage in the pre-IPO market, all else equal.

2.4. Post-IPO visibility

One of the most frequently cited factors essential for underwriter choice is analyst coverage (e.g., see Chen and Ritter (2000) and Krigman et al. (2001)), particularly influential 'all-star' analysts. Although the importance of all-star analysts has varied over time (see Loughran and Ritter (2004)), greater analyst coverage can increase the investor base. Empirical evidence shows that analysts from investment banks in a syndicate tend to issue more optimistic recommendations (e.g., see Lin and McNichols (1998) and Michaely and Womack (1999)), and such overoptimistic recommendations, working as 'booster shots,' drive prices higher than their intrinsic values (e.g., see Womack (1996) and Bradley et al. (2003)). Baker et al. (2002) use analyst coverage as one of their measures for visibility. Enhanced visibility through analyst coverage will therefore result in better investor recognition with improved valuation of the firm,

benefiting the issuer. Hu and Ritter (2007) argue that, using the increased bargaining power, the issuer chooses MLUs for better analyst coverage because the lead underwriters are typically the most active providers of recommendations. Since the post-internet bubble period, it has become much harder to get analyst coverage because many research departments have been downsized or eliminated (Mehran and Peristiani (2010)); therefore, analyst coverage is now a more valuable underwriter service the issuer struggles to obtain.

Institutional investors prefer larger firms (Gompers and Metrick (2001) and Ferreira and Matos (2008)) that have a significant analyst coverage (Falkenstein (1996)) and are listed in established exchanges (Del Guercio (1996)), which would inherently be more visible to investors. Consequently, prior literature often uses institutional investment as a proxy for firm visibility (e.g., Gompers and Metrick, (2001), Chen, Hong, and Stein (2002), Frieder and Subrahmanyam (2005), Mehran and Peristiani (2010)). So, MLU-IPOs are likely to have higher levels of institutional investment, which represents a higher firm visibility.

Mehran and Peristiani (2010) use stock turnover as a proxy for firm visibility. They argue that the turnover reasonably represents investor attention and information density. The similar use and interpretation of share turnover is also found in Hou, Peng, and Xiong (2008) and Loh (2010). High stock turnover usually corresponds to high liquidity and Amihud and Mendelson (1986) note that enhanced liquidity leads to the increase in firm value. So we expect a positive association between stock turnover and MLU IPOs, in favor of enhanced firm visibility.

As visibility is a key ingredient for staying public, many IPO firms opt to go private when they fail to attain adequate visibility (Mehran and Peristiani (2010)). Bharath and Dittmar (2010) find that going private is more likely for firms with lower analyst coverage and institutional ownership, implying insufficient visibility. Although a significant number of young firms go through the IPO process only to be acquired, a firm that is a true beneficiary of the public market has a lower likelihood of being taken over and a higher likelihood of being an acquirer (Hovakimian and Hutton (2010)). So, MLU-IPOs, having better visibility, are less likely to depart from the public market.

2.5. IPO offer price revision and underpricing

Lead underwriters, in the face of competition, would need to suggest a higher file price range and higher offer price. Consequently, the expected profit of each MLU is always lower than that of an SLU, unless the gross spread is sufficiently high to recuperate a lost portion of profit from underpricing due to a relatively higher offer price in the MLU IPO.[6] So only when the issue size is large enough can each

[6] MLU IPOs have a lower average percentage gross spread in our sample: 6.94% for SLUs and 6.60% for MLUs.

bookrunner of an MLU-IPO be appropriately compensated. This suggests that an MLU-IPO is typically large, and both the file price range and the offer price of an MLU-IPO will be closer to the first-day closing market price. Hu and Ritter (2007) make the same argument, but add that there is also a trade-off. They argue that if the issuer covets all-star analyst coverage (note that it is one of the proxies of firm visibility), it may choose a single bookrunner and accept higher underpricing. But we argue that, due to structural changes of the underwriting business, issuers of MLU-IPOs can attain both a better offer price (vis-à-vis underpricing) and higher firm visibility. We believe that firm visibility is a bigger concern for the issuer in the IPO than a better offer price because the issuer would benefit much more from enhanced visibility than the marginal capital that they can raise from a higher offer price than they would have raised with a SLU. Therefore, we do not expect a tradeoff.

2.6 Hypotheses

The lead underwriter or bookrunner is the main architect of an IPO and is responsible for a range of underwriting activities, such as performing due diligence, marketing of the issue, pricing, price stabilization, market making, and analyst research coverage of the stock. For this service, the lead underwriter receives a large percentage of gross spread revenues (see Chen and Ritter (2000)). Therefore, investment banks prefer being a single bookrunner to being a joint bookrunner. The revenue earned by each lead underwriter in an MLU-IPO will only be indistinguishable compared to that of an SLU-IPO if MLU-IPOs are sufficiently large—only then will investment bankers be indifferent between being a single and a joint bookrunner. We call this the *size hypothesis*. Under this hypothesis, issuers employ multiple bookrunners because of the size of their IPOs,[7] and after controlling for size and other potential determinants of MLU-IPO, we will find no relation between firm visibility and MLU-IPOs.

When going public, an issuing firm typically runs a 'beauty contest' to choose a lead underwriter and several co-managers. The issuer looks to the abilities of prospective underwriters to certify, promote, place, and support the offering. So, underwriter prestige and analyst reputation become important criteria in selecting the bookrunner. Moreover, historically, underwriters never competed on the basis of gross spread revenues (Ritter (2011)). These two facts render significant bargaining power to highly reputed investment banks. However, after 2000, as discussed above in section 1, the playing field has changed significantly, as there is a power shift from IBs to issuers. With an increased competition for underwriting business, issuers can bargain with the IBs. Hu and Ritter (2007) argue that an issuer benefits from this greater bargaining power primarily through negotiating better offer price, resulting in lower underpricing, in return for giving up all-star analyst coverage by SLUs. We call this the *trade-off hypothesis* in which

[7] Tunick (2004) notes that there is generally enough work to which more than one lead underwriter can add value, which is widely accepted by many investment banks.

we can expect a negative association between firm visibility and MLU IPOs. On the other hand, we posit that this bargaining works on several dimensions, but can be captured through IPO firm's overall visibility. This is the *firm visibility hypothesis*. We postulate that the issuer's bargaining power is strong enough to achieve multiple aspects of their goals in the IPO including firm visibility and a higher offer price. Under this hypothesis, increased firm visibility is not achieved at a cost of greater level of underpricing, suggesting a positive association between firm visibility and MLU IPOs.

3. Sample and data

We first obtain U.S. IPOs reported in Thomson Financial Securities Data Company (SDC) Platinum Global New Issues between January 2001 and December 2010. We choose this period because MLU IPOs became clearly visible after 2001. Before our sample period, multiple bookrunning was almost nonexistent.[8] Out of 3,060 IPOs during this sample period, we exclude non-U.S. firms, financial and utilities firms, closed-end funds/trusts, unit offers, and IPOs with an offer price below $5 per share. This renders our final sample of 809 IPOs.[9]

SDC has six underwriter role classifications: bookrunner, joint bookrunner, joint lead manager, co-manager, syndicate member, and global coordinator. We group bookrunner and joint bookrunner as 'lead underwriter' and joint lead manager and co-manager as 'co-manager.'

We collect news data from LexisNexis News Search database to construct four proxies for pre-IPO visibility, following Cook et al. (2006). Analyst coverage and all-star analyst data come from the I/B/E/S Recommendations–Detail database and *Institutional Investor* October issues, respectively. All-star (top 3) analyst variables are constructed, following Drucker and Puri (2005), based on the I/B/E/S S/I/G codes to determine industries to which each top three analyst belongs. To maintain equality across industries we use first team through third team only, excluding runners-up, since a substantial number of industries do not have the runners-up category. Stock prices and financial statement items are obtained from the Center for Research and Securities Prices (CRSP) and Compustat. We obtain the data on institutional ownership from Thomson Reuters Institutional Holdings (13f) database. We use underwriter reputation ranks from Jay R. Ritter's web-page.[10] Tech IPO dummies are constructed based on the SIC codes in Loughran and

[8] See http://bear.warrington.ufl.edu/ritter/IPOs2012Statistics.pdf for the earlier multiple bookrunning trend.

[9] For 17 IPOs the filing dates on SDC are missing and for 4 IPOs we have negative days in registration, which literally means that an offer date is earlier than a filing date. We manually check our entire sample for correct filing dates using LIVEEDGAR or EDGAR Company Search. When no information is available on the EDGAR, we resort to LexisNexis News search (we search for "files for registration").

[10] Jay Ritter's website at the University of Florida, which contains data on underwriter reputation ranks, is as follows: http://bear.warrington.ufl.edu/ritter/

Ritter (2004). Constructions and data sources of all firm visibility variables and control variables that have a strong theoretical and empirical justification in the literature are described in Appendix Table A.1.

Table 1 presents a yearly breakdown of the number of lead underwriters during the period from 2001 to 2010. Panel A of Table 1 shows the number and percentage of lead underwriters per year, categorized from one to five, with a separate category for IPOs with more than five lead underwriters. The results show a clear and steady decline in the percentage of IPOs with only one lead underwriter. In 2001, 85.7% of IPOs used only one lead underwriter, while in 2010 that percentage had dropped to only 15.9% of IPOs using only one lead underwriter. In addition, there has been a trend toward a higher number of multiple lead underwriters per IPO. While the percentage of MLUs with two lead underwriters increased to around 40% by 2005 and has remained steady since that time, the percentage of IPOs with three or more lead underwriters has steadily increased. Also, it is apparent how dependent the IPO market is on the state of the economy. The six weak economic years of 2001-2003 and 2008-2010 totaled only 285 underwriters, while the four relatively strong years of 2004-2007 totaled 524 underwriters.

[Insert Table 1 here]

Panel B of Table 1 compares the number of lead underwriters per year with the gross proceeds collected from the IPO. When averaged over the entire ten-year period, the average gross proceeds increases steadily as the number of lead underwriters increases, with an average of $102.33 million for one lead underwriter IPOs, and an average of $524.24 million and $4,033.90 million for five and (five+) lead underwriter IPOs, respectively. And this is not particular to averaging, as each year except 2009 shows a steady increase in gross proceeds as the number of lead underwriters increases.

Overall, Table 1 shows that the trend toward multiple lead underwriters has increased steadily during the period from 2001-2010. In addition, while the average gross proceeds per IPO has only slightly increased during this period, the gross proceeds for IPOs increases strongly as the number of lead underwriters increases.

Table 2 presents the univariate statistics for the following categories: 1) Syndicate characteristics, 2) Offer characteristics, and 3) Firm characteristics. For all three categories, the mean, median, and standard deviation of the distributions are listed for SLU-IPOs, MLU-IPOs, and overall. Tests for statistically significant differences are from the t-test and Wilcoxon rank-sum test for differences in each characteristic between the SLU- and MLU-IPOs. For syndicate characteristics, the number of managing underwriters increases from a mean of 3.88 for SLU-IPOs to a mean of 5.79 for MLU-IPOs, and is strongly significantly different at the 1% level for both the mean and median. This is likely to be

expected, as MLU-IPOs would need more managing underwriters since Hu and Ritter (2007) find that these IPOs are greater in size than SLU-IPOs. The differences are less clear for the number of co-managers and the size of the syndicate. MLU-IPOs show a significantly higher mean for the number of co-managers, but the median is not significantly different. MLU-IPOs show a significantly higher median for syndicate size, but the mean is not as high, and not significantly different. With that said, the median for MLU-IPOs is still higher than that for SLU-IPOs. Average LU Reputation mean is significantly higher for MLU-IPOs at the 1% level, while its median is also significantly higher at the 5% level for MLU-IPOs. This has strong implications later in this paper.

[Insert Table 2 here]

Offer characteristics also show some interesting differences between MLU-IPOs and SLU-IPOs. MLU-IPOs show a significantly higher use of the Big N auditors (1% significance), while SLU-IPOs exhibit a significantly higher presence in the Hi-tech industry and on the Nasdaq, and have a higher amount of VC backing (all significant at the 1% level). Offer proceeds, offer price, gross spread, and aftermarket standard deviation all have a significantly higher mean and median (1% significance for both) for MLU-IPOs. However, the amount of the price revision from the initial filing to the IPO date, along with the amount of underpricing and the total days in registration, are not significantly different between MLU-IPOs and SLU-IPOs.

In terms of firm characteristics, the amount of sales, total assets, and leverage are much higher for MLU-IPOs, with strong significance at the 1% level in all three cases. Return on assets is also higher for MLU-IPOs, with a mean significant at the 1% level (although the median is only significantly higher for MLU-IPOs at the 10% level). The percentage growth rates do not seem to be significantly different between MLU-IPOs and SLU-IPOs.

4. Results

4.1 Determinants of MLU-IPO

We begin by examining whether MLU-IPOs are systematically related to firm, offer and syndicate characteristics. This analysis serves a dual purpose. First, it contributes to the literature on how firm-underwriter matching takes place (see, e.g., Fernando, Gatchev and Spindt (2005)). We extend this literature by analyzing firms' choice of single vs. multiple bookrunners. Second, this analysis helps us to identify the characteristics of MLU-IPOs that can be used to deal with possible endogeneity bias, discussed in section 4.7 below.

[Insert Table 3 here]

To examine these relationships in a multiple regression framework, we estimate regressions of MLU dummies on the IPO firm and offer characteristics. Since the dependent variable is binary (1, 0), columns (1) and (2) in Table 3 show estimated coefficients and p-values of Probit and Logit models, respectively. Table 3 highlights several factors associated with an issuer choosing multiple bookrunners. First, the IPO size, measured by offer proceeds and total assets, is the key determinant for IPOs to employ MLUs. Given that the gross spread paid to underwriters as a percentage of offer proceeds significantly clusters at 7% (Chen and Ritter (2000)), multiple lead underwriters would not be compensated enough if offer proceeds and firm size are too small. Second, after controlling for other factors, the number of co-managers is lower for MLU-IPOs. One possible explanation would be that lead underwriters typically do a more extensive variety of work with a stronger commitment compared to co-managers and therefore the issuer and lead underwriters would need relatively much less work from co-managers, which might result in a fewer number of co-managers after controlling for the size of the IPO. Finally, the presence of Big N auditors is significantly related to MLU-IPOs. This is not surprising because prestigious auditors screen prospective IPOs and typically select IPOs that are larger in size (Michaely and Shaw (1995)).

We also run, as shown in columns (3) and (4), the Poisson regression and Zero-Truncate Poisson regression (ZTP), where the dependent variable is the number of lead underwriters (NLU), instead of the MLU dummy. ZTP is a count data model that allows only non-zero positive integer values for the dependent variable. An ordinary Poisson regression could potentially be problematic and the ZTP is at least marginally better when we have no observation at zero since it will try to predict the value of zero. To detect the over-dispersion in our data, we also employ a zero-truncated negative binomial regression that provides the test statistics for over-dispersion and find no evidence of over-dispersion in all specifications in this paper. Results here are largely consistent with the other three models.[11]

[11] In the rest of this paper while assessing firm visibility in relation to multiple lead underwriters, we present results using MLU dummy as the variable of interest. Results are largely similar, but sometimes weak, when we use NLU instead of MLU dummy; we do not present these results for two reasons. First, marginal effects of NLU are hard to interpret, as the number of lead underwriters increasing from 1 to 2 and 4 to 5 conveys very different information. Second, a few of the IPOs have more than four bookrunners. However, some of these bookrunners may not do any work on a deal, but collect fees and league-table credits (see Hu and Ritter (2007)). They are called 'Phantom bookrunners.' So, conclusions drawn upon those results may be inappropriate.

In addition, NLU is censored at 1 as 405 IPOs hire a single lead underwriter (Table 1). According to Rigobon and Stocker (2007), the use of censored regressors might estimate effects that are too large in absolute value, called 'expansion bias.' The omission of SLU-IPOs may introduce a selectivity problem from selecting the sample in the endogenous way. To the best of our knowledge, there is currently no econometric solution to the issue arising for estimation with a censored regressor.

4.2 Pre-IPO media coverage

The media actively shapes public attention and opinion. It creates additional investor interest by attaching news stories to the information that the investors may already have, thereby creating a positive feedback effect (see Shiller (2000) and Bhattacharya et al. (2009)). This suggests that a greater level of media coverage can be translated to greater firm visibility. In this section, we investigate whether hiring MLUs improves pre-IPO media coverage.

[Insert Table 4 here]

Panel A of Table 4 presents the results of univariate tests for all four measures of pre-IPO visibility (defined in Appendix Table A.1). On average, MLU IPOs are mentioned around 30 times (41 times) on the headline and in the lead paragraph during the registration period (for 6 months prior to the offer date), while SLU IPOs are mentioned only 9 times (10 times). In the full text, MLU IPOs are mentioned about 76 times (99 times), on average, during the registration period (6 months prior to the offer date), while SLU IPOs are mentioned only 20 times (25 times). The t-tests and Wilcoxon z-tests show that the differences in means and medians are significantly greater for MLU-IPOs in all four cases.

Panel B of Table 4 reports multiple regressions on pre-IPO media coverage. We use the natural logarithm for each measure of media coverage as dependent variables; this results in an approximately symmetric distribution as well as reduces the effects of the possible outliers. After controlling for other factors, based on prior literature (see Cook et al. (2006)), we find MLU is positively and significantly correlated with all four measures of pre-IPO coverage. For instance, the number of articles that have an issuer's name on the headline or in the lead paragraph in the registration period is about 90% [$= e^{0.64} - 1$] higher for MLU-IPOs. This is consistent with the notion that MLUs improve firm visibility before the initial public offerings. Several control variables are significantly correlated with pre-IPO media coverage. The positive coefficients of offer size and offer proceeds confirm that the media coverage is greater for larger offers. The longer the registration period, the more media coverage IPOs acquire. The positive coefficient on the number of co-managers implies that co-managers provide marketing efforts by reaching out to investors and providing more information about market interest to the offer (Corwin and Schulz (2005)).

4.3 Analyst coverage

Analyst coverage, particularly all-star analyst coverage, is one of the most important aspects that IPO issuers consider when selecting underwriters (Chen and Ritter, 2000; Krigman et al., 2001). It can generate publicity for the issuing company, thereby potentially increasing firm value by generating more

customers. Therefore, hiring MLUs is beneficial to issuers if MLUs are positively associated with more analyst coverage.

[Insert Table 5 here]

Table 5 presents the results of univariate tests and multiple regressions on post-IPO analyst coverage. Panel A shows that for MLU-IPOs, around 35% of analyst coverage is provided by lead underwriters for one year after the offer date, while SLU IPOs receive just 19% from their lead underwriters. MLU-IPOs also receive 4.38% of overall recommendations by MLU affiliated top 3 analysts, while SLU-IPOs receive only 1.61%.

In Panel B, we estimate OLS regressions as the base-line model with %LU coverage and %Top 3 LU coverage as the dependent variables. We also adopt the Tobit model, because the dependent variables can be thought of as latent variables that are censored at zero.[12] In both OLS and Tobit regressions, the coefficients of MLU are positive and statistically significant. According to OLS (Tobit) estimation, MLU-IPOs receive, on average, 16.6% (19.1%) more analyst coverage from lead underwriters included in the syndicate than SLU-IPOs. Likewise, MLU-IPOs receive, on average, 1.3% (10.1%) more analyst coverage from top 3 analysts. The results support a notion that hiring MLUs is associated with more analyst coverage, which benefits IPO issuers.

We control for both firm and issue characteristics in these regressions and find that several control variables are related with analyst coverage. We find that large, VC-backed and tech-firm IPOs are negatively and significantly related with the proportion of analyst coverage provided by lead underwriters. Also, the number of co-managers is negatively correlated with analyst coverage through the bookrunners. IPOs with more reputed lead underwriters receive greater proportions of all-star analysts employed by lead underwriters. Finally, the significant negative relationship between underpricing and %LU Coverage suggests that less underpriced issues need more promotional efforts by lead underwriters, consistent with Habib and Ljungqvist's (2001) argument that underpricing is a substitute for promotional efforts.

4.4 Institutional ownership

Institutional investors are allocated the lion's share of IPO stock. A successful IPO would continue to hold institutional investors' shares beyond the public offering, for this shows that the IPO firm may have

[12] Note that, typically, both lead underwriters and co-managers of a syndicate provide analyst coverage for an IPO. But this does not mean that analyst coverage is always provided by a lead underwriter. In fact, about 30% of our observations have zero analyst coverage through the lead underwriters.

achieved a sustainable level of visibility. So, in this section, we examine the proportion of shares held by institutional investors at the year-end after the IPO.

[Insert Table 6 here]

Panel A of Table 6 presents the descriptive statistics. The mean (median) holdings of institutional investors are 37% (30%) and 38% (31%) for SLU-IPOs and MLU-IPOs, respectively, and are not statistically different from each other, evidenced by the *t*-test (*z*-value). This result obviously does not account for other factors.

Next, we examine institutional holdings in a regression framework. It should be noted that institutional holdings is a proportional data. The 99th (1st) percentile of institutional holdings is 97.4% (0%). About 4% of the observations have zero institutional holdings. So, in addition to OLS regression, we employ Tobit and Fractional Logit regressions.[13] All three regressions, presented in Panel B of Table 6, report that MLU-IPOs have a statistically significant about 4.4% higher institutional holding.[14] We find several control variables, from firm and issue characteristics controls, are highly significant. Magnitude of underpricing is negatively related, and the reputation of the lead underwriter and Nasdaq dummy are positively related to institutional holdings. Brennan and Franks (1997) argue that insiders, wishing to retain control, have an incentive to underprice the IPO for more dispersed ownership to avoid monitoring by institutional investors. Institutional investors prefer larger firms that would usually hire more prestigious lead underwriters. Tables 2 and 3 indicate that MLU-IPOs are bigger in size and hire lead underwriters with a higher reputation. Our overall findings suggest that MLUs can help IPOs to increase their visibility by inducing greater institutional holdings post-IPO.

4.5 Stock turnover

Investors are more inclined to trade in firms for which there is greater information. So, a firm's stock turnover can capture its visibility to investors in general. In this section, we examine whether MLU-IPOs have greater stock turnover; note, we measure stock turnover as the average daily trading volume expressed as a percentage of total market capitalization. We look at five different windows of time for our comparisons. The 0-5 (days) window informs us about the trading activity immediately after the IPO.

[13] For fractional dependent variables, the ordinary least square (OLS) estimation could be problematic since it tends to predict outside zero to one range. See Papke and Wooldridge (1996) and Wooldridge (2002, pp.661-663) for alternative estimation methods and the advantages of using the fractional logit estimation when we have fractional dependent variables.

[14] Although the coefficient of MLU in the Fractional Logit model is 0.186 with a p-value of 0.076, the marginal effect is 0.044 with a p-value of 0.076.

The next two (0-90 and 0-120) are longer windows reflecting the months after the IPO. The last two (5-90 and 30-120) are also longer windows, but exclude a few days immediately after the IPO.

[Insert Table 7 here]

Panel A of Table 7 shows that the mean stock turnover for SLU- and MLU-IPOs are not significantly different, except for the 0-5 window. However, the median stock turnover for MLU-IPOs for all windows is significantly higher. After controlling for other factors in a regression framework, we find that stock turnover in MLU-IPOs is significantly higher for all windows, except for the 0-5 window (see Panel B of Table 7). These results are overall consistent with the firm-visibility hypothesis. Among the control variables, stock turnover is higher for IPOs with more co-managers. An additional co-manager appears to help create liquidity significantly.[15]

4.6 Delisting

If a firm is unable to achieve sufficient visibility in the capital market, it is more likely to depart from it. To examine whether an MLU-IPO attains greater visibility, in this section we study a firm's propensity to delist after the IPO. Panel A of Table 8 shows the frequency of the IPO sample observations that are listed and delisted. Delisted firms are categorized as 1) merger and 2) other delisting (predominantly liquidation and bankruptcy). About 55% (= 306/552) of the still listed firms are MLU-IPOs. Whereas, about 38% (= 74/196) of the acquired-delisted firms and 39% (= 24/61) of the other-delisted firms were MLU-IOPs. Proportions of both types of delisted firms underwritten by MLUs are significantly lower compared to that of the listed firms.

Next, we study a firm's propensity to delist after the IPO in a regression framework. To this end, in Panel B, we run a Multinomial Logit regression with three outcomes. The baseline outcome is 1) the firm remains listed during the sample period. The other two outcomes are 2) a firm is delisted due to mergers, and 3) a firm is delisted due to other reasons.

[Insert Table 8 here]

The results are reported in Table 8.[16] Coefficients of MLU dummy for both the variables merger and other delisting are negative, but significant only in the case of merger. This result can be loosely interpreted as

[15] We did not use log of offer proceeds as a control variable because it is highly correlated with market capitalization and market capitalization is the denominator of the dependent variable. If we control for log of offer proceeds, we find that the coefficient of MLU dummy in all regressions are positive but insignificant at the conventional level (untabulated).

[16] Unlike earlier regressions, we do not include IPO year dummies because there is no valid reason to believe that the year of the IPO is associated with the probability of being delisted due to merger or liquidation.

follows: MLU-IPOs have a relatively lower chance of being delisted than that of SLU-IPOs. This is particularly true for firms being acquired. Mehran and Peristiani (2010) and Bharath and Dittmar (2010) find that low visibility firms are less likely to stay public. An IPO is known to be a critical step towards takeover (Zingales (1995) and Brau at al. (2003)), and Brau and Fawcett (2006) find that IPO firms dominantly tend to be an acquirer, rather than to position themselves as a target. Taken together, as long as IPO firms stay public, presumably with adequate firm visibility, they will be involved in M&As as an acquirer rather than a target. Hence, we expect that MLU IPOs are less likely to be acquired since they would be an acquirer in most cases according to Brau and Fawcett and visible firms would usually be harder to take over due to relatively high share prices, compared to low visibility firms.

4.7 Endogeneity issue

We use propensity score matching (PSM) and Abadie and Imbens matching (AIM) to control for endogeneity and estimate the average treatment effect for the treated (ATT). With the assumption of conditional independence, an appropriate control group of untreated observations can be the proxy for unobserved potential outcomes without any resulting bias. To achieve this end, Rosenbaum and Rubin (1983) suggest using a balancing score computed as a function of observable covariates, X, such that the conditional distribution of X given the balancing score is independent. PSM, the probability of participating in the treatment given observable variables X, is one such balancing score. Similarly, Abadie and Imbens (2006a, 2007) develop a simple and a bias-corrected matching estimator where assignment to the treatment is exogenous, conditional on a set of control variables.

A large IPO is more likely to decide to choose an MLU. In addition, as discussed in section 4.1, this choice is also related to some observable firm and syndicate characteristics. This makes both AIM and PSM approaches appropriate methods for estimating ATT and controlling for endogeneity bias. ATT is estimated from the difference between the actual mean of the treated and its counterfactual mean. We estimate the counterfactual mean using either AIM or PSM, and use the following methods: 1) Simple matching, 2) Bias-corrected matching, 3) Radius caliper matching, and 4) Kernel matching. The first two are based on the AIM method and the last two are based on the PSM method (see Imbens (2004) and Caliendo and Kopeinig (2008) for discussions of these methods).

Abadie and Imbens (2006b) argue that because standard bootstrapping is invalid for the standard nearest-neighbor matching estimator with replacement, the simple matching estimator is a better alternative. However, an asymptotic bias may be present in simple matching estimators. This bias can arise if the control and treated groups are insufficiently comparable. This implies that there is an incomplete overlap between the distributions of control variables between the treated and control groups. Bias-corrected

matching corrects for this asymptotic bias. For both AIM methods, we match the treated observation with a maximum of four nearest neighbors from untreated observations, and match with replacement. We use the procedure suggested by Abadie, Drukker, and Hurr (2004) to estimate the ATT for both simple matching and bias-corrected matching.

Using a tolerance level on the maximum propensity score distance (caliper), radius caliper matching matches all the observations in the control group within the caliper. This helps avoid the risk of bad matches when the nearest neighbor is not too near, and at the same time, uses as many matches as the caliper allows. We use a caliper of 0.02. Kernel matching, on the other hand, uses weighted averages of all observations in the control group to estimate counterfactual outcomes. The weight is calculated by the propensity score distance between a treatment case and all control cases. We set the bandwidth at 0.06 and use the Epanechnikov kernel for matching. For both of these methods, we impose the common support restriction and estimate standard errors using 1000 bootstrapped replications. Matching is done with replacement. We use Leuven and Sianesi's (2003) procedures to estimate the ATT for both radius caliper and kernel matching.

[Insert Table 9 here]

Table 9 reports results of the ATTs of all firm visibility variables. We use all explanatory variables from Table 3 as covariates for the matching process. The ATTs estimated for all four media coverage variables are positive and statistically significant; they range from 0.404 to 0.794, implying that MLU-IPOs increase media coverage by 50% to 121%. Similarly, both proportion of analyst coverage and all-star analyst coverage through the lead underwriters are significantly greater in MLU-IPOs. The estimated ATTs are quite similar across the four matching methods, ranging from 18.6% to 20.7% and 1.7% to 2.8% for proportion of analyst coverage and all-star analyst coverage, respectively. The estimates of ATTs of institutional ownership are positive for all four methods and statistically significant for all but one of the methods. Under these three methods, MLU-IPOs increase institutional investment by about 7% to 7.8%. Finally, in almost all cases the estimated ATTs for average daily stock turnover for five different windows are positive, but significant only in AIM simple matching method, ranging between 18% and 122%. These results are largely similar to the regression based results.

4.8 The cost of firm visibility: MLU price revision and underpricing

We find that MLU-IPOs can achieve greater firm visibility. But providing this can be costly to the lead underwriter. For instance, it is costly for underwriters to provide analyst recommendations. Although underwriters are compensated for this service through the gross spread, the fact that it is a uniform 7% for the majority of IPOs suggests that differential gross spreads are not used as compensation for differential

analyst coverage. One avenue to compensate bookrunners for this higher cost is through higher IPO underpricing. Cliff and Denis (2004) find that there is a significant positive relationship between underpricing and analyst coverage by the lead underwriter. Hu and Ritter (2007) argue that issuers with a lust for all-star analysts will have to settle for a single bookrunner. They also argue that if issuers put less emphasis on star analyst coverage, the issuer can negotiate a higher initial offer price range with multiple bookrunners prior to the road show. In other words, there is a trade-off between better IPO pricing and firm visibility (at least in terms of star analyst coverage). This is the *trade-off hypothesis*, as explained in section 2.6. But our notion of the *firm visibility hypothesis* requires no such trade-offs. So, in this section, we examine the level of offer price revisions and underpricing associated with MLU-IPOs.

Table 2 shows that the mean (and median) values of both offer price revisions and underpricing in SLU-IPOs and MLU-IPOs are not significantly different from each other.

[Insert Table 10 here]

Panel A of Table 10 examines this in a regression framework. We find that, as displayed in models (1) and (3), MLU-IPOs are on average negatively related to both offer price revisions and underpricing, but only significantly related to offer price revisions.[17] Next, we introduce an interaction variable in models (2) and (4). This is an interaction of two dummy variables: MLU and LU top 3 analyst. LU top 3 analyst dummy takes the value of one if the LU(s) provides all-star analyst coverage; zero otherwise.[18] In both of these models the coefficient of the interaction variable is negative, but significant in model (4). This suggests that issuers that employ MLUs with all-star analyst coverage have significantly lower underpricing.[19] Panel B reports the ATT of MLU-IPOs. We find that the ATTs of offer price revisions and underpricing are negative. Three out of four and one out of four of the ATTs of offer price revisions and underpricing, respectively, are statistically significant.

Overall these results suggest that there is no tradeoff; that is, it appears that issuers of MLU-IPOs not only attain greater firm visibility but also are able to negotiate a better offer price (vis-à-vis underpricing). This

[17] Both offer price revision and underpricing regressions have the same set of control variables. Adding offer price revision as an additional covariate leaves the results in the underpricing regressions unchanged; offer price revision is highly positively significant in these regressions. We also note that the correlation between offer price revision and underpricing is 0.35 and highly significant.

[18] In our sample 173 out of 809 IPOs receive all-star analyst coverage through its lead underwriter(s) and 113 of them are MLU-IPOs.

[19] There is one caveat to this analysis: chronologically, top 3 analyst coverage occurs after the IPO. However, when an issuer employs bookrunner(s) for its IPO, its decision already incorporates the implicit understanding that whether it will receive all-star analyst coverage form the bookrunner(s) or not.

is also consistent with the idea that MLUs perform better premarket due diligence, which results in more accurate offer prices and less underpricing (see Hanley and Hoberg (2010)).

5. Summary and conclusions

A highly visible firm is better positioned to reap the benefits of capital markets. Therefore, one of the main goals of a firm going public is to create greater visibility to investors in general. In this paper, we argue and provide empirical evidence that firms choosing to go public with multiple lead underwriters (MLUs) may attain greater firm visibility. Our definition of a highly visible firm is one that has a large number of investors that are aware of the firm's existence and/or with a large investor base. We posit that issuers of MLU-IPOs can bargain with the bookrunners on several dimensions, and the outcome of this bargaining is greater overall visibility for the IPO firm. To that end, we develop a framework to gauge a firm's overall visibility surrounding its public offering, and then attempt to portray a broader picture of issuer's bargaining with the lead underwriter(s) by examining firm visibility, and IPO offer price and underpricing.

We first examine what causes issuers to hire multiple lead underwriters, and find that the main determinant is size—as proxied by IPO offer size and a firm's total assets. We also find that the presence of big four auditors is directly and significantly related with MLU-led IPOs, but the number of co-managers is inversely related. Next, we examine the consequences of a firm taken public by MLUs. We find that MLU-IPOs have greater pre-IPO media visibility. MLU-IPOs, compared to single lead-underwriter led IPOs (SLU-IPOs), are able to attain relatively greater proportions of analyst coverage from both stock analysts and all-star analysts employed by lead-underwriters. During the one year post-IPO period, a relatively greater proportion of MLU-IPO firms' shares, compared to that of SLU-IPO firms', are owned by institutional investors. Also, the MLU-IPO firms' shares have a greater average daily turnover measured over different windows during the six-month post-IPO period. Finally, we find that MLU-IPO firms have much lower odds of being taken over compared to their SLU-IPO counterparts, after controlling for other variables. These results as a whole indicate that firms that go public with multiple lead underwriters can achieve greater visibility by increasing the firms' familiarity to the investment community and through expanding the investor base.

A firm opting for MLUs for its IPO is potentially an endogenous choice. So, to account for possible endogeneity bias and to estimate the average treatment effect for the treated (ATT), we employ two different matching methodologies. The results from these estimated ATT are essentially the same as our regression based results.

Next we examine whether the increased firm visibility comes at a cost, particularly at a greater level of underpricing. Our results appear to show no such trade-offs. MLU-IPOs exhibit significantly lower underpricing in just one of the matching methods but show consistently negative relationship. However, we also find that MLU-IPOs have significantly lower offer price revisions using both regressions and matching methods. This indicates two possibilities: either an IPO syndicate's institutional clients convey negative information about an IPO's prospects (as modeled by Benveniste and Spindt (1989)), or the issuer negotiates a higher filing price range. The former possibility is unlikely on a systematic basis. So we interpret this result as issuers using MLUs not only achieve greater firm visibility but also negotiate a better IPO price. We also observe significantly lower underpricing for MLU-IPOs that receive star analyst coverage from their lead underwriters. This runs counter to the trade-off argument posited by Hu and Ritter (2007). Overall, our findings imply that firms that go public with multiple lead underwriters can achieve greater visibility by increasing firms' familiarity to the investment community and through expanding the investor base, and this increased firm visibility is not a trade-off for a greater level of underpricing.

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Table 1: Number of Lead Underwriters: Yearly Breakdown

The sample contains 809 IPOs from 2001 to 2010, collected from the SDC Global New Issues database, after excluding non-U.S. firms, financial and utilities firms, closed-end funds/trusts, unit offers, and IPOs with an offer price below $5 per share. Panel A reports the yearly numbers of IPOs by the number of lead underwriters, and Panel B shows average gross proceeds (in million dollars) by the number of lead underwriters.

Panel A: Number of Lead Underwriters by Year

IPO	Number of Lead Underwriters by Year												
Year	1		2		3		4		5		>5		Sum
2001	48	(85.7%)	8	(14.3%)									56
2002	45	(77.6%)	12	(20.7%)	1	(1.7%)							58
2003	34	(70.8%)	14	(29.2%)									48
2004	86	(62.8%)	44	(32.1%)	7	(5.1%)							137
2005	51	(44.0%)	49	(42.2%)	10	(8.6%)	4	(3.4%)	2	(1.7%)			116
2006	62	(45.3%)	57	(41.6%)	14	(10.2%)	4	(2.9%)					137
2007	60	(44.8%)	58	(43.3%)	11	(8.2%)	4	(3.0%)			1	(0.7%)	134
2008	4	(25.0%)	7	(43.8%)	5	(31.3%)							16
2009	4	(10.5%)	13	(34.2%)	9	(23.7%)	8	(21.1%)	3	(7.9%)	1	(2.6%)	38
2010	11	(15.9%)	31	(44.9%)	14	(20.3%)	10	(14.5%)	1	(1.4%)	2	(2.9%)	69
	405	(50.1%)	293	(36.2%)	71	(8.8%)	30	(3.7%)	6	(0.7%)	4	(0.5%)	809

Panel B: Number of Lead Underwriters and Average Gross Proceeds (in $m)

IPO	Number of Lead Underwriters by Year						Average GP
Year	1	2	3	4	5	>5	by Year
2001	156.65	1,052.18					284.58
2002	126.05	215.73	278.99				147.25
2003	108.5	228.73					144.28
2004	84	224.51	624.28				156.73
2005	86.16	173.04	397.31	702.52	715		181.78
2006	79.22	172.77	399.48	683.88			168.53
2007	97.36	131.70	348.28	747.50		957	158.64
2008	50.88	176.59	377.35				207.90
2009	284.5	275.09	243.57	374.05	545.16	360	313.01
2010	74.27	119.41	153.26	193.03	80	10,784.8	366.02
Average GP by No of LUs	102.33	199.89	341.84	448.61	524.24	4,033.9	

Table 2: Univariate Statistics

This table reports univariate comparisons of mean and median values of various variables of interest. The sample consists of 809 IPOs, as described in Table 1. All variables are defined in Appendix Table A.1. The last two columns of this table report the t-statistics for differences in means and z-statistics of the Wilcoxon test for differences in medians, between MLU-IPO and SLU-IPO firms. Statistical significance at the 1%, 5%, and 10% levels in two-tailed tests is indicated by ***, **, and *, respectively.

	No. of Lead Underwriters						Overall			*t-test* (Multiple vs. Single)	*z-value* (Multiple vs. Single)
	Single			Multiple							
	Mean	Med	Stdev	Mean	Med	Stdev	Mean	Med	Stdev		
Syndicate characteristics											
No. of managing underwriters	3.88	4.00	1.68	5.79	5.00	2.88	4.83	4.00	2.54	11.56 ***	12.41 ***
No. of co-managers	2.88	3.00	1.68	3.38	3.00	2.52	3.13	3.00	2.16	3.31 ***	1.51
Syndicate size	6.66	5.00	4.72	7.18	6.00	5.37	6.92	5.00	5.06	1.46	3.37 ***
Average LU reputation	7.70	8.00	1.81	8.31	8.50	1.00	8.00	8.50	1.49	5.97 ***	2.49 **
Offer characteristics											
Big N auditor (1/0)	80%			91%			85%			4.21 ***	
VC backing (1/0)	54%			37%			45%			-4.83 ***	
Hi-tech (1/0)	63%			48%			55%			-4.17 ***	
Nasdaq (1/0)	80%			54%			67%			-8.26 ***	
Offer proceeds ($mil)	102.3	72.0	171.6	290.4	145.7	887.8	196.3	99.0	645.6	4.19 ***	12.07 ***
Offer price ($)	12.96	13.00	5.54	15.27	15.00	6.17	14.11	14.00	5.97	5.58 ***	6.538 ***
Offer price revision (%)	-2.67	0.00	14.51	-2.77	0.00	13.45	-2.72	0.00	13.98	-0.11	0.26
Underpricing (%)	13.37	6.72	32.35	10.95	6.07	19.83	12.18	6.31	26.95	-1.25	-0.36
Gross spread (%)	6.94	7.00	0.58	6.60	7.00	0.76	6.77	7.00	0.70	-7.10 ***	-7.83 ***
Aftermarket stdev (%)	3.67	3.39	1.74	2.97	2.88	1.24	3.32	3.12	1.55	-6.62 ***	-6.48 ***
Days in registration	136.8	105.0	119.2	137.3	99.0	128.8	137.1	124.0	103.0	0.06	1.50
Firm characteristics											
Sales ($mil)	302	78	887	1,176	256	7,074	740	138	5,060	2.46 **	8.89 ***
Total assets ($mil)	295	120	687	1,372	368	7,554	834	199	5,391	2.85 ***	11.37 ***
Leverage	0.18	0.03	0.43	0.26	0.20	0.27	0.22	0.08	0.36	3.39 ***	6.68 ***
ROA	-0.14	0.01	0.62	-0.04	0.02	0.21	-0.09	0.01	0.47	3.31 ***	1.85 *
Sales growth (%)	-12.78	21.36	207.59	8.60	18.59	240.86	2.00	20.00	225.11	1.32	0.30
N		405			404			809			

Table 3: Determinants of Multiple Lead Underwriter IPOs

This table presents Probit and Logit regressions of the MLU dummy variable, and Poisson and Zero Truncated Poisson regressions of the NLU variable on several explanatory variables. MLU is a dummy that equals one if an IPO has more than one lead underwriter and zero otherwise. NLU is the number of lead underwriters in the syndicate. P-values are obtained based on the Huber (1967) and White (1980) sandwich estimators. All regressions contain industry and year fixed-effects, and a constant. All independent variables are defined in Appendix Table A.1 and the sample is described in Table 1.

	Probit		Logit		Poisson		Zero Truncated Poisson	
	(1)		(2)		(3)		(4)	
	coef.	p-value	coef.	p-value	coef.	p-value	coef.	p-value
Big N auditor	0.455	0.009	0.797	0.008	0.120	0.002	0.379	0.001
Ln offer proceeds	0.658	0.000	1.204	0.000	0.127	0.000	0.223	0.000
VC backed (1/0)	-0.057	0.677	-0.090	0.701	-0.003	0.933	0.010	0.898
Hi-tech (1/0)	0.058	0.686	0.090	0.720	-0.008	0.812	0.004	0.952
Leverage	0.090	0.657	0.110	0.749	0.089	0.094	0.289	0.009
ROA	-0.084	0.609	-0.196	0.490	-0.033	0.426	0.139	0.244
Ln sales	-0.053	0.340	-0.093	0.341	-0.010	0.504	-0.031	0.354
Ln total asset	0.342	0.000	0.604	0.000	0.141	0.000	0.276	0.000
Growth	-0.014	0.581	-0.026	0.495	-0.010	0.027	-0.012	0.526
No. of co-managers	-0.204	0.000	-0.405	0.000	-0.033	0.001	-0.069	0.000
Constant	-12.241	0.000	-22.333	0.000	-2.891	0.000	-18.048	0.000
Year dummy	Yes		Yes		Yes		Yes	
Industry dummy	Yes		Yes		Yes		Yes	
N	765		765		767		767	
Adjusted/Pseudo R^2	0.316		0.318		0.086		0.252	

Table 4: Pre-IPO Media Coverage

Panel A reports univariate comparisons of mean and median values of news coverage data obtained from LexisNexis News Search database. HLreg is the number of articles that have an issuer's name on the headline or in the lead paragraph during the registration period. FTreg is the number of articles that have an issuer's name in the full text during the registration period. HL6 is the number of articles that have an issuer's name on the headline or in the lead paragraph for 6 months prior to offer date. FT6 is the number of articles that have an issuer's name in the full text for 6 months prior to offer date. The last two columns of Panel A report the t-statistics for differences in means and z-statistics of the Wilcoxon test for differences in medians, between MLU-IPO and SLU-IPO firms. Statistical significance at the 1%, 5%, and 10% levels in two-tailed tests is indicated by ***, **, and *, respectively. Panel B reports the estimates from OLS regressions of four different proxies for news coverage variables as explained above. All these dependent variables are log transformed as shown in Panel B. P-values are obtained based on the Huber (1967) and White (1980) sandwich estimators. All regressions contain industry and year fixed-effects, and a constant. All independent variables are defined in Appendix Table A.1 and the sample is described in Table 1.

Panel A: Univariate statistics

	No. of Lead Underwriters						Overall			*t-test* (Multiple vs. Single)	*z-value* (Multiple vs. Single)
	Single			Multiple							
	Mean	Med	Stdev	Mean	Med	Stdev	Mean	Med	Stdev		
HLreg	9.09	6.00	10.83	29.82	10.00	104.28	19.43	7.00	74.72	3.98***	5.61***
HL6	10.05	6.00	12.80	40.55	12.00	191.45	25.26	8.00	136.28	3.20***	5.59***
FTreg	20.30	12.00	32.95	75.65	21.00	248.57	47.90	15.00	179.13	4.44***	6.24***
FT6	25.28	14.00	59.50	98.92	25.00	349.47	62.01	18.00	252.92	4.18***	6.73***
N		405			403			808			

Panel B: OLS regressions

	Ln(1+HLreg)		Ln(1+FTreg)		Ln(1+HL6)		Ln(1+FT6)	
	coef.	p-value	coef.	p-value	coef.	p-value	coef.	p-value
MLU	0.640	0.000	0.670	0.000	0.619	0.000	0.662	0.000
Big N auditor	0.083	0.530	0.053	0.725	0.037	0.790	0.020	0.904
Ln offer proceed	0.227	0.035	0.267	0.022	0.271	0.012	0.304	0.008
VC backed (1/0)	0.077	0.460	0.181	0.122	0.069	0.512	0.191	0.117
Hi-tech (1/0)	0.024	0.815	-0.025	0.836	0.106	0.313	0.043	0.726
Ln days in registration	0.233	0.000	0.288	0.000	-0.002	0.966	-0.016	0.769
Leverage	-0.170	0.222	-0.336	0.036	-0.133	0.343	-0.294	0.067
ROA	-0.145	0.144	-0.199	0.101	-0.202	0.032	-0.246	0.026
Ln total asset	0.058	0.354	0.083	0.235	0.060	0.323	0.092	0.183
Growth	-0.005	0.723	-0.002	0.907	-0.005	0.717	0.000	0.988
Average LU rank	-0.003	0.946	-0.007	0.877	-0.003	0.939	-0.010	0.837
No. of Co-managers	0.070	0.014	0.073	0.012	0.079	0.007	0.087	0.004
Constant	-5.641	0.001	-6.608	0.000	-5.472	0.001	-6.050	0.001
Year dummy	Yes		Yes		Yes		Yes	
Industry dummy	Yes		Yes		Yes		Yes	
N	747		747		747		747	
Adjusted R^2	0.280		0.233		0.278		0.32	

Table 5: Post-IPO Analyst Coverage

Panel A reports univariate comparisons of mean and median values of analyst coverage data obtained from the I/B/E/S database. %LU coverage is the fraction of analyst coverage made by lead underwriter(s) relative to overall coverage for one year after the IPO. %LU top 3 is the fraction of analyst coverage made by lead underwriter affiliated top three analysts relative to overall coverage for one year after the IPO. The last two columns of Panel A report the t-statistics for differences in means and z-statistics of the Wilcoxon test for differences in medians, between MLU-IPO and SLU-IPO firms. Statistical significance at the 1%, 5%, and 10% levels in two-tailed tests is indicated by ***, **, and *, respectively. Panel B reports estimates of OLS and double-censored Tobit regressions of two different proxies for the analyst coverage variables as explained above. P-values are obtained based on the Huber (1967) and White (1980) sandwich estimators. All regressions contain industry and year fixed-effects, and a constant. All independent variables are defined in Appendix Table A.1 and the sample is described in Table 1.

Panel A: Univariate Statistics

	No. of Lead Underwriters						Overall			*t-test* (Multiple vs. Single)	*z-value* (Multiple vs. Single)
	Single			Multiple							
	Mean	Med	Stdev	Mean	Med	Stdev	Mean	Med	Stdev		
% LU coverage	18.91	16.67	19.52	34.85	31.58	20.78	26.94	23.08	21.67	10.90***	11.52***
% Top 3 LU coverage	1.61	0.00	6.00	4.38	0.00	10.27	3.00	0.00	8.53	4.53***	5.67***
N		377			383			760			

Panel B: Regressions

	% LU Coverage				% Top 3 LU Coverage			
	OLS		Tobit		OLS		Tobit	
	coef.	p-value	coef.	p-value	coef.	p-value	coef.	p-value
MLU	0.166	0.000	0.191	0.000	0.013	0.079	0.101	0.022
Big N auditor	-0.014	0.603	-0.023	0.449	-0.004	0.603	-0.025	0.693
Ln offer proceed	-0.045	0.013	-0.047	0.020	0.009	0.200	0.045	0.180
VC backed (1/0)	-0.021	0.257	-0.030	0.176	-0.014	0.074	-0.067	0.108
Hi-tech (1/0)	-0.075	0.000	-0.078	0.001	0.003	0.709	0.023	0.561
Underpricing	-0.164	0.000	-0.173	0.000	-0.018	0.109	-0.076	0.360
Leverage	0.031	0.317	0.033	0.345	0.008	0.569	0.032	0.573
ROA	0.010	0.825	0.010	0.851	-0.012	0.188	-0.121	0.041
Ln total asset	0.008	0.479	0.006	0.616	0.002	0.596	0.029	0.188
Growth	-0.006	0.200	-0.007	0.326	0.000	0.828	-0.002	0.799
Average LU rank	-0.003	0.734	0.001	0.912	0.010	0.000	0.140	0.000
No. of Co-managers	-0.014	0.001	-0.014	0.002	-0.004	0.023	-0.018	0.085
Constant	1.168	0.000	1.197	0.000	-0.148	0.237	-2.415	0.000
Year dummy	Yes		Yes		Yes		Yes	
Industry dummy	Yes		Yes		Yes		Yes	
N	690		690		690		690	
Adjusted/Pseudo R^2	0.256		0.710		0.085		0.305	

Table 6: Post-IPO Institutional Ownership

Panel A reports univariate comparisons of mean and median values of institutional ownership data obtained from Thomson Reuters 13F. Institutional ownership is the fraction of shares owned by institutional investors. The last two columns of Panel A report the t-statistics for differences in means and z-statistics of the Wilcoxon test for differences in medians, between MLU-IPO and SLU-IPO firms. Statistical significance at the 1%, 5%, and 10% levels in two-tailed tests is indicated by ***, **, and *, respectively. Panel B reports estimates of OLS, double-censored Tobit, and Fractional Logit regressions of the institutional ownership variable as explained above. P-values are obtained based on the Huber (1967) and White (1980) sandwich estimators. All regressions contain industry and year fixed-effects, and a constant. All independent variables are defined in Appendix Table A.1 and the sample is described in Table 1.

Panel A: Univariate statistics

	No. of Lead Underwriters						Overall			*t-test* (Multiple vs. Single)	*z-value* (Multiple vs. Single)
	Single			Multiple							
	Mean	Med	Stdev	Mean	Med	Stdev	Mean	Med	Stdev		
Inst. ownership (%)	37.16	29.52	26.97	38.45	30.89	28.04	37.80	30.37	27.50	0.67	0.49
N		405			404			809			

Panel B: Regressions

	OLS		Tobit		Fractional logit (GLM)	
	coef.	p-value	coef.	p-value	coef.	p-value
MLU	0.044	0.077	0.043	0.083	0.186	0.076
Big N auditor	0.023	0.490	0.022	0.504	0.108	0.464
Ln offer proceed	-0.018	0.454	-0.017	0.484	-0.056	0.590
VC backed (1/0)	0.026	0.322	0.031	0.246	0.137	0.225
Hi-tech (1/0)	-0.027	0.309	-0.025	0.341	-0.113	0.312
Underpricing	-0.101	0.001	-0.099	0.002	-0.713	0.001
Nasdaq (1/0)	0.069	0.008	0.077	0.004	0.326	0.004
Leverage	-0.017	0.613	-0.011	0.769	-0.121	0.465
ROA	0.011	0.658	0.022	0.465	0.139	0.384
Ln total asset	-0.001	0.968	0.002	0.927	0.002	0.977
Growth	0.001	0.778	0.002	0.664	0.006	0.776
Average LU rank	0.027	0.006	0.028	0.004	0.125	0.004
No. of co-managers	0.006	0.413	0.004	0.543	0.020	0.500
Constant	0.348	0.404	0.347	0.344	-0.934	0.555
Year dummy	Yes		Yes		Yes	
Industry dummy	Yes		Yes		Yes	
N	729		729		729	
Adjusted/Pseudo R^2	0.026		0.207			

Table 7: Post-IPO Stock Turnover

Panel A reports univariate comparisons of mean and median values of stock turnover data obtained from CRSP. Stock turnover is calculated as the daily trading volume of shares divided by the market capitalization and then averaged over various post-IPO windows, namely, 0-5 days, 0-90 days, 0-120 days, 5-90 days, and 30-120 days. The last two columns of Panel A report the t-statistics for differences in means and z-statistics of the Wilcoxon test for differences in medians, between MLU-IPO and SLU-IPO firms. Statistical significance at the 1%, 5%, and 10% levels in two-tailed tests is indicated by ***, **, and *, respectively. Panel B reports estimates of OLS regressions for five different variables as explained above. P-values are obtained based on the Huber (1967) and White (1980) sandwich estimators. All regressions contain industry and year fixed-effects, and a constant. All independent variables are defined in Appendix Table A.1, and the sample is described in Table 1.

Panel A: Univariate statistics

	No. of Lead Underwriters						Overall			*t-test* (Multiple vs. Single)	*z-value* (Multiple vs. Single)
	Single			Multiple							
	Mean	Med	Stdev	Mean	Med	Stdev	Mean	Med	Stdev		
0 to 5 (%)	3.81	2.44	6.06	4.89	3.33	6.24	4.35	2.91	6.17	2.51**	5.61***
0 to 90 (%)	0.66	0.39	1.54	0.80	0.50	1.18	0.73	0.44	1.37	1.46	5.07***
0 to 120 (%)	0.61	0.36	1.49	0.73	0.46	1.06	0.67	0.40	1.29	1.28	4.83***
5 to 90 (%)	0.47	0.25	1.42	0.56	0.34	0.92	0.52	0.29	1.19	1.03	4.85***
30 to 120 (%)	0.41	0.24	1.53	0.49	0.33	0.73	0.45	0.27	1.20	0.88	5.23***
N		405			404			809			

Panel B: OLS regressions

	0 to 5		0 to 90		0 to 120		5 to 90		30 to 120	
	coef.	p-value	coef.	p-value	coef.	p-value	coef.	p-value	coef.	p-value
MLU	0.651	0.199	0.190	0.059	0.181	0.045	0.162	0.053	0.153	0.051
Big N auditor	-0.351	0.510	-0.242	0.205	-0.236	0.207	-0.239	0.203	-0.259	0.249
VC backed (1/0)	-0.671	0.192	-0.119	0.245	-0.120	0.205	-0.088	0.317	-0.099	0.292
Hi-tech (1/0)	-0.027	0.964	0.064	0.583	0.061	0.569	0.070	0.475	0.094	0.293
Underpricing	1.928	0.076	0.384	0.118	0.351	0.124	0.295	0.144	0.310	0.152
Leverage	-0.485	0.482	-0.222	0.101	-0.230	0.065	-0.208	0.057	-0.201	0.034
ROA	0.272	0.643	0.225	0.370	0.216	0.380	0.220	0.376	0.270	0.364
Ln total asset	0.492	0.028	0.049	0.368	0.038	0.452	0.025	0.605	-0.013	0.805
Growth	-0.014	0.749	-0.108	0.390	-0.108	0.390	-0.113	0.385	-0.142	0.381
Average LU rank	-0.085	0.771	-0.095	0.102	-0.090	0.088	-0.095	0.048	-0.066	0.113
No. of co-managers	0.490	0.002	0.150	0.007	0.138	0.006	0.129	0.017	0.123	0.061
Constant	0.865	0.734	0.833	0.230	0.852	0.198	0.814	0.207	0.835	0.247
Year dummy	Yes		Yes		Yes		Yes		Yes	
Industry dummy	Yes		Yes		Yes		Yes		Yes	
N	729		729		729		729		729	
Adjusted R^2	0.124		0.116		0.115		0.112		0.101	

Table 8: Delisting

Panel A of this table shows the frequency of the IPO sample observations that are listed and delisted by the mid-year 2012. Delisted firms are categorized as 1) merger and 2) other delisting (predominantly liquidation and bankruptcy). The z-statistic and p-values are computed for a test of MLU and SLU firms' proportion for the listed vs. merger and the listed vs. other delisting observations, respectively. Panel B of this table presents Multinomial Logit estimates of two delisting causes, 1) merger and 2) other delisting, when the base group is 'firm that is listed during the sample period.' P-values are obtained based on the Huber (1967) and White (1980) sandwich estimators. All independent variables are defined in Appendix Table A.1, and the sample is described in Table 1.

Panel A: Univariate statistics

		Delisted		
	Listed	Merger	Other delisting (liquidation-bankruptcy)	Total
Total	552	196	61	809
Multiple LU	306	74	24	404
Single LU	246	122	37	405
z-statistic		- 4.253	-2.392	
(p-value)		(0.000)	(0.017)	

Panel B: Multinomial logit regression

	Merger		Other delisting	
	coef.	p-value	coef.	p-value
MLU	-0.653	0.001	-0.178	0.627
Big N auditor	0.158	0.614	0.038	0.940
Ln offer proceed	0.216	0.326	0.025	0.951
VC backed (1/0)	0.113	0.617	-0.623	0.210
Hi-tech (1/0)	0.775	0.002	-0.467	0.293
Underpricing	0.358	0.235	-0.365	0.285
Leverage	0.712	0.040	0.820	0.176
ROA	-0.077	0.869	-2.359	0.002
Ln total asset	-0.162	0.268	-0.391	0.240
Growth	-0.017	0.779	-0.039	0.162
Average LU rank	0.012	0.887	0.053	0.711
No. of co-managers	-0.040	0.434	-0.323	0.082
Constant	-4.533	0.169	-9.482	0.141
Year dummy	No			
Industry dummy	Yes			
N	729			
Pseudo R^2	0.109			

Table 9: Average Treatment Effect for the MLU-IPOs

This reports the average treatment effect for the treated (i.e., ATT) firm visibility variables (i.e., dependent variables in Table 4 to 7) on the MLU dummy using four different matching methods. The first two (simple matching and bias-corrected matching) are computed using Abadie et al.'s (2004) method for Abadie-Imbens matching (AIM). The last two (radius caliper matching and kernel matching) are computed using Leuven and Sianesi's (2003) method for propensity score matching (PSM). For AIM and PSM, we use all explanatory variables of Table 3 as covariates for estimating the ATT of MLU-IPOs; we use the same set of variables for bias-correction in AIM. We also use a maximum of four nearest neighbors for AIM. In addition, we impose common support and estimate standard errors using 1,000 bootstrap replications for PSM. We also set the caliper at 0.02 for radius caliper matching. Finally, we set the bandwidth at 0.06 and use the Epanechnikov kernel for kernel matching.

	AIM				PSM			
	Simple matching		Biases adjusted		Caliper matching		Kernel Matching	
	coeff.	p-value	coeff.	p-value	coeff.	p-value	coeff.	p-value
Pre-IPO media coverage								
Ln(1+HLreg)	0.694	0.000	0.449	0.000	0.443	0.001	0.437	0.001
Ln(1+FTreg)	0.759	0.000	0.414	0.000	0.437	0.008	0.404	0.013
Ln(1+HL6)	0.713	0.000	0.557	0.000	0.461	0.003	0.435	0.002
Ln(1+FT6)	0.794	0.000	0.527	0.000	0.511	0.005	0.439	0.019
Post-IPO analyst coverage								
% LU coverage	0.186	0.000	0.207	0.000	0.194	0.000	0.192	0.000
% Top 3 LU coverage	0.028	0.000	0.025	0.001	0.017	0.048	0.020	0.020
Post-IPO institutional ownership								
Institutional ownership (%)	0.019	0.451	0.078	0.003	0.074	0.019	0.070	0.031
Post-IPO stock turnover								
0 to 5 (%)	1.222	0.017	0.436	0.386	0.104	0.895	-0.065	0.934
0 to 90 (%)	0.239	0.016	0.143	0.191	0.027	0.822	0.022	0.848
0 to 120 (%)	0.219	0.016	0.149	0.145	0.037	0.724	0.033	0.725
5 to 90 (%)	0.182	0.025	0.125	0.192	0.018	0.825	0.023	0.779
30 to 120 (%)	0.141	0.054	0.109	0.272	0.008	0.896	-0.006	0.934

Table 10: Offer Price Revision and Underpricing

Panel A reports estimates of OLS regressions for offer price revision and underpricing. P-values are obtained based on the Huber (1967) and White (1980) sandwich estimators. All regressions contain industry and year fixed-effects, and a constant. All independent variables are defined in Appendix Table A.1 and the sample is described in Table 1. Panel B reports the average treatment effect for the treated (i.e., ATT) of mid-filing price concession and offer price concession on the MLU dummy using four different matching methods, as explained in Table 9.

Panel A: OLS Regressions

	Dependent variable							
	Price revision (%) (1)		Price revision (%) (2)		Underpricing (%) (3)		Underpricing (%) (4)	
	coef.	p-value	coef.	p-value	coef.	p-value	coef.	p-value
MLU	-5.259	0.003	-4.327	0.017	-0.601	0.787	2.477	0.375
LU Top 3 analyst (1/0)	2.734	0.103	5.926	0.059	2.583	0.494	13.537	0.106
MLU × LU Top 3 analyst			-5.716	0.123			-17.776	0.030
Big N auditor	-2.368	0.309	-2.212	0.339	3.723	0.487	4.225	0.436
Ln offer proceed	18.032	0.000	18.027	0.000	7.731	0.000	7.719	0.000
VC backed (1/0)	5.590	0.002	5.890	0.001	6.800	0.007	7.589	0.003
Hi-tech (1/0)	-6.599	0.000	-6.696	0.000	-6.649	0.055	-6.938	0.048
Nasdaq (1/0)	-1.804	0.270	-1.638	0.317	-5.419	0.216	-4.824	0.243
Leverage	-9.180	0.005	-8.831	0.007	-5.382	0.322	-4.517	0.410
ROA	5.283	0.100	5.414	0.089	2.380	0.606	2.590	0.579
Ln total asset	-5.088	0.000	-5.032	0.000	-6.338	0.014	-6.165	0.013
Growth	-0.182	0.430	-0.165	0.478	-0.012	0.968	0.044	0.884
Average LU rank	-0.863	0.288	-0.829	0.304	-0.668	0.676	-0.522	0.735
No. of co-managers	-2.433	0.000	-2.420	0.000	-0.572	0.279	-0.537	0.309
Constant	-305.144	0.000	-307.288	0.000	-94.230	0.019	-99.756	0.010
Year dummy	Yes		Yes		Yes		Yes	
Industry dummy	Yes		Yes		Yes		Yes	
N	631		631		729		729	
Adjusted R^2	0.282		0.283		0.053		0.067	

Panel B: Matching methodologies

	AIM				PSM			
	Simple matching		Biases adjusted		Caliper matching		Kernel Matching	
	coeff.	p-value	coeff.	p-value	coeff.	p-value	coeff.	p-value
Price revision (%)	-2.64	0.137	-7.28	0.000	-6.03	0.042	-5.24	0.075
Underpricing (%)	-2.63	0.141	-3.73	0.029	-0.81	0.737	-2.52	0.299

Appendix Table A.1: Variable definitions

Variables	Definition (*Data sources*)
Key variable	
MLU (1/0)	MLU is a dummy that equals one if an IPO has more than one lead underwriter and zero otherwise. *(Source: SDC)*
NLU	NLU is the number of lead underwriters in the syndicate. *(Source: SDC)*
Firm visibility variables	
HLreg	HLreg is the number of articles in the *LexisNexis News Search* that have an issuer's name on the headline or in the lead paragraph during the registration period.
FTreg	FTreg is the number of articles in the *LexisNexis News Search* that have an issuer's name in the full text during the registration period.
HL6	HL6 is the number of articles in the *LexisNexis News Search* that have an issuer's name on the headline or in the lead paragraph for 6 months prior to the offer date.
FT6	FT6 is the number of articles in the *LexisNexis News Search* that have an issuer's name in the full text for 6 months prior to the offer date.
%LU coverage	%LU coverage is the fraction of analyst coverage made by lead underwriter(s) relative to overall coverage for one year after the IPO. *(Source: I/B/E/S)*
%LU top 3 coverage	%LU top 3 is the fraction of analyst coverage made by lead underwriter affiliated top three analysts relative to overall coverage for one year after the IPO. *(Source: I/B/E/S)*
Institutional ownership	Institutional ownership is the fraction of shares owned by institutional investors. *(Source: Thomson Reuters 13F)*
Stock turnover	Stock turnover is calculated as the daily trading volume of shares divided by the market capitalization and then averaged over various windows. *(Source: CRSP)*
Delisting	Delisting is a categorical variable that takes the value of 1 if the firm is delisted from the stock exchange after a merger and 2 if its delisted for any other reasons; it takes the value 0 if the firm is not delisted during our sample period. *(Source: CRSP)*
Syndicate characteristics	
No. of managing underwriters	No. of managing underwriters is the number of both lead managers and co-managers in a syndicate. *(Source: SDC)*
No. of CMs	No. of CMs is the number of co-managers in a syndicate. *(Source: SDC)*
Syndicate size	Syndicate size includes managing underwriters and syndicate members. *(Source: SDC)*
Average reputation	Average reputation is the average of the lead underwriters' reputations if there is more than one and the lead underwriter's reputation otherwise. *(Source: Jay Ritter's web-site)*
Average LU reputation	Average LU reputation is the lead underwriter's reputation for single LU IPOs and the average of all lead underwriters' reputations for multiple LU IPOs. *(Source: Jay Ritter's web-site)*
LU Top 3 analyst	A dummy variable that takes the value of one if the LU(s) provides all-star analyst coverage; otherwise zero. *(Source: I/B/E/S)*
Firm characteristics *(Source: Compustat)*	
Leverage	Leverage represents a debt ratio that is calculated as (Long term debt + Debt in Current Liability) ÷ Asset [(#9 + #34) ÷ #6 when expressed in Compustat item numbers].
ROA	ROA is the return on assets [#13 ÷ #6 in Compustat item numbers].
Ln Sales	Sales is Compustat item #12.
Ln Total assets	Assets is Compustat item #6. Along with offer proceeds, it measures the firm size.
Sales growth	Sales growth is a sales growth rate which is calculated as (Sales at time t ÷ Sales at time t-1)-1 where t represents the year that the issuer goes public.

Appendix Table A.1 (cont.)

Variables	Definition (*Data sources*)
Offer characteristics	
Big N auditor (1/0)	Big N auditor dummy is one if an IPO hires an auditor that belongs to either *Big 5* (before December 2001) or *Big 4* (from December 2001) and zero otherwise. *Big 5* auditors include Arthur Andersen LLP, Deloitte & Touche LLP, Ernst & Young LLP, KPMG, and PricewaterhouseCoopers LLP (PwC); *Big 4* auditors include the four firms of *Big 5* except Arthur Andersen LLP. *(Source: SDC)*
VC-backed (1/0)	VC-backed dummy is one if an IPO is VC-backed and zero otherwise. *(Source: SDC)*
Hi-tech (1/0)	Tech dummy is one if an IPO's SIC code is classified as a tech stock based on the SIC codes for tech stocks in Loughran and Ritter (2004) and zero otherwise. *(Source: SDC)*
Nasdaq (1/0)	Nasdaq dummy is one if an IPO goes public on the Nasdaq Stock Market and zero otherwise. *(Source: CRSP)*
Ln offer proceeds	Natural log of (1+ offer proceeds). *Offer proceeds* is the number of shares times offer price, without any overallotment option. *(Source: SDC)*
Offer price	Price the company receives for the shares distributed in the offering. It is set by the company and underwriters just prior to the market open on the day of the public offering. *(Source: SDC)*
Offer price revision	Percentage change from the midpoint of the initial file price range to the IPO offer price.
Underpricing	Underpricing is calculated as (first day closing price-offer price) ÷ offer price. *(Source: SDC)*
Gross spread	Fees the underwriter(s) receive(s) for arranging the offering, as a percent of the total proceeds received from the offering. *(Source: SDC)*
Aftermarket stdev	Standard deviation of daily returns for the first 125 trading days. *(Source: CRSP)*
Ln days in registration	Natural log of (1+days in registration). *Days in registration* is defined as the number of days between filing date and offer date. *(Source: SDC)*