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The Decision to Go Public and the IPO Underpricing with Locally Biased Investors

Abstract

We provide new evidence that local investors are peculiarly biased towards local IPO stocks. Taking the well-known investor preference for local stocks a step further, we contribute by showing that local IPOs boost stock market participation far more intensely than local listed firms. Interestingly, the effect is driven by individuals born and raised in the region, having zero effect for those who have moved to the area. Consistent with underwriters significantly under-estimating the local investors' demand in local IPOs, the probability of a private firm to go public, the IPO underpricing and the cross-sectional volatility of IPO initial returns, increase in remote firms where the local investors' demand in local IPOs is particularly high. Overall, our results suggest that local investors are crucial for the IPO decision.

JEL Classification: G11; G32; D1

Keywords: Stock Market Participation; Going Public Decision; IPO Underpricing; Investor Bias

1. Introduction

Uncertainty about investor participation is the most critical problem that issuers and their investment banks face in the process of going public (see, for example, Rock, 1986). Although individuals are usually rather reluctant to invest in stocks, a feature known as the non-participation puzzle (e.g., Mankiw and Zeldes, 1991; Haliassos and Bertaut, 1995), an exception can be found in stocks from local firms. Lower information asymmetries (e.g., Coval and Moskowitz, 2001; Hau, 2001) as well as feelings of familiarity (e.g., Grinblatt and Keloharju, 2001; Huberman, 2001), result in a portion of local wealth being invested in local firms by a local clientele of dedicated local investors (e.g., Coval and Moskowitz, 1999; Ivković and Weisbenner, 2005). Investors exhibit such an abnormal preference for local stocks, that firms might even alter their cost of capital by relocating their headquarters (e.g., Korniotis and Kumar, 2013).

Moving the current research and the well-known local investor preference for local stocks a step further, we argue that local investors are peculiarly more biased towards local IPO stocks. More specifically, we posit that the local investor demand for stocks is shared between the local listed firms and the local IPOs, with the latter attracting far more investors than the former. In this new setting, local investors provide important additional demand in local IPOs. Therefore, we predict that the local investor additional demand in local IPOs consistently affect the likelihood of a private firm to go public and the IPO underpricing. Results support our hypotheses.

We see at least two motivations for such a local investor preference for local IPOs. First, the role played by information asymmetries in determining investor participation is probably the most important element in the going public process (see, Beatty and Ritter, 1986; Benveniste and Spindt, 1989; Michaely and Shaw, 1994, among others) . To the extent that proximity lowers information asymmetries and spurs investment in local firms (see also, Massa and Simonov, 2006; Ivković et al., 2008), nowhere should this be more true than for investments in local firms going public. Secondly, the IPO is probably the most important and attention-grabbing corporate event, for any firm.[1] As such, local investors' feelings of familiarity and affection towards a successful local private firm which is going

[1] For instance, Liu et al. (2014) and Bajo and Raimondo (2017) document an extraordinary media coverage surrounding IPOs.

public, are also very likely to be greater towards local IPOs than elsewhere.[2] All in all, the same mechanisms that give rise to investor preference for local stocks are significantly more relevant for local IPO stocks.

Though several empirical studies have examined the investor preference for proximate equity, none takes a perspective similar to ours. All contributions in this strand of research focus on the investors' preference for available stocks already issued by proximate listed firms; differently, we look at investors' preference towards local IPO stocks, that is new equity which will be issued by going public private firms and made available to the market only in the near future. As such, this is the unique paper addressing the consequences of the investor preference towards proximate equity for private firms.

We begin our empirical analysis showing that local IPOs abnormally increase local stock market participation. Using equity holdings data for more than 55,000 households over the years 2000-2012, we provide new evidence that the probability of owning stocks increases with the number of the IPOs in the same region where the investor resides, but is not affected by the IPOs outside the region. Remarkably, the effect of local IPOs on stock market participation is significantly stronger - at least 25% across different model specifications - than the positive effect we find for local listed firms, i.e., the investor preference for existing local stocks. On the other hand, the positive relation between stock market participation and local IPOs weakens with the number of listed firms headquartered in the region. Therefore, the local investors provide sizable additional demand in local IPOs and this additional demand is significantly more important in remote firms located far away from the other listed firms. Consistent with a familiarity effect, this preference for local IPOs is largely driven by individuals born and raised in the region, disappearing when only individuals who have moved to the area are considered.

We move forward in our empirical analysis testing whether the abnormal local investor participation in local IPOs consistently affects the likelihood of a private firm to go public. More in particular, for the universe of domestic private and firms going public in 1999-2012, we show that the probability of having an IPO increases for remote private firms, when the local investors' demand for local IPO stocks is especially high.

[2] Familiarity increases in local investors primarily through consumption and work experiences (e.g., Grullon et al., 2004; Døskeland and Hvide, 2011; Keloharju et al., 2012), and spreads via social interactions (e.g., Hong et al., 2004; Brown et al., 2008; Georgarakos and Pasini, 2011), which both have strong local patterns.

Although this demand is particularly high, remote listings are indeed pretty rare events.[3] To the extent that one of the main costs of going public is the IPO underpricing (e.g., Ritter, 1987; Ang and Brau, 2002), we finally conjecture that remote IPO firms are too heavily underpriced. Consistent with that, we find the average IPO underpricing increases with the remoteness of the issuing firm from the other listed firms. Digging into the reasons why this happens, we show that this higher underpricing is primarily driven by increased cross-sectional variability of IPO initial returns, which reflects the increased uncertainty of the IPO pricing problem faced by issuers and their investment banks (e.g., Lowry et al., 2010). Taken together our findings suggest that the abnormal local demand provided by the local investors in local IPOs, further complicates the IPO valuation problem faced by insiders. More in particular, our results indicate that underwriters significantly under-estimate the local investors demand in local IPOs.

The analyses in this paper require a metric to measure the potential local investor demand in local IPOs. This is definitely not a trivial problem and the literature proposes a wide range of appealing approaches. For instance, recent research even turns to textual analysis of annual reports (10-K), defining local firms upon the number of U.S. states mentioned in 10-K (e.g., García and Norli, 2012; Bernile et al., 2015). Novel in this paper, the local investor demand in local IPOs is revealed in the geographic clustering of the existing listed firms around the IPO firm location. Our approach is above all applicable to private firms, while textual analysis is not truly exploitable with small and private firms, which quite often are almost entirely local businesses with financial reports that are rather silent on the territorial distribution of corporate assets.

Though the IPO underpricing has generated considerable empirical research [see Ritter and Welch (2002) for a comprehensive review], evidence on the decision to go public is very limited, since privately held firms are typically not required to report their financial results. Consequently, the data needed for this research are not readily available (especially for U.S. firms). To date there are only a few prominent pieces of direct evidence on the decision to go public. Lerner (1994) studies 350 privately held venture-backed biotechnology firms and shows that companies tend go public when equity valuations are high; Pagano et al. (1998) consider 19,817 Italian private firms and provide evidence that the listing decision relates to specific phases of the firm life-cycle (e.g., change in ownership structure);

[3] Loughran (2008) finds that only 7.5% of the US IPOs are rural IPOs, located 100 miles or more away from the largest US metropolitan areas.

Bodnaruk et al. (2008) deal with 1,309 Swedish private firms and point out that the diversification of the controlling shareholders is among the reasons for listing the company; finally, Chemmanur et al. (2010) address the decision to go public on 928,000 U.S. manufacturing private firms and find that IPOs are also determined by the firm's product market characteristics. Although the data needed on private firms to analyze the probability of going public are not generally available, they are available for Italy. Using Italian data, we study the decision to go public on about 110,000 firm-years in 1999-2012 representing the universe of the domestic private firms with at least a minimal likelihood of going public. Likewise, the necessary data on the investors' equity holdings are not commonly available especially considering the time span must match the IPO data; they are available for Italy. The Bank of Italy Survey of Households Income and Wealth (SHIW) provides equity holdings data on a 2-year basis for about 8,000 Italian households from 1989. Previous papers that have also used the SHIW include Guiso and Jappelli (2005), Pelizzon and Weber (2008), Alvarez et al. (2012).[4]

Little other evidence that is similar to this paper has been produced so far. Loughran (2008) investigates the firm's ability to issue equity and finds that rural firms are less likely to conduct SEOs than urban firms and that rural IPOs have lower quality underwriters than urban IPOs. This is consistent with larger information asymmetries in rural firms, leaving the question open as to whether rural firms are more likely to remain private than similar urban firms. Looking at how investor preference for local stocks affects corporate market values, Baschieri et al. (2015) provide evidence of a location premium, which increases with firm remoteness and is sensitive to IPOs and delistings of nearby firms. Consistently, the IPO underpricing is larger in remote IPOs, even though the underlying reason is unaddressed. Finally, Nielsson and Wójcik (2016) analyze the relation between the firm location and IPO underpricing and find that rural IPOs are less underpriced than urban IPOs, which is contrary to both our findings and previous findings.[5] In any case, the definition of rural IPOs used in Nielsson and Wójcik (2016) does not seem consistent.[6]

[4] Guiso and Jappelli (2005) investigate the determinants of investors' awareness of financial assets and consequences for stock-market participation; Alvarez et al. (2012) look at how investors under-manage their financial assets, liquidity, and consumption when the value of their assets is hardly-observed; Pelizzon and Weber (2008) test whether household portfolios are efficient when illiquid housing wealth is also considered.

[5] It is not easy to reconcile that, while being less underpriced (Nielsson and Wójcik, 2016), rural IPOs are pretty rare and have significantly less skilled underwriters than urban IPOs (Loughran, 2008).

[6] In the US: Loughran (2008) document that urban IPOs are 45.9% while rural IPOs are 7.5% (period 1990-2002); Nielsson and Wójcik (2016) show urban IPOs are 23.7% and rural IPOs are 13.1% (period 1986-2014); in Nielsson and Wójcik (2016)'s time period that covers Loughran (2008)'s time period (1990-2002), urban IPOs

First, we contribute to the literature emphasizing the importance of the firm's geographic location in corporate finance.[7] In the majority of this literature, the firm's location matters because investors have a strong preference for geographic proximate existing stocks, which in turn affects market values (see also, Hong et al., 2008; Kumar et al., 2012) and corporate policies (e.g., Becker et al., 2011). We add to this literature by showing that investors have a similar, much stronger preference for the new local equity that will be issued by the local going public private firms. As such, this is the only paper addressing the consequences of the investor preference toward proximate equity for private firms and IPOs. Secondly, this paper adds to the IPO literature investigating the role of uncertainty in firms' decision to go public. Lowry et al. (2010) show that underwriters find it difficult to deal with uncertainty at the firm-level; differently, Pástor and Veronesi (2005) analyze the importance of market-wide uncertainty for entrepreneurs; we contribute by highlighting the role played by uncertainty generated by locally biased investors. Finally, our paper also adds to that literature looking at the importance of firm ownership in shaping corporate policies. Among others, Becker et al. (2011) suggest that retail investors are important affecting dividend policy. We contribute, by showing that retail investors are also important for the IPO decision and IPO underpricing.

The remainder of the paper is organized as follows. Section 2 provides a description of our data and sources, followed by an analysis of the investors and evidence of their preference for local IPOs in Section 3. Section 4 presents our measure of local investor demand in local IPOs. Section 5 considers the firm's likelihood of going public. Section 6 describes remote IPOs. Section 7 addresses IPO underpricing and the cross-sectional volatility of IPO initial returns. Section 8 concludes.

2. Data Description

We employ three main data sources. The primary data for the empirical analyses consist of IPO data, which we have hand collected from the IPO prospectuses.[8] The initial sample consists of domestic firms

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are 21.3% and rural IPOs are 12.1%. Differently from Loughran (2008) and previous research (e.g., Loughran and Schultz, 2005; Loughran, 2007), Nielsson and Wójcik (2016) define rural (urban) IPOs referring to *counties* rather than to *metropolitan areas*. This creates a situation where a significant portion of urban IPOs are miss-classified as non-urban IPOs or even as rural IPOs. Immediate evidence of that emerges by comparing Figure 1 in Loughran and Schultz (2005) with Figure 1 in Nielsson and Wójcik (2016), contrasting rural and non-rural areas in the US.

[7] The most recent evidence spans from the firm's probability of engaging in financial misconduct (e.g., Parsons et al., 2018) to access to credit (e.g., Parsons et al., 2014).

[8] IPO prospectuses can be alternatively found on the Italian Stock Exchange website at www.borsaitaliana.it, and from the IPO firm websites at section dedicated to investors relations.

on the Italian Stock Exchange (Milan Stock Exchange, MSE) that completed an IPO between January 1999 and December 2012. After excluding financial firms (SIC 6000–6999), utilities (SIC 4900-4999), government firms (SIC 9100–9199), and “non-classified establishments” (SIC 9900-9999), we end up with 157 IPOs. Table 1 - Panel A reviews the IPO activity. A detailed description of all variables used in the paper is in Table A.1 in the Appendix.

[Insert Table 1 about here]

Panel A shows an undulating pattern in the number, size and performance of the new issues. The early 2000s saw intense IPO activity: about €370 million in issuing activity per year and about 80 new listings. In the mid-2000s, issuing volume fell by roughly half to €200 million per year from 2002 to 2007, even though 2006 and 2007 brought a new wave of IPOs with about 40 new listings. In the late 2000s, the financial crises left its mark on IPO activity which was about €250 million per year with only 13 new listings during the period 2008 to 2012. Average first-day returns show a consistent pattern, decreasing from 11.5% in the early 2000s to 4.1% in the mid-2000s, and to 6.5% in 2006 and 2007; in the late 2000s, average first-day returns show the maximum variability and average up to 10.1%. The long-run performance of IPOs also varies over time. The 3-year Fama and French (1993) 3-factor model adjusted buy-and-hold returns (BHARs) are negative in 1999-2001, 2006-2007, and the 2008-2012 sub-periods, but positive in 2002-2005; the 3-year cumulative abnormal returns (CARs) show a similar pattern. In all cases, the IPO long-run performance from 1999-2012 is largely negative. All these figures are consistent with previous evidence (e.g., Ljungqvist, 2007; Boissin and Sentis, 2012; Vismara et al., 2012).

The secondary data needed for the empirical analyses are micro-data on stock market participation. Data on investor equity holdings come from the 2-year Survey of Households Income and Wealth (SHIW), which contains detailed social and economic information from a stratified sample of about 8,000 households. The household wealth and equity holdings information is available from 1989. Matching the IPO data, we merge 7 waves of SHIW from 2000 to 2012[9]. There are 55,871 households in the database. Table 1 – Panel B reports summary statistics. In this data set, each household is asked

[9] The SHIW is released by the Bank of Italy every two years. Accordingly, the SHIW wave referring to 2000 actually covers the years 1999 and 2000, eventually matching the 1999-2012 time period of the IPOs and private firms datasets.

to specify the amount of total wealth, and wealth in shares issued by listed firms held by the end of the SHIW year. We create the dummy variable "equity in listed firms" if the household responds to the amount of wealth in shares issued by listed firms and zero otherwise. In the household sample, 7.1% hold stocks of listed firms. The typical household that invests in stock, holds an average stock portfolio of €21,721 (median is €10,000) which corresponds to about 40.5% (20.6%) of the household disposable income and 7.1% (3.0%) of household wealth. The profile of the typical investor in the sample can be quite precisely defined: the average investor is about 50 years old (median is 52), with a mid-level of education (middle school diploma is the most common item in education), and with a not surprisingly consistent average wealth as it includes real estate assets, equal to about 220 thousand euros (median is 133). Finally, there is no predominant gender in the SHIW.

The third data set contains information about private firms, which is necessary to investigate firm decisions to go public. Data on private firms come from Amadeus (Bureau Van Dijk database). We were able to collect data on 167,515 firm-years, which represent the universe of Italian firms with available data in 1999-2012. We exclude the observations on financials (SIC 6000–6999), utilities (SIC 4900-4999), government firms (SIC 9100–9199), and "non-classified establishments" (SIC 9900-9999), firms not headquartered in Italy, and with a ROE out of the range of plus and minus one. As per Pagano et al. (1998), the decision to go public is addressed in the subsample of private firms with at least €5 million in total assets, so for firms that have at least a minimal probability of going public. We end up with 110,317 private firms. Table 1 – Panel C reports the summary statistics for these data. The average private firm in our sample has 8.5% return on asset (median is 7.2%), debt-to-asset ratio equal to 15.4% (11.6%), and 25 years since foundation (22 in median). On the other hand, private firms are quite heterogenous by firm size, with an average total asset equal to 78.6 million euros, ranging from 5.6 million for firms in the first percentile to 935.6 for firms in 99th percentile of the distribution. All figures are consistent with previous evidence (e.g., Pagano et al., 1998).

3. Stock Market Participation and Local IPO Activity

In what follows, we relate the household stock market participation - the likelihood to hold equity - to local IPOs. For testable hypotheses, we build on the investor preference for the local stock literature. Nowadays it is a fact that investors overinvest in geographically proximate stocks (e.g., Coval and Moskowitz, 1999; Ivković and Weisbenner, 2005). This tendency is undoubtedly information-driven stemming from information advantages on local firms: proximity gives investors greater value-relevant information about the local firms, leading them to prefer local firms over non-local firms (e.g., Hau, 2001; Coval and Moskowitz, 2001). On the other hand, behavioural factors, generally ascribable under the concept of familiarity feelings towards the local firms, also push investors towards local equity (e.g., Grinblatt and Keloharju, 2001; Huberman, 2001). For instance, Grinblatt and Keloharju (2001) provide evidence that shareholders are more likely to trade in local stocks when the issuing firm CEO communicates in the same language as the investor or shares the same cultural background. All contributions in this strand of research have the common trait of dealing with the investors' preference for the already available local stocks issued by proximate listed firms, compared to non-local stocks issued by non-local listed firms. Nevertheless, it seems quite reasonable that at least the same forces are equally in play with respect to the local IPO stocks, i.e., the new equity which will be issued by going public private firms and made available to the market only in the near future, compared to the non-local IPO stocks. Therefore, our first testable hypotheses are:

H1: The likelihood that a household holds equity is affected by the volume of local listed firms more than the volume of non-local listed firm

H2: The likelihood that a household holds equity is affected by the volume of local IPOs more than the volume of non-local IPOs

Taking another step further, we contribute by hypothesizing that the same information asymmetries and familiarity feelings that generate the investor preference for local stocks are significantly more important for local IPO stocks. The fact that IPOs are harder to evaluate vis a vis listed firms (e.g., Beatty and Ritter, 1986, among others) suggests that information asymmetries for the new issues are potentially more exploitable by local investors. Accordingly, we posit the greater information advantage local investors obtain through proximity with the issuing firm pushes them to the IPO market, making the investment in a local IPO potentially more profitable than investing in a local listed firm. The investors' familiarity feelings should also be more important towards local IPO stocks than towards local listed firms. First, individual investors tend to feel closer to and prefer stocks that grab their attention, such as stocks that are often in the news (e.g., Barber and Odean, 2008); IPOs experience an impressive visibility shock, with extraordinary media coverage for example (e.g. Liu et al., 2014). Secondly, firms with greater advertising expenditures, ceteris paribus, also have a larger number of both individual and institutional investors (Grullon et al., 2004), and firms choose a higher level of product market advertising when they are planning to issue new equity (Chemmanur and Yan, 2019). Therefore, if familiarity is one of the competing drivers of the investment decision, then local IPOs should be favored over local listed firms. Consistently, our third testable prediction is:

H3: The volume of local IPOs has a greater effect on the likelihood that a household holds equity, than the volume of local listed firms

On the other hand, the tendency to invest in local stocks is stronger in rural areas (e.g., Bernile et al., 2015). Therefore, even though remote firms are located in less populated areas with fewer potential investors compared to less remote firms located in more developed areas (e.g., Loughran, 2008), they benefit from a larger clientele of local investors (e.g., Korniotis and Kumar, 2013). In a nutshell, the lower the number of local firms available for investment, the higher the local demand in each local firm. Thus, we posit that the local investors provide sizable additional demand in local IPOs and this additional demand is significantly more important in remote firms located far away from the other listed firms. Accordingly, our last testable hypothesis is:

H4: The positive effect of the volume of local IPOs on the likelihood that a household holds equity decreases when the volume of the local listed firms increases.

As first step in our empirical strategy, we matched data on household equity holdings from SHIW with data on IPOs. Table 2 reports univariate evidence of stock market participation in our household sample, distinguishing between households in regions with no IPOs (No IPO Activity), in regions with 1 to 3 IPOs (Low Local IPO Activity), and in regions with 4 or more IPOs (High Local IPO Activity) in the 2 previous years throughout the IPO sample period.[10]

[Insert Table 2 about here]

[10] Regions with at least 1 IPO have median IPO activity in the 2 previous years equal to 3. For robustness, different thresholds for low vs. high IPO activity have been used with unchanged evidence.

These basic comparisons clearly show that the likelihood to hold equity increases strongly with the number of local IPOs. In regions with 4 or more IPOs in the 2 recent years, the proportion of households that invest in stocks is 12.1%, which is about twice the proportion of households that participate in the stock market in regions with 1 to 3 IPOs in the same period at 6.7%. Interestingly, consistent with the pivotal role local IPOs play when compared to local listed firms in determining households stock market participation, moving from regions with low local IPOs activity and low stock participation, to regions with high IPO activity and high stock market participation, the average number of local IPOs increases fivefold from about 2 to 10, while changes in the number of local listed firms remains proportional. The pattern is even more pronounced when we consider regions with no recent local IPO activity. To test H1-H4, we estimate Eq. (1),

$$Pr(Equity\_D_{i,t} = 1) = F(\alpha_1 Local\ IPO\ Volume_{i,t} + \alpha_2 Local\ IPO\ Volume\ x\ Local\ Firm\ Volume_{i,t} + \alpha_3 Local\ Firm\ Volume_{i,t} + \alpha_4 Local\ Delisting\ Volume_{i,t} + \alpha_5 Non\text{-}local\ IPO\ Volume_{i,t} + \alpha_6 Non\text{-}local\ Delisting\ Volume_{i,t} + \alpha_7 Non\text{-}local\ Firm\ Volume_{i,t} + Controls + \gamma_t Wave_t) \quad (1)$$

where *Equity_D* is a dummy variable that equals 1 if the household *i* reports owning equity in SHIW wave of year *t* and 0 otherwise, *Local IPO Volume (Non-local IPO Volume*) is the volume of local (non-local) IPOs, *Local Firm Volume (Non-local Firm Volume*) is the volume of local (non-local) listed firms, *Local Delisting Volume (Non-local Delisting Volume*) is the volume of local (non-local) delistings (the IPOs counterparts), *Controls* indicates the set of control variables, *Wave* is a set of dummies for SHIW wave-year specific effects, and *F(.)* is the cumulative distribution function of a standard normal variable.

We define the IPO *j* as local (non-local) for the household *i*, when the firm going public *j* is headquartered in (out) the same region of household *i*.[11] The count of the IPOs in (out of) the same region in the 2 years spanned by the SHIW wave of year *t*, defines the volumes of the local and non-local IPOs at the household level.[12] The same logic is applied in defining volumes of local (non-local)

[11] Italian regions have been identified according NUTS codes. NUTS-Nomenclature of Territorial Units for Statistics, is a geocode standard developed by the EU for referencing the subdivisions of the member states for statistical purposes. NUTS codes split EU member states (NUTS0) into 3 nested sub-levels, macro-areas (NUTS1), regions (NUTS2), and provinces (NUTS3).

[12] For instance, stock market participation data from SHIW wave 2012 are related to IPOs in 2012 and 2011.

listed firms and local (non-local) delistings

While *Local IPO Volume* (*Non-local IPO Volume*) addresses the average effect of local (non-local) IPOs on the likelihood to hold equity, *Local IPO Volume x Local Firm Volume* estimates the additional effect of local IPOs (*Local IPO Volume*) which is influenced by the number of the local listed firms (*Local Firm Volume*). Therefore, while H2 implies *α_Local IPO Volume* > 0 and *α_Local IPO Volume* > *α_Non-local IPO Volume*, H4 predicts *α_Local IPO Volume x Local Firm Volume* < 0. To the extent investors are locally biased and have a preference for proximate stocks (H1), the likelihood of participating in the stock market would also be more sensitive to the volume of listed firms in region (*Local Firm Volume*) rather than the volume of listed firms out of the region (*Non-local Firm Volume*); therefore H1 implies *α_Local Firm Volume* > *α_Non-local Firm Volume*. Finally, the comparison between *α_Local IPO Volume* and *α_Local Firm Volume* tells us whether the investor preference for local IPO stocks is peculiar and different from the average investor preference for existing local stocks (H3); specifically, H3 predicts *α_Local IPO Volume* > *α_Local Firm Volume*.

Table 3 reports the results of probit estimates of our model on stock market participation. In regressions, we control for a number of variables. Limited stock market participation is traditionally explained by the presence of fixed participation costs (e.g., Haliassos and Bertaut, 1995). Since the literature on fixed costs generally emphasizes the importance of wealth (e.g., Brav et al., 2002; Vissing-Jørgensen, 2002), we include the value of household net wealth (*Log(Wealth)*) in regressions. Various demographic characteristics are also included to account for possible differences in participation costs. We control for the SHIW respondent age (*Age*), gender (*Male*), and education level (*Education*). These variables are expected to capture changes over the life cycle and differences across individuals that affect their attitude toward investment in stocks, such as variation in exposure to uninsurable risks (e.g., Kimball, 1993), or that act as a participation barrier regardless of participation costs, such as lack of awareness (e.g., Guiso and Jappelli, 2005). Finally, against possible time-series and cross-sectional correlations in the local investors' trading patterns that may arise from unobservable local factors, standard errors clustered by region and SHIW wave are considered (e.g., Petersen, 2009).

[Insert Table 3 about here]

Results confirm our testable hypotheses. Looking at Model 3, the likelihood of holding stocks strongly increases with local IPOs and this effect is significantly higher than the effect of non-local IPOs (H2:

α_Local IPO Volume = 0.0377*** > *α_Non-local IPO Volume* = -0.0043*). Economically, one single IPO in the investor region increases the unconditional probability of direct stock market participation by about 7%, in other words, 7% more household will hold stocks following an IPO. Furthermore, the positive effect of local IPOs on the likelihood of holding equity weakens with the number of local listed firms as predicted (H4: *α_Local IPO Volume x Local Firm Volume* = -0.0005***). This evidence supports the effect of local IPOs on stock market participation as a pure local demand effect. Consistent with the investor preference for existing local stocks, stock market participation is also directly affected by the volume of local listed firms but it is not sensitive to the volume of non-local listed firms (H1: *α_Local Firm Volume* = 0.0189** > *α_Non-local Firm Volume* = 0.0124). Remarkably, the investor preference in local IPO stock is estimated to be about twice as strong as the average investor preference for existing local stocks (H3: *α_Local IPO Volume* = 0.0377*** > *α_Local Firm Volume* = 0.0189**).

3.1. Stock Market Participation and Sociability, Trust, and Financial Literacy

Recent literature on stock market participation points out that social individuals, for instance those who interact with their neighbors or do charity work, are substantially more likely to invest in the market than non-social individuals (e.g., Hong et al., 2004; Brown et al., 2008; Georgarakos and Pasini, 2011). Also trusting and financially literate individuals are more likely to buy stocks than individuals generally lacking in trust (e.g., Guiso et al., 2008; Georgarakos and Pasini, 2011), and with low financial literacy (e.g., Fornero and Monticone, 2011; van Rooij et al., 2011).

In light of this evidence, in Model 4 of Table 3, we include among the explanatory variables an indicator for sociability (*Sociability*), trust (*Trust*), and financial literacy (*Financial Literacy*). *Sociability* is the regional average of the same sociability indicator previously used in Georgarakos and Pasini (2011) that we obtained by supplementing our SHIW data with data from the Survey on Health, Ageing and Retirement in Europe (SHARE). A household is classified as sociable if at least one of the partners in the family took part at least once a month to one (or more) of the following social activities: voluntary or charity work, educational or training course, a sport, social, or other kind of club, or activities organized by a political or community organization. *Trust* is the regional average of the same trust indicator used in Guiso et al. (2008) from the World Value Survey (WVS) and proxies the subjective probability individuals attribute to the possibility of being cheated. Specifically, the trust indicator equals one when individuals answer “most people can be trusted” to the question “Generally speaking, would you say that most people can be trusted or that you have to be very careful in dealing with people?”. Finally, *Financial Literacy* is the regional average of the same financial literacy indicator used in Fornero and Monticone (2011) from the SHIW, where a household is classified as financially literate when answering correctly to three questions about the understanding of interest rate, inflation and diversification. Tables A.2-A.4 in the Appendix detail data on sociability, trust and financial literacy.[13]

In Model 4, results remain unchanged and confirm all our hypotheses. The tendency to invest in stock increases abnormally with local IPOs (H2: *α_Local IPO Volume* = 0.0408*** > *α_Non-local IPO Volume* = 0.0061**) and this effect is smoothed by the number of local listed firms (H4: *α_Local IPO Volume x Local Firm Volume* = -0.0005***). Furthermore, the likelihood of holding stocks is significantly affected by the volume of local listed firms and not sensitive to the volume of non-local listed firms (H1: *α_Local Firm Volume* = 0.0158* > *α_Non-local Firm Volume* = 0.0095). Finally, the effect of local IPOs on stock market participation remains surprisingly larger in magnitude compared to the effect of existing local stocks (H3: *α_Local IPO Volume* = 0.0408*** > *α_Local Firm Volume* = 0.0158*). In a nutshell, the local investor demand for stocks is shared between the local IPOs and the local listed firms, with local IPO stocks emerging as the strong preference over. As far as sociability, trust, and financial literacy as predictors of stock market participation, sociability is not significant (*α_Sociability* = -1.3156), while trust and financial literacy are substantial in explaining stock market participation (*α_Trust* = 0.7778*** and *α_Financial Literacy* = 1.1417***). Overall, financial literacy emerges as the most important predictor of the decision to invest.[14]

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[13] In SHARE and WVS, we know the region (NUTS2) of residence of respondents. Thus, we first calculate region-level averages based on responses to the above sociability (SHARE) and trust (WVS) indicators and then assign the relevant average to every SHIW respondent who lives in the same region (NUTS2).
This paper uses data from SHARE Waves 1, 2, and 4 (DOIs: 10.6103/SHARE.w1.600, 10.6103/SHARE.w2.600, 10.6103/SHARE.w4.600), see Börsch-Supan et al. (2013) for methodological details. The SHARE data collection has been primarily funded by the European Commission through FP5 (QLK6-CT-2001-00360), FP6 (SHARE-I3: RII-CT-2006-062193, COMPARE: CIT5-CT-2005-028857, SHARELIFE: CIT4-CT-2006-028812) and FP7 (SHARE-PREP: N°211909, SHARE-LEAP: N°227822, SHARE M4: N°261982). Additional funding from the German Ministry of Education and Research, the Max Planck Society for the Advancement of Science, the U.S. National Institute on Aging (U01_AG09740-13S2, P01_AG005842, P01_AG08291, P30_AG12815, R21_AG025169, Y1-AG-4553-01, IAG_BSR06-11, OGHA_04-064, HHSN271201300071C) and from various national funding sources is gratefully acknowledged (see www.share-project.org).
We use WORLD VALUES SURVEY Wave 5 2005-2008 OFFICIAL AGGREGATE v.20140429. World Values Survey Association (www.worldvaluessurvey.org). Aggregate File Producer: Asep/JDS, Madrid SPAIN.
[14] Differently from Hong et al. (2004) but as per Georgarakos and Pasini (2011), in the definition of the sociability indicator we do not consider activities organized by religious organizations. For robustness, an alternative sociability indicator, which includes responses about household participation in religious activities, has been used in the analyses and none of the results are changed.

3.2. Stock Market Participation, Local Financial Development and Endogeneity Issues

It is possible to argue that the positive relation between the investor probability to hold stocks and the local IPOs that we document, is not driven by individuals or investor preference, but rather by the tendency of firms to locate and cluster in the economically developed areas, in other words by the location of the IPO firms. In fact, the presence of more individuals-investors and firms-IPOs is a characteristic of successful, centralized and urban areas when compared to the depressed, remote and rural areas (e.g., Loughran, 2008, 2007). As such, our decision model on stock market participation would likely be affected by omitted variable endogeneity. In an extreme case, one could even argue that owners and underwriters opt to go public to exploit favorable local market conditions, for instance the high stock market participation that is expected in economically successful areas populated by trusting and financially literate individuals. In this case, our model on stock market participation would be affected by simultaneity endogeneity bias.

Dealing with endogeneity is never easy (e.g., Roberts and Whited, 2013). In this analysis, our attempt to overcome endogeneity is threefold. First, against omitted variable endogeneity, in Model 1 of Table 4, we proxy the economic success of the area where the household and the IPO firm are located with the indicator of regional financial development constructed by Guiso et al. (2004) (*Local Financial Development, LFD*). *LFD* is an inverse transformation of the regional effect on the probability that, *ceteris paribus*, a household has been rejected for a loan application or discouraged from applying that year. This *LFD* indicator has some very desirable properties, making it ideal for our purposes. First, *LFD* is positively correlated with local competition, local GDP per capita, as well as some other measures of local economic success. Secondly, being defined by the access to credit, *LFD* is *per se* not influenced by the household decision to invest in stock, and when stock market participation is used as left-hand side variable, *LFD* turns out to be a very good proxy for the local economic development of the region where the firm is located. Finally, *LFD* is constructed precisely referring to Italian regions by using SHIW data. Thus, we are able to supplement our analysis very solidly.[15]

[Insert Table 4 about here]

[15] Table A.5 in the Appendix shows estimates for *LFD* using SHIW data (2000-2012).

In Model 1, results are essentially unchanged. Yet, local financial development is substantial in explaining the decision to invest in stocks (*α_Local Financial Development* = 1.0614***).[16] A less sophisticated but more immediate alternative way to LFD to tease out the potential confounding effects of local specific effects, is to include regional fixed effects in the regressions. When we replace *LFD* and include regional dummies in the model, results remain unchanged (not reported for brevity).

Second, we turn to instrumental variable estimation (IV) to home in on causal inferences. We begin with the following unconditional specification of the volume of IPO in the region,

$$Local\ IPO\ Volume_{j,t} = \beta_0 + \beta_1 Local\ GDP\ Per\ Capita_{j,t} + \beta_2 District_{j,t} + \beta_3 LFD_{j,t} + \gamma_t Year_t \qquad (2)$$

Control variables first include the local GDP per capita. To the extent some models on the decision to go public focus on IPO waves as driven by the onset of a technological innovation or positive productivity shock (e.g., Maksimovic and Pichler, 2001; Benveniste et al., 2002), industry districts in the region should facilitate the observation of an IPO; therefore, we also include in the model a dummy variable *District* which takes the value 1 if the region hosts a district and 0 otherwise.[17] Finally, *LFD* measures the financial development of the area (Guiso et al., 2004) and *Year* is a set of dummies for year specific effects.

The first-stage results (not reported for brevity) show that the per capita GDP in the region (*Local GDP Per Capita*), the presence of economic districts (*District*), and the economic success of the area where the household and the IPO firm are located (*LFD)* are statistically significant predictors of *Local IPO Volume*. The second-stage estimates in Model 2 of Table 4 show that the tendency to invest in stock still increases abnormally with local IPOs when *Local IPO Volume* is instrumented from equation (2) (H2: *α_Local IPO Volume* = 0.0275*** > α_*Non-local IPO Volume* = 0.0039). The coefficient is precisely estimated and is statistically significant at the 1% level. The fact that the coefficient on *Local IPO Volume* obtained using IV is lower than that found when using OLS, further suggests that the OLS estimates are biased upward.

[16] When we add in the model the *LFD* variable, the coefficient of *Local IPO Volume* nearly halves (from 0.0377 in model 3 to 0.0209 in model 5), suggesting that *LFD* truly captures part of the effect of *Local IPO Volume* on the likelihood to hold equity, and ultimately supporting the validity of *LFD* as a control variable. On the other hand, despite having a lower magnitude, the *Local IPO Volume* variable still remains highly statistically significant in explaining the likelihood a household holds equity.
[17] Additional consistent evidence can be found in Helwege and Liang (2004) and Jain and Kini (2006).

Third, we attempt to control for possible endogeneity using a self-selection approach.[18] In fact, the decision of IPOs to locate in the more economically developed areas where a larger number of wealthy households resides, could influence the positive relation between the local IPO volume and the likelihood to hold equity that we document. In other words, the firms and investors would self-select themselves to locate in the same successful areas. Accordingly, endogeneity arising from omitted variable bias would affect our results, and self-selection bias would produce unreliable OLS estimates (e.g., Heckman, 1979). In line with Heckman (1979) we control for the self-selection bias using a two-step procedure. In practice, we test the relation between the household decision to invest in stocks and local IPOs, given the probability the region has recently hosted at least 1 IPO. This allows us to control the relation between stock market participation and the volume of local IPOs for those factors that are related to firm location which make a particular region suitable for IPOs. Therefore, in Table 4, Model 3 is a selection model for the locations of the IPO firms where the dependent variable is 1 if the region hosted at least 1 IPO in the year and 0 otherwise (*IPO In Region_D*), and Model 4 is our model on stock market participation augmented with a correction term that accounts for the IPO location selectivity problem estimated from Model 3 (λ *Pr(IPO In Region = 1)*). The correction term is analogous to Heckman (1979)'s for continuous dependent variable, adjusted for bivariate probit model according to the procedure described by Van de Ven and Van Praag (1981). Previous papers which also have used the same procedure and probit model with self-selection include Borokhovich et al. (1996), Cumming et al. (2006), and Ljungqvist et al. (2006).

In modeling the probability of observing an IPO in the region, we started almost from scratch and test the following,

$$Pr(IPO\ In\ Region\_D_{j,t} = 1) = F(\beta_1 Local\ GDP\ Per\ Capita_{j,t} + \beta_2 District_{j,t} + \beta_3 Local\ Private\ Firm\ Volume_{j,t} + \beta_4 Local\ IPO\ Volume_{j,t-1} + \beta_5 Sociability_{j,t} + \beta_6 Trust_{j,t} + \beta_7 Financial\ Literacy_{j,t} + \beta_8 LFD_{j,t} + \gamma_t Year_t) \quad (3)$$

where *IPO In Region_D* is a dummy variable that equals 1 if the region *j* hosts at least 1 IPO in the year *t* and 0 otherwise, and *F(.)* is the cumulative distribution function of a standard normal variable. The selection model for regions includes all control variables used for *Local IPO Volume* in the IV

[18] See Li and Prabhala (2007) for an extensive review of self-selection models in corporate finance.

estimation (see equation (2)). In addition, *Local Private Firm Volume* is the volume of private firms in the region and is meant to catch whether the higher the number of private firms in the region, the higher the chances that one of these firms decides to go public. *Local IPO Volume(t-1)* is the volume of the IPOs in the region in the previous year and addresses IPO waves (e.g., Ibbotson et al., 1994). By including *Sociability*, *Trust*, and *Financial Literacy* among the variables that explain the probability of an IPO in the region, we control whether factors that could generate expected high stock market participation in the region, are effective in determining a local IPO. To the extent that these indicators of stock market participation enhance the probability of observing an IPO in the region, we might say that there is evidence that, in their decision to go public, owners and underwriters discount inputs related to the potential local investor demand. As such, the relation between local IPOs and the probability of holding stocks would be endogenous.

In Model 3, the probability to observe at least 1 IPO in the region is significantly increasing with the presence of industry districts in the region (*β_District* = 0.7089**), the number of private firms in the region (*β_Local Private Firm Volume* = 0.7165***) and the number of IPOs in the region in the previous year [*β_Local IPO Volume(t-1)* = 0.4006]*. This evidence is consistent with the traditional positive performance effects arising from the agglomeration economies.[19] Interestingly, *Sociability*, *Trust*, and *Financial Literacy* do not significantly affect the probability of an IPO occurring in the region, which suggests that the potential local stock market participation is not in the information set discounted in the firm's decision to go public. From the first-stage equation, we construct an Inverse Mills Ratio (*λ Pr(IPO In Region = 1)*) that we add as an additional regressor to the second-stage equation in Model 4 of Table 4. Looking at the stock market participation in Model 4, results are unchanged after controlling for endogeneity using the two- stage Heckman (1979) procedure. Interestingly, the self-selection bias is not significant in explaining our results, as the probability to observe an IPO in the region does not affect the households' likelihood to hold equity (*β_ λ Pr(IPO In Region = 1)* = -0.0102).

3.3. Local Stock Market Participation Across Native and Non-native Investors

[19] Effects of firm agglomeration have been investigated since Marshall (1890), spanning from "people-based" externalities like knowledge spillovers (e.g., Jaffe et al., 1993; Fiordelisi et al., 2014) to pooling of labor markets that improve firm-worker matches (e.g., Rosenthal and Strange, 2001). See Duranton and Puga (2004) for a review of this literature.

In what follows, we dig into the reasons of the investor preference for local IPOs. In addition to the region of residency, for each head of household the SHIW reports also the region of birth. To investigate what drives the preference for local IPOs, we examine the differential impact that the volume of local IPOs has on the investment behavior of individuals who reside where they were born (the so-called native investors), compared to those investors born in a region other than the one they live in (non-native investors). If familiarity is driving the additional demand provided by local investors in local IPOs, the positive effect of *Local IPO Volume* on stock market participation should be more pronounced for the native investors rather than the non-native investors.

We distinguish the two groups of native and non-native investors with a dummy variable that equals one if the household moved in the region of residence after birth, and zero otherwise (*Non-Native_D*). In Model 5 of Table 4, in addition to *Non-Native_D*, we include three interaction terms, *Non-Native_D x Local IPO Volume*, *Non-Native_D x Local Firms Volume*, and *Non-Native_D x Local IPO Volume x Local Firms Volume*, meant to catch the additional effects of *Local IPO Volume*, *Local Firm Volume*, and *Local IPO Volume* x *Local Firm Volume* when the subsample of non-native investors is singularly addressed. While for the subsample of investors born and raised in the region the evidence is unchanged, and even more important in magnitude (*α_Local IPO Volume* = 0.0466*** > α_*Non-local IPO Volume* = 0.0039), when the additional effect for the subsamples of non-native investors is addressed the evidence is reversed (e.g., *β_Non-Native_D x Local IPO Volume* = -0.0367***), up to cancelling the overall effect of *Local IPO Volume* on stock market participation (*α_Local IPO Volume* = 0.0466*** + *β_Non-Native_D x Local IPO Volume* = -0.0367*** = 0.0099, not significant). Overall, this evidence strongly supports familiarity as main driver of the investor preference for local IPOs.

4. Measuring the Local Investor Demand in IPOs

Section 3 highlights that stock market participation is extraordinarily biased towards local IPOs, consistent with local investors providing an extraordinary local demand in local offerings. As such, a firm's probability of going public in the first place, and the IPO first-day return afterwards, should be consistently affected. To test for these hypotheses, a suitable metric measuring the local investor demand in local IPOs is required.

The local investor demand in local IPOs is a firm-specific trait that is related to the remoteness of the firm location. The local investor demand is shared between the local IPOs and the local listed firms. As a consequence, when for instance no other listed firms are located nearby, the local investor demand concentrates entirely on the first local firm going public. Quantifying this kind of firm traits is definitely not an easy task. The literature proposes quite a wide range of alternative approaches. Loughran and Schultz (2005) and Arena and Dewally (2012) define rural firms as those firms located at least 100-miles away from the largest metropolitan areas in the country. In Hong et al. (2008), a firm is local when it is headquartered in the same region where the investor resides. Similarly, Gao et al. (2008) and Landier et al. (2009) define the corporate geographic dispersion by the number of regions where subsidiaries are located and the proportion of divisions in the firm's home state, respectively. More recently, Baschieri et al. (2015) distinguish isolated firms from clustered firms by using a spatial index previously adopted in the ecology literature to measure the tendency of living organisms to form clusters, while García and Norli (2012) and Bernile et al. (2015) even turn to the textual analysis of annual reports (10-K) and define a firm as local upon the number of U.S. states mentioned in the 10-K. The first approaches are rather easy to implement, but they require the definition of exogenous thresholds for 'firm locality' (e.g., metropolitan areas, regions, states, etc.), which likely weaken the accuracy of measurements. On the other hand, more recent and refined approaches do not require any exogenous definition about firm locality, being more informative by using the entire information set available; however, they have limits in application and convenience. For instance, textual analysis is not truly exploitable in private, small or young firms, which, quite often, are almost entirely domestic businesses with financial reports that are silent about the territorial distribution of the corporate assets.

In this paper, we proxy the local investor demand in local IPOs with the geographic clustering of the existing listed firms around the headquarters of the firm going public. This approach has the virtue of not requiring exogenous assumptions thus using all the information available without losing any in applicability. The geographic clustering of the listed firms j around the firm i in the year t is defined as

$$GeoClustListed_{ijt} = \frac{1}{n}\sum_{j=1}^{n}\frac{1}{Distance_{ijt}}$$

where $Distance_{ijt}$ is the shortest spherical distance between the headquarters of the firm going public i and the headquarters of the listed firms j. *GeoClustListed* increases with the clustering of the j-firms around the firm i. Therefore, *GeoClustListed* is low (high) for firms remote from (clustered with) the existing listed firms where the local investor demand is more (less) important.

To ensure the accuracy of our proxy for the local investor demand in local IPOs, Table 5 relates the *GeoClustListed* variable with the local household stock market participation from SHIW (*Equity_D*). More in particular, by quartiles of *GeoClustListed* (min-max values provided), Table 5 reports the volume of local listed firms and the portion of local households holding stocks that are located within a 100-, 300-, and 600-kilometer radius from the firm headquarters. For instance, the second row of Table 5 says that firms in the second quartile of *GeoClustListed* (values from 0.00649 to 0.00971) have on average 23 (10.3% of all domestic), 140 (62.8%), and 214 (96.0%) listed firms located within 100-, 300-, and 600-kilometer radius from their headquarters; in the same areas, the proportion of local households that have stocks is 0.56% (< 100 km), 0.08% (< 300 km), and 0.04% (< 600 km).

[Insert Table 5 about here]

Figures in Table 5 clearly show that *GeoClustListed* varies consistently with the stock market participation of local households. Given the same local area (e.g., 100 km from firm headquarters), the portion of local households that decided to invest steadily decreases from 1.4% to 0.24% when *GeoClustListed* increases from the 1^{st} to the 4^{th} quartile. As expected, this pattern tends to disappear when larger areas are considered (300 km or 600 km), moving from a 'more local' to a 'less local' perspective. Therefore, *GeoClustListed* catches the local demand provided by local investors.[20]

5. Firm Likelihood to Go Public and the Local Investor Demand

The abnormal participation of local investors in local IPOs should affect the likelihood of a private firm to go public. In particular, remote private firms located far away from the other listed firms, where the local investor demand is especially high, are expected to end up with significantly more demand for their new stocks, compared to similar private firms located in areas with a high density of listed firms. On the other hand, a high demand is expected to trigger new listings for at least a couple of reasons. First, a large pre-offer demand leads to higher IPO prices and proceeds (e.g., Derrien, 2005; Cornelli et al., 2006). Second, a large demand should lead to larger offerings, which, on average, are less underpriced than smaller offerings (e.g., Beatty and Ritter, 1986, Ritter, 1987). Therefore, we predict

[20] For robustness, we also check the correlation between *GeoClustListed* and the household equity-to-wealth ratio, as different indicator of local demand, with unchanged evidence.

the following,

H5: The likelihood of a private firm to go public is positively affected by the local investors' demand for local stocks

To test H5, we estimate a probit model testing whether a firm stays private or goes public including among the explanatory variables *GeoClustListed*, which is expected inversely related with the probability of going public. Specifically, we estimate the following,

$$Pr(IPO_{i,t} = 1) = F(\alpha_1 GeoClustListed_{i,t} + \alpha_2 GeoClustWealth_{i,t} + \alpha_3 Industry\ Median\ MTB_{i,t} + \alpha_4 Roa_{i,t-1} + \alpha_5 Leverage_{i,t-1} + \alpha_6 Log(1+Age_{i,t}) + \alpha_7 Log(Assets_{i,t-1}) + \gamma_t Year_t) \quad (4)$$

where *IPO* is a dummy variable that equals 1 if the firm goes public in year *t* and 0 if the firm remains private and *F(.)* is the cumulative distribution function of a standard normal variable. At any time *t*, the sample includes all firms that are private at that point in time, and the firms that go public (had an IPO) in that year. After a firm goes public, it is dropped from the sample. We follow Pagano et al. (1998) in our model specification. To the extent research clearly highlights that the probability of holding stocks increases with investor wealth (e.g., Guiso et al., 2008), we also include the value of local household disposable income (*GeoClustWealth*) in regressions.[21] Table 6 reports the results of the multivariate analysis of the firm likelihood to go public.

[Insert Table 6 about here]

Results confirm our hypotheses. *GeoClustListed* is positively related with the IPO firm distance with all other listed firms, but negatively related with the local investors' potential demand in local IPOs: consistent with H5, in Model 2 the likelihood a private firm will go public significantly decreases with *GeoClustListed* (α_*GeoClustListed* = -0.0103**).

[21] *GeoClustWealth* is higher (lower) the more concentrated (dispersed) the household per capita disposable income is around the IPO headquarters. More in details, *GeoClustWealth* is like *GeoClustListed* when $Distance_{i,j,t}$ is the distance between the headquarters of the firm *i* and the Italian province capitals *j*, multiplied by the province household per capita disposable income in year *t*.

Economically, a 250-mile increase in the firm distance from all other listed firms brings a 13% increase over the sample average probability of going public.[22] Furthermore, the firm likelihood to go public is increasing in the local wealth as expected (*α_GeoClustWealth* = 0.0137**). Figures in Table 6 also mimic previous evidence. New issues are more likely in bullish markets (*α_Industry Median MTB* = 0.0001***), supporting the window of opportunity hypothesis (e.g., Lerner, 1994). Furthermore, the opportunity to tap public markets is particularly appealing to young companies (*α_Log(1+Age)* = -0.0002***) and firms with high leverage (*α_Leverage* = 0.0009***), which is consistent with the changing issuer objective function hypothesis (e.g., Loughran and Ritter, 2004), and the financial constraint hypothesis (e.g., Pagano et al., 1998), respectively. Finally, small companies are adversely selected towards the listing (*α_Log(Assets)* = 0.0002***) (e.g., Bodnaruk et al., 2008; Chemmanur et al., 2010), for instance, because IPO considerable fixed costs (e.g., administrative expenses and fees) (e.g., Ritter, 1987) weigh relatively more on small companies. *Roa* is the only variable not statistically significant (*α_Roa* = -0.0001).[23]

5.1. Firm Likelihood to Go Public, Local Financial Development and Endogeneity Issues

The negative relation between *GeoClustListed* and the likelihood of going public could be affected by local economic success. For instance, it is well-known that firms tend to cluster in the most economically successful areas. To address this potential issue, in Model 3 of Table 6, we include among the explanatory variables *Local Financial Development (LFD)* that is the local financial development indicator constructed by Guiso et al. (2004). On the one hand, *LFD* is also positively correlated with the volume of the local firms allowing us to capture effects of firm agglomeration; on the other hand, *LFD* is a region-year specific variable measuring the local economic success thus controlling for the development of the region. Therefore, a positive relation between *LFD* and the firm's likelihood of going public is expected. In Model 3, results remain unchanged confirming our hypotheses. In addition,

[22] Though 250 miles is a rather typical threshold for local firms and local investors (e.g., Ivković and Weisbenner, 2005; Seasholes and Zhu, 2010), Italy is significantly smaller than US and a 250-mile increase might not be appropriate for Italy. For robustness, smaller distances up to 50-miles was used with similar economically relevant evidence.

[23] Bodnaruk et al. (2008) find the same pattern. Differently, Pagano et al. (1998) document a positive and significant relation between ROA and the firm decision to go public. However, Pagano et al. (1998) conclude that the pattern of ROA is more consistent with the window of opportunity hypothesis rather than with a pure firm profitability effect.

the probability of going public significantly increases with local financial development as predicted (α*_Local Financial Development* = 0.0008***).[24]

The negative relation between *GeoClustListed* and the likelihood of going public could be also affected by endogeneity. This second potential objection to our results goes as follows. Firms with better performance can more easily go public and firm location is the product of an endogenous choice. For example, a firm whose strategy relies heavily on the human capital of computer scientists is presumably more likely to locate where such employees are abundant. To the extent that factors driving firm location are also correlated with firm performance and therefore, with firm listing, firm location is endogenous to our decision model and results could be affected. To deal with potential firm location endogeneity, in Model 4 of Table 6, we include the self-selection correction term that accounts for the IPO location obtained from the selectivity problem in Model 3 of Table 4 (λ *Pr(IPO In Region = 1)*), and results are unchanged.

6. Remote vs. Clustered IPOs, and Insiders Participation in the Offer

Table 7 presents the summary statistics for firms that go public during our sample period distinguishing remote IPOs, defined as the IPOs with *GeoClustListed* below the cross-sectional median, and clustered IPOs, the IPOs with *GeoClustListed* equal to or larger than the cross-sectional median.[25]

[Insert Table 7 about here]

Newly issued stocks on the MSE register first-day secondary market prices on average (median) 8.9% (3.4%) higher than the IPO price (*Underpricing*). The typical offer in our sample has underwriters with recent experience in IPOs on the MSE: on average (median), the managing underwriter has led 10.5% (3.1%) of the overall value tendered in IPOs on MSE (*Reputation*). Consistent with positive information acquisition during the book-building period (e.g., Hanley, 1993; Ljungqvist and Wilhelm, 2005), IPO share prices are usually revised upward from the original estimates by 19.5% (-0.02%) (*Revision*).[26]

[24] Alternatively, we controlled for local effects by replacing *LFD* with regions fixed effects, and for the remoteness of the firm location by including the analog of *GeoClustListed* for private firms in regressions; in all the cases, none of the results are changed.
[25] Different thresholds for remote vs. clustered IPOs (e.g., below the first vs. above the upper quartile of *GeoClustListed*) do not change the evidence.
[26] Cassia et al. (2004) document similar evidence for Italian IPOs in 1985-2001.

The average (median) IPO raises 389.2 (56.2) euro million (*Proceeds*) and tenders 3.7 (2.8) million shares (*Shares*). In line with international evidence (e.g., Brennan and Franks, 1997; Habib and Ljungqvist, 2001), the majority of the tendered shares are newly issued stocks (*Dilution Factor* is higher than *Participation Ratio*): in our sample, on average (median) 35.4% (23.6%) of the tendered shares are sold by the existing pre-issue shareholders (*Second*).[27] Finally, most of the IPO issue, 64.8% (63.9%) of the tendered shares, is allocated to institutional investors (*Institutional*), which is also consistent with international evidence (e.g., Aggarwal et al., 2002).

The univariate comparison of remote IPOs with clustered IPOs shows that remote IPOs have an average *Underpricing* equal to 9.9% (median is 2.9%), while that of clustered IPOs is 7.9% (3.4%). Firm and offer characteristics are rather similar across remote and clustered IPOs. Nevertheless, interesting evidence clearly emerges. Remote IPOs garner more participation by insiders as opposed to clustered IPOs (*Participation Ratio* and *Second*). In remote IPOs, the proportion of the tendered shares by the existing pre-issue shareholders (*Second*) is on average (median) 40.8% (33.3%), which is significantly larger than the average (median) *Second* in the clustered IPOs, at 30% (12.4%). According to Hanley (1993), the number of shares offered by existing shareholders is a direct proxy of the pre-offer demand. If there is a strong pre-offer demand for an IPO, the number of shares offered by existing shareholders is revised upward; otherwise, when the demand is weak, secondary shares are often the first to be cut. This evidence is consistent with our hypothesis that remote firms that go public benefit from higher, yet unexpected, demand than similar but less remote going-public firms.

7. IPO Underpricing and the Local Investor Demand

In this section we relate the local investors' demands in local IPOs with the IPO underpricing. We moved from the consideration that even though the likelihood a firm will go public increases with its remoteness from other listed firms because of higher local investor demand, remote firms listings are pretty rare. For instance, in Loughran (2008) only 7.5% of the US IPOs in 1999-2002 are located 100 miles or more away from the largest US metropolitan areas; the same figure in 1986-2014 is 13.1% according to Nielsson and Wójcik (2016). Therefore, to the extent one of the main costs of going public is underpricing (e.g., Ritter, 1987; Coakley et al., 2009; Khurshed et al., 2018), we conjecture that IPO

[27] Rigamonti (2007) finds similar evidence for Italian IPOs in 1985-2005.

firms for which the local investors' demand is particularly high are too heavily underpriced. More formally, we test the following,

H6: The IPO underpricing is positively affected by the local investors' demand for local stocks

The literature provides us with two competing and equally fitting theories for this underpricing. On the one hand, the IPO underpricing originates in the information asymmetries surrounding the offer (e.g, Beatty and Ritter, 1986; Rock, 1986) and in the uncertainty on the after-market illiquidity that may persist even after the IPO (Ellul and Pagano, 2006). To the extent remote firms have larger information asymmetries than firms clustered together (e.g., Loughran and Schultz, 2005; Loughran, 2008, 2007), IPOs located far away from the other listed firms for which the local investors' demand is particularly high, would be purposely more heavily underpriced by insiders to compensate investors for the larger information asymmetries that characterize remote IPOs. On the other hand, the underpricing also increases with the complexity of the IPO pricing problem faced by issuers and their investment banks (e.g., Rock, 1986; Benveniste and Spindt, 1989; Lowry et al., 2010). For instance, tech firms are more underpriced than non-tech firms (e.g., Loughran and Ritter, 2004), also because, keeping all other things equal (e.g., the same level of information asymmetry), the value for technology firms tends to be much harder to estimate precisely because it largely depends on growth options[28]. In a similar vein, IPO firms for which the local investors' demand is particularly high can be hypothesized as more underpriced than IPO firms with low local investor demand because insiders have more difficulties in valuing the former over the latter. For instance, to the extent issuers and underwriters under-estimate the local investors' demand, IPOs where this demand is relatively more important are brought to listing at a particularly low IPO price; when trading begins, market values are pushed up by local investor demand, leaving these IPOs with higher underpricing than IPOs that are similar but experience lower participation by local investors. In this framework, the local investors' abnormal demand would further complicate the IPO valuation problem; which would not be really surprisingly after all, since the demand for new

[28] Gondat-Larralde and James (2008) show that the average underpricing for technology firms during the 2000 boom was not excessive compared to the observed underpricing for non-technology firms in the pre-boom period, due to underwriters block-booking their IPOs.

stocks is probably the most difficult item to estimate in pricing an IPO.[29] To test H6, we estimate the following,

$$Underpricing_i = \beta_0 + \beta_1 GeoClustListed_i + \beta_2 GeoClustWealth_i + \beta_3 IndustryRet\_Before60dd_i + \beta_4 \sigma IPO\_After30dd_i + \beta_5 Revision_i + \beta_6 Range_i + \beta_7 Reputation_i + \beta_8 Participation\ Ratio_i + \beta_9 Dilution\ Factor_i + \beta_{10} Institutional_i + \beta_{11} Log(Proceeds_i) + \beta_{12} Log(1+Age_i) + \beta_{13} Log(Assets_i) + \gamma_t Year_t \qquad (5)$$

where the percentage difference between the first trading day market price and the offer price is the left-hand side variable (*Underpricing*), and *GeoClustListed* is the key explanatory variable inversely measuring the local investor demand in local IPOs; H6 predicts a negative relation between *Underpricing* and *GeoClustListed*. In addition to consolidated control variables for IPO underpricing, in regressions we include a rich set of proxies previously used in the literature to tackle the ex-ante uncertainty about the offer and any possible underpricing caused by information asymmetries, such as IPO aftermarket volatility (*σIPO_After30dd*), prospectus offering price range (*Range*), IPO gross proceeds (*Log(Proceeds)*), firm size (*Log(Assets)*) and age (*Log(1+Age)*).[30] Moreover, Hong et al. (2008), and Korniotis and Kumar (2013) among others, show that corporate market values increase not only with the local investor demand, but also with the local investor wealth; therefore, together with *GeoClustListed*, we include in the model also *GeoClustWealth*. Table 8 reports results on underpricing.

[Insert Table 8 about here]

Results are as predicted and confirm H6. In Model 2, *Underpricing* decreases with *GeoClustListed* (*β_GeoClustListed* = -1.1653**). The economic magnitude of this effect is important. A 250-mile increase in the IPO firm distance from all other listed firms increases the IPO underpricing by 15%, holding all other covariates in Model 2 at their sample means. Consistent with a demand effect,

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[29] Although the issuer and its investment bank know considerably more about the firm going public than any single market participant does, market participants as a whole, know more than the firm about only one input in the IPO pricing process: demand for the firm's shares. By definition, the initiation of trading resolves this information asymmetry on the market's aggregate demand and the information from all market participants becomes incorporated into the price.

[30] Cross-correlations among different measures of the issue ex ante uncertainty might eventually affect our results. To control for possible confounding effects, we re-run our analysis using one of these variables at time, and none of our results are affected.

Underpricing is also positively related to local investor wealth (*β_GeoClustWealth* = 15.7335***). The *Underpricing* also increases with industry return before the listing (*β_IndustryRet_Before60dd* = 0.7467***), which is in line with IPO waves and the hot IPO market hypothesis (e.g., Ibbotson and Jaffe, 1975; Ritter, 1984); with IPO volatility after the listing (*β_σIPO_After30dd* = 4.7047***), which is consistent with theories of underpricing based on information asymmetries (e.g., Ritter, 1987);[31] and with IPO price revision (*β_Revision* = 0.0013*), sustaining the partial adjustment phenomenon (e.g., Hanley, 1993). On the other hand, *Underpricing* significantly decreases the more pre-IPO shareholders sell shares in the IPO (*β_Participation Ratio* = -0.1585*) and the greater the increase in shares outstanding as a result of issuing primary stock (*β_Dilution Factor* = -0.1534*) (e.g., Habib and Ljungqvist, 2001; Ljungqvist and Wilhelm, 2003). Therefore, entrepreneurial wealth losses in IPOs are largely determinant in the underpricing of Italian firms. This evidence is not surprising in light of the Italian corporate governance environment which is characterized by firms with extreme highly concentrated ownership structures (e.g., Faccio and Lang, 2002; Barontini and Caprio, 2006).

In models from 3 to 7 of Table 9, we provide several robustness checks against potential issues. Controlling for the local economic success, in Model 3 of Table 8 we include *Local Financial Development* (*LFD*) among the explanatory variables. Since researchers only observe the set of firms actually going public and they do not observe how many private firms could have gone public, research on IPO underpricing is most likely affected by a natural selection bias. In other words, the same factors affecting the IPO underpricing may also influence the likelihood of a private firm to go public. This might generate a problem of sample selection and twist our findings. To control for potential self-selection bias which may affect firms going public, once again we adopt the Heckman (1979) two-stage procedure. First, in Model 4 we include Heckman's (1979) λ from the likelihood of a private firm to go public (*λ Pr(Firm Go Public = 1)*, estimated from Model 3 in Table 6).[32] This specification allows us to capture the fact that we cannot observe the underpricing for companies that decided to stay private. The selection bias does not seem to be important, since the coefficient of Heckman (1979)'s λ is not significant (*β_ λ Pr(Firm Go Public = 1)* = -0.0033), while other results remain unchanged thus

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[31] In other words, underpricing is more severe for more volatile IPOs. This evidence does not seem to be generated by potential higher volatility of remote IPO stocks. In Table 6, the volatility of remote IPOs in the 30 trading days after the IPO is not significantly different from post-IPO volatility of clustered IPOs; the evidence is unchanged when we consider longer thresholds.

[32] Bodnaruk et al. (2008) is the unique article that had previously addressed the effect of the firm self-selection to listing on underpricing and find significance evidence.

confirming our hypotheses. In a similar vein, one might argue that researchers only observe IPOs coming from specific regions particularly suited to economic success and they do not observe how many IPOs could have taken place in many other regions. To deal with this different potential self-selection issue, in Model 5, we replace *λ Pr(Firm Go Public = 1)* with a different Heckman (1979)'s λ from the likelihood that a region has recently hosted 1 IPO (*λ Pr(IPO In Region = 1)*, estimated from Model 3 in Table 4). Once again, self-selection is not in place (*β_ λ Pr(IPO In Region = 1)* = 0.0191), while previous results are essentially unchanged. In Model 6, following the two-step sequential selection procedure proposed by Ham (1982) and Tunali (1986), we include both these Inverse Mills Ratios in our regression model for IPO underpricing, thus controlling whether our estimates are robust to both the selection processes, in other words to factors that affect the firm's decision to locate in that particular region and factors that affect the firm's decision to go public. Previous papers which also have used this procedure include Bonjour et al. (2003), and Chakravarty and Yilmazer (2009).[33] Even in this case, the self-selection bias is not significant in explaining our results, as both the probability to observe an IPO in the region (*β_ λ Pr(IPO In Region = 1)* = 0.0007) and the probability of a private firm to go public (*β_ λ Pr(Firm Go Public = 1)* = -0.0035) do not affect the IPO underpricing. Yet, all other results remain unchanged thus confirming our hypotheses. Lastly, to deal with endogeneity we turn again to IV estimation in Model 7. First we instrument *GeoClustListed* using the average across private firms in the region of return on asset (*ROA*), debt-to-equity ratio (*Leverage*), firm size (*Assets*) and age (*Age*), that is

$$GeoClustListed_{i,t} = \beta_0 + \beta_1 Av.\ ROA\ in\ Region_{j,t} + \beta_2 Av.\ Leverage\ in\ Region_{j,t} + \beta_3 Av.\ Assets\ in\ Region_{j,t} + \beta_4 Av.\ Firm\ Age\ in\ Region_{j,t} + \gamma_t Year_t \qquad (6)$$

The unconditional specification results (not reported for brevity) show that all control variables in equation (6) significantly affect *GeoClustListed*. We report the second-stage estimates in Model 7 of Table 8 and show that the *Underpricing* still decreases with *GeoClustListed* (*β_GeoClustListed* = -1.2951**), with unchanged results compared to the previous ones.

[33] Tunali (1986) shows that, after jointly estimating the two equations of the different selection processes through a bivariate probit model, two selectivity instruments, λ_1 and λ_2, which are the direct analogues of the Inverse Mills Ratio proposed by Heckman (1979) in the single selection context, can be computed and included in the estimation of the main equation to correct for the potential biases.

7.1. IPO Underpricing and the Local Investor Demand across Opaque and Non-Opaque IPOs

In what follows, we continue investigating the root of the investor preference for local IPOs, this time with the IPO underpricing as the testing field. More in particular, we consider the supply-side of the stock market by looking at the characteristics of the IPO firms, and investigate the differential impact of the local investor demand on IPO underpricing across opaque and non-opaque IPO firms. If the additional demand provided by local investors in local IPOs is driven by information advantages, then the negative effect of *GeoClustListed* on IPO underpricing should be more pronounced in opaque IPO firms compared to non-opaque IPO firms, for which the potential information advantage that could be exploited by the local investors should be tending to disappear (e.g., Baschieri et al., 2016).

We hand-collect data from the electronic archive of "Il Sole 24Ore", which is the most prominent financial newspaper in Italy, and create a dummy variable splitting the IPO sample in two subsamples based on media coverage, the number of newspaper articles reporting the firm name in the year before the IPO (*Opaque_D*) (e.g., Birz and Lott, 2011). A media coverage above the median defines the non-opaque IPOs (*Opaque_D*=0), while a media coverage below the median defines the subsample of opaque IPOs (*Opaque_D*=1). Results are reported in Model 8 (for opaque IPOs), and in Model 9 (non-opaque IPOs) of Table 8. Consistent with an investors preference for local IPOs which is information driven, *Underpricing* decreases with *GeoClustListed* only when the subsample of opaque IPOs is investigated (Model 8, *Opaque_D*=1: *β_GeoClustListed* = -1.2776***; Model 9, *Opaque_D*=0: *β_GeoClustListed* = -0.8453). Taken together, our findings suggest that the native investors which naturally have more affection for their local area and its economic activities increase their market participation following local IPOs; on the other hand, these native investors do not appear to be random buyers of local stocks, mainly investing in the local IPO stocks for which a local informational advantage can be more profitably exploited.

7.2. The Variability of IPO Initial Returns and the Local Investor Demand

Lowry et al. (2010) show that the complexity of the IPO pricing problem faced by insiders is reflected in the cross-sectional variability of IPO stocks initial returns. Specifically, when the sample of firms going public contains a larger portion of highly uncertain firms (e.g., young, small, and technology firms), greater pricing errors are made, and this increases not only the average underpricing, but also the range of the observed underpricing. In essence, while the cross-sectional mean of the IPO stock's initial returns reflects the information asymmetries surrounding the offer, the cross-sectional volatility of the IPO stock's initial returns reflects the complexity of the IPO pricing problem faced by issuers and underwriters.

To identify the channel through which *GeoClustListed* affects the IPO underpricing, via information asymmetries or the complexity of the IPO pricing problem, we investigate whether *GeoClustListed* affects the variability of the IPO initial returns. Consistent with greater pricing errors when the local demand provided by the local investors is more substantial, we expect that the cross-sectional volatility of the IPO initial return decreases with *GeoClustListed*. If so, this would mean that the complexity of the IPO pricing problem is proportional to the local investor demand. Therefore, when the sample of firms going public contains a large proportion of firms with high local investor demand , greater pricing errors are made, and this increases the cross-sectional volatility of the IPO stock's initial returns and the average underpricing. Formally, we augment Lowry et al. (2010)'s model with *GeoClustListed* (and *GeoClustWealth*) thus testing the following,

$$IPO\_IR_i = \beta_0 + \beta_1 GeoClustListed_i + \beta_2 GeoClustWealth_i + \beta_3 Reputation_i + \beta_4 Log(Shares_i) + \beta_5\, Tech_i + \beta_6\, AIM_i + \beta_7\, Log(1{+}Age_i) + \beta_8\, |Revision_i| + \varepsilon_i \qquad (7)$$

$$\sigma IPO\_IR_i = Log(\sigma^2(\varepsilon_i)) = \gamma_0 + \gamma_1 GeoClustListed_i + \gamma_2 GeoClustWealth_i + \gamma_3\, Reputation_i + \gamma_4 Log(Shares_i) + \gamma_5 Tech_i + \gamma_6 AIM_i + \gamma_7 Log(1{+}Age_i) + \gamma_8 |Revision_i| \qquad (8)$$

As per Lowry et al. (2010), the Maximum Likelihood Estimation (MLE) of (7) and (8) allows us to estimate the influence of each explanatory variable on both the level (*IPO_IR*) and the uncertainty (*σIPO_IR*) of firm-level initial returns, and OLS regression of initial returns on the same set of explanatory variables (that is, equation (7)) is the benchmark for comparing the MLE results. Initial returns of IPO stocks (*IPO_IR*) are measured as the percentage change from the offer price to the closing price on the 21st day of trading, to avoid the effects of underwriter price support (e.g., Aggarwal, 2000; Lewellen, 2006; Lyngnes Fjesme, 2019), while firm- and offer-specific characteristics control for firm information asymmetries or underwriter ability to estimate firm value.[34]

[34] Lowry et al. (2010) also include a dummy NASDAQ (NYSE), which is 1 for IPOs on NASDAQ (NYSE), and a dummy VC, which is 1 for vc-backed IPOs. In our model, NASDAQ dummy is fully replicated by AIM dummy, and NYSE dummy is reflected in the constant; in our IPO sample, vc-backed IPOs are tech IPOs or AIM IPOs. As in Lowry et al. (2010), for robustness purposes, we re-run our analyses adding a Bubble dummy, that equals 1

Table 9 reports the results. Models 1-3 are the basic specifications, while Models 4-6 include *GeoClustListed* and *GeoClustWealth*; OLS is the benchmark for MLE, which models both the mean (*IPO_IR*) and the variance (*σIPO_IR*) of IPO initial return.

[Insert Table 9 about here]

Figures in Model 4 confirm the previous findings: the IPO initial returns (*IPO_IR*) decrease with *GeoClustListed* (Model 4: *β_GeoClustListed* = -0.8168*). Consistently, *GeoClustListed* is also negative and significant in Model 5 (Model 5: *β_GeoClustListed* = -0.8312**). On the other hand, *GeoClustListed* is negative and even more strongly significant in Model 6 (Model 6: *β_GeoClustListed* = -0.8877***). Similar evidence is shown for *GeoClustWealth* (Model 4: *β_GeoClustWealth* = 12.9465*), which also remains significant in the mean equation (Model 5: *β_GeoClustWealth* = 7.2826**) and more strongly significant in Model 6 (Model 6: *β_GeoClustWealth* = 1.7121***). The pattern of control variables is as expected and mimics previous evidence by Lowry et al. (2010).

Findings support underwriter difficulty in estimating the local demand component in IPOs, thus leaving unexpected money on the table. In particular, the more important the local investor demand in IPOs, the greater the pricing errors made. In a comparison perspective, as the value for technology firms tends to be much harder to estimate because it depends heavily on growth options, the value for the remote firms tends to be harder to estimate because it depends heavily on the demand provided by the local investors for the local stocks. This increases the complexity of the IPO pricing problem and results in higher underpricing in the remote IPOs.

8. Conclusions

We move the well-known investor preference for local stocks issue forward and show that local investors are far more biased towards local IPO stocks. Consistent with behavioral explanations based on superior familiarity and affection towards local private companies which are going public, such a local preference for local IPOs is attributable to individuals born and raised in the region. We also show that the probability of a private firm going public, the IPO underpricing and the cross-sectional volatility

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if the IPO occurs in 1999-2000; results are unchanged. While we opt to replicate Lowry et al. (2010)'s analysis for the sake of comparison with existing evidence, we also re-run analysis in Table 9 including all control variables included in Table 8 and evidence is again unchanged.

of IPO initial returns are consistently affected, increasing in remote firms when the potential local investors demand in local IPOs is particularly high. These findings indicate that the abnormal demand provided by the local investors in local IPOs is significantly under-estimated by underwriters. As a consequence, remote firms end up being adversely selected in going public or, in the best scenario, leave substantial money on the table when going public.

The main implication of our findings is that remote private firms can count on an unexploited local clientele for their newly issued local stocks. Local retail investors are therefore crucial for the IPO decision. As soon as properly reassessed by underwriters taking into account investor biases, the abnormal demand provided by the local investors in the local IPOs could make going public convenient for a plethora of remote firms currently undervalued. As such, the local investors' greater affection for remote firms counterbalances the well-documented higher information asymmetries.

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Table 1
Summary Statistics for the Samples Used in Estimation

Panel A. The sample is 157 IPOs on the Italian Stock Exchange in 1999-2012. *Average First-Day Return* is the equally weighted average first-day return measured from the offer price to the first MSE-listed closing price. *Gross proceeds* is the amount raised from investors in euro millions (2012 purchasing power using the CPI, global offering amount excluding overallotment options). *Money Left on The Table* (millions of euros, 2012 purchasing power) is calculated as the number of shares issued times the change from the offer price to the first-day closing price. *Average 3-year Return* is calculated from the first closing market price to the earlier of the three-year anniversary price or the delisting price. *IPOs* is the equally weighted average 3-year raw return (capital gains plus dividends). *CARs* is the equally weighted average 3-year cumulative abnormal return. *BHARs* is the equally weighted average 3-year buy-and-hold abnormal return. Abnormal returns are calculated using Fama and French (1993) 3-factor model.
Panel B. The sample is 55,871 Italian households in Survey of Households Income and Wealth (SHIW) in 2000-2012. *Equity_D* is one if the household responds in SHIW to the amount of wealth in shares issued by listed firms and zero otherwise. *Equity Wealth* is the household wealth amount in shares of listed firms held at the end of the year by the SHIW respondent. *Equity-To-Income* is the ratio of the household wealth in shares of listed firms to the household net income. *Equity-To-Wealth* is the amount of the household wealth in shares of listed firms. *Age* is the age of the SHIW respondent. *Male* is one if the SHIW respondent is male and zero otherwise. *Education* is the SHIW respondent education level. *Net Income* is the household disposable income. *Wealth* is the household net total wealth.
Panel C. The sample is 110,317 Italian private firms in Amadeus (Bureau Van Dijk) in 1999-2012 with available data, headquartered in Italy, with ROE within plus and minus one range, and with at least €5 million in total assets. *Roa* is the ratio of EBITDA to total assets. *Leverage* is the ratio of financial debt to equity book value. *Age* is the number of years since firm's foundation. *Assets* is the value of total asset.

Table 1 – continued

Panel A - Number of IPOs, First-day Returns, Gross Proceeds, Amount of Money Left on the Table, and Long-run Performance, by Cohort Year, 1999 to 2012

Year	Number of IPOs	Average First-Day Return	Average Gross Proceeds (€ Millions)	Aggregate Money Left on the Table (€ Millions)	Average 3-Year Return		
					IPOs	CARs	BHARs
1999	20	17.3%	930	6.2	-9.2%	-36.2%	-47.5%
2000	40	13.2%	150	8.9	2.6%	-54.4%	-37.9%
2001	18	-2.0%	214	0.2	4.8%	-30.5%	-10.2%
2002	4	0.3%	153	-0.1	-0.2%	13.1%	17.7%
2003	4	-1.4%	138	-0.1	6.5%	18.1%	-14.1%
2004	7	3.8%	321	0.6	2.7%	1.9%	25.3%
2005	9	8.8%	150	1.1	-4.2%	-18.1%	3.8%
2006	20	9.9%	225	1.3	8.0%	-18.7%	-16.9%
2007	22	3.5%	170	1.0	-0.3%	-6.3%	4.9%
2008	4	5.9%	19	-0.0	12.8%	-18.5%	-37.9%
2009	1	31.3%	105	1.6	0.5%	75.6%	122.2%
2010	4	1.2%	628	1.3	-3.5%	-68.5%	-89.2%
2011	2	17.6%	192	4.8	-1.0%	55.1%	146.3%
2012	2	0.0%	89	7.8	3.9%	11.3%	-6.6%
1999-2001	78	11.5%	365	6.2	-0.1%	-44.9%	-34.1%
2002-2005	24	4.1%	198	0.5	-0.1%	-4.3%	9.7%
2006-2007	42	6.5%	196	1.1	3.6%	-13.0%	-6.8%
2008-2012	13	10.1%	250	2.8	3.6%	-21.8%	-24.0%
1999-2012	157	8.9%	281	3.8	0.8%	-29.6%	-20.1%

Panel B - Individuals in the household samples (N = 55,871)

	Mean	Median	Standard Deviation	1st percentile	99th percentile
Equity_D	0.071	0.000	0.256	0.000	1.000
Equity Wealth (€) if Equity_D =1	21,721	10,000	57,988	0	220,000
Equity-To-Income if Equity_D =1	0.405	0.206	0.759	0.000	3.337
Equity-To-Wealth if Equity_D =1	0.071	0.030	0.179	0.000	0.730
Age (Years)	49.9	52.0	22.7	2.0	89.0
Male	0.5	0	0.5	0	1
Education	2.9	3.0	1.2	1.0	5.0
Net Income (€)	30,185	24,822	24,268	3,099	111,536
Wealth (€)	219,729	133,020	432,889	-5,000	1,571,539

Panel C - Private Firms: firm's balance sheet database (N = 110,317)

	Mean	Median	Standard Deviation	1st percentile	99th percentile
Roa	0.085	0.072	0.113	-0.145	0.383
Leverage	0.154	0.116	0.136	0.004	0.637
Age (Years)	25	22	17	2	88
Assets (€ Millions)	78.6	22.6	771.7	5.6	935.6

Table 2
Household Stock Market Participation by Local IPO Activity

This table presents summary and univariate evidence of stock market participation in the household sample distinguishing regions with no IPOs, with a high IPO activity (4 or more IPOs in the region), and a moderated IPO activity (less than 4 IPOs in the region) throughout the IPO sample period. *Equity_D* is one if the household holds stocks in SHIW and zero otherwise. *Equity Wealth* is the amount of household wealth invested in stocks. *Wealth* is the household net total wealth. *Net Income* is the household disposable income. *Equity-To-Wealth* is the proportion of household net total wealth in stocks. *Equity-To-Income* is the proportion of household disposable income in stocks. *Local IPO Volume (Non-local IPO Volume)* is the number of IPOs in (out of) the same region where the household is resident in the 2 previous years. *Local Firm Volume* (*Non-local IPO Volume*) is the number of listed firms in (out of) the same region where the household is resident in the 2 previous years. *Local Delisting Volume* (*Non-local Delisting Volume*) is the number of delistings in (out of) the same region where the household is resident in the 2 previous years. The last two columns report *t*- and *z*-statistics for the test of difference in means and the distributions between the samples of households in regions with 4 or more IPOs (High IPO Activity) and less than 4 IPOs (Low IPO Activity), respectively. ***, **, * indicate significance at the 1%, 5%, and 10% levels.

	Households in regions with:									Tests of differences: High Local IPO Activity - Low Local IPO Activity	
	No Local IPOs			Low Local IPO Activity (1 ≤ IPOs ≤ 3)			High Local IPO Activity (IPOs ≥ 4)				
	N	Mean	Median	N	Mean	Median	N	Mean	Median	Mean difference t-test	Kruskal-Wallis test
Equity_D	26,029	0.044	0	16,232	0.067	0	13,610	0.121	0	16.26***	65.26***
Equity Wealth (€)	26,029	892	0	16,232	1,812	0	13,610	3,755	0	5.70***	60.99***
Wealth (€)	26,029	212,159	133,928	16,232	266,332	167,143	13,610	305,192	184,000	6.09***	58.48***
Net Income (€)	26,029	29,842	23,877	16,232	34,328	28,427	13,610	43,085	34,657	23.74***	708.71***
Equity-To-Wealth	25,393	0.003	0	15,869	0.004	0	13,461	0.01	0	8.33***	60.16***
Equity-To-Income	25,922	0.017	0	16,204	0.029	0	13,599	0.05	0	6.56***	60.02***
Local IPO Volume	26,029	0	0	16,232	1.6	1	13,610	9.6	9	167.07***	22,207.98***
Local Firm Volume	26,029	2.7	2	16,232	21.7	18	13,610	48.1	29	83.03***	5,003.58***
Local Delisting Volume	26,029	0.4	0	16,232	2.3	2	13,610	6.3	4	88.63***	6,269.15***
Non-local IPO Volume	26,029	28.3	16	16,232	24.9	15	13,610	34.1	28	40.59***	1,049.13***
Non-local Firm Volume	26,029	220.1	233	16,232	207.9	210	13,610	169.6	175	-115.70***	9,592.80***
Non-local Delisting Volume	26,029	27.8	27	16,232	24.6	24	13,610	18.7	18	-114.99***	10,187.25***

Table 3
Household Stock Market Participation and Local vs. Non-Local IPOs

This table reports results of the multivariate analysis of stock market participation that is the likelihood to hold equity. *Equity_D* is 1 if the household holds stocks in SHIW and 0 otherwise. *Local IPO Volume (Non-local IPO Volume)* is the number of IPOs in (out of) the same region where the household is resident in the 2 previous years. *Local Firm Volume* (*Non-local IPO Volume*) is the number of listed firms in (out of) the same region where the household is resident in the 2 previous years. *Local Delisting Volume* (*Non-local Delisting Volume*) is the number of delistings in (out of) the same region where the household is resident in the 2 previous years. *Age* is the age of the SHIW respondent. *Male* is 1 if the SHIW respondent is male and 0 otherwise. *Education* is the SHIW respondent education level. *Wealth* is the household net total wealth. *Sociability* is the regional average value of social households from SHARE (e.g., Georgarakos and Pasini 2011). *Trust* is the regional average value of trusting households from WVS (e.g., Guiso et al. 2008). *Financial Literacy* is the regional average value of household with financial literacy from SHIW (e.g., Fornero and Monticone 2011). Wave dummies for time trends are included in regressions (but not shown). *t*-statistics are reported in parentheses. Standard errors clustered by wave (year) and region have been considered. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Equity_D (1)	Equity_D (2)	Equity_D (3)	Equity_D (4)
Local IPO Volume	0.0328***	0.0419***	0.0377***	0.0408***
	(16.33)	(7.35)	(6.25)	(6.67)
Local IPO Volume x Local Firm Volume		-0.0005***	-0.0005***	-0.0005***
		(-6.60)	(-6.49)	(-6.14)
Local Firm Volume		0.0066***	0.0189**	0.0158*
		(11.34)	(2.15)	(1.71)
Local Delisting Volume			-0.1428***	-0.0696
			(-2.58)	(-1.18)
Non-local IPO Volume			-0.0043*	0.0061**
			(-1.85)	(2.45)
Non-local Firm Volume			0.0124	0.0095
			(1.41)	(1.02)
Non-local Delisting Volume			-0.1428***	-0.0650
			(-2.59)	(-1.10)
Age	-0.0043***	-0.0045***	-0.0045***	-0.0047***
	(-7.97)	(-8.23)	(-8.23)	(-8.52)
Male	0.1002***	0.0991***	0.0991***	0.1017***
	(5.25)	(5.17)	(5.17)	(5.21)
Education	0.1705***	0.1693***	0.1693***	0.1699***
	(17.37)	(17.18)	(17.18)	(16.94)
Log(Wealth)	0.3583***	0.3558***	0.3558***	0.3466***
	(27.34)	(27.55)	(27.53)	(26.79)
Sociability				-1.3156
				(-0.91)
Trust				0.7778***
				(3.70)
Financial Literacy				1.1417***
				(9.07)
Constant	-6.0956***	-6.0676***	-5.5436***	-7.8348***
	(-38.77)	(-38.72)	(-7.66)	(-10.22)
Observations	53,372	53,372	53,372	53,372
Pseudo R^2	0.164	0.170	0.170	0.181
X^2 - test	2,019***	2,038***	2,038***	2,168***

Table 4
Household Stock Market Participation: Robustness Check

This table reports results of the multivariate analysis of stock market participation that is the likelihood to hold equity. *Equity_D* is 1 if the household holds stocks in SHIW and 0 otherwise. *Local IPO Volume (Non-local IPO Volume)* is the number of IPOs in (out of) the same region where the household is resident in the 2 previous years. *Local Firm Volume* (*Non-local IPO Volume*) is the number of listed firms in (out of) the same region where the household is resident in the 2 previous years. *Local Delisting Volume* (*Non-local Delisting Volume*) is the number of delistings in (out of) the same region where the household is resident in the 2 previous years. *Age* is the age of the SHIW respondent. *Male* is 1 if the SHIW respondent is male and 0 otherwise. *Education* is the SHIW respondent education level. *Wealth* is the household net total wealth. *Sociability* is the regional average value of social households from SHARE (e.g., Georgarakos and Pasini 2011). *Trust* is the regional average value of trusting households from WVS (e.g., Guiso et al. 2008). *Financial Literacy* is the regional average value of household with financial literacy from SHIW (e.g., Fornero and Monticone 2011). *Local Financial Development (LFD)* is the Guiso et al. (2004)'s indicator of regional financial development. *IPO In Region_D* is 1 if the region host at least 1 IPO in the year and 0 otherwise. *Local GDP Per Capita* is the yearly GDP per regional gross domestic product divided by the regional population. *District* is 1 if at least 30% of IPOs in the year in the region are in the most important industrial district of the region (defined by level-1 SIC codes) and 0 otherwise. *Local Private Firm Volume* is the yearly number of private firms in (out of) the same region where the household is resident. *Local IPO Volume (t-1)* is the number of IPOs in (out of) the same region where the household is resident in the previous year. *λ Pr(IPO In Region = 1)* is the self-selection correction term estimated from the model on the likelihood that a region hosts at least 1 IPO in the year (Model 3). *Non-Native_D* equals 1 if the household is born in a region different from the region of residence and 0 otherwise. Wave dummies (year dummies in Model 3) for time trends are included in regressions (but not shown). *t*-statistics are reported in parentheses. Standard errors clustered by wave (year) and region have been considered. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 4 – continued

	Equity_D	Equity_D	IPO In Region_D	Equity_D	Equity_D
	LFD	IV	Region Self-selection		Native vs. Non-Native
	(1)	(2)	(3)	(4)	(5)
Local IPO Volume	0.0209***	0.0275***		0.0195***	0.0466***
	(3.32)	(4.67)		(2.65)	(7.76)
Local IPO Volume x Local Firm Volume	-0.0003***	-0.0002***		-0.0002***	-0.0006***
	(-3.26)	(-2.72)		(-2.70)	(-6.97)
Local Firm Volume	0.0163*	-0.0012*		0.0158*	0.0074***
	(1.73)	(1.71)		(1.65)	(11.49)
Local Delisting Volume	-0.0975	-0.0693		-0.0962	-0.0964
	(-1.62)	(-1.52)		(-1.60)	(-1.58)
Non-local IPO Volume	0.0039	0.0039		0.0038	0.0039
	(1.53)	(1.53)		(1.47)	(1.42)
Non-local Firm Volume	0.0104	0.0570***		0.0099	0.0346
	(1.09)	(6.45)		(1.04)	(1.00)
Non-local Delisting Volume	-0.0889	-0.1646***		-0.0873	-0.0753
	(-1.47)	(-3.64)		(-1.45)	(-1.44)
Non-Native_D					0.2149***
					(4.90)
Non-Native_D x Local IPO Volume					-0.0367***
					(-3.09)
Non_Native_D x Local Firm Volume					-0.0048***
					(-3.81)
Non_Native_D x Local IPO Vol x Local Firm Vol					0.0005***
					(2.98)
Age	-0.0050***	-0.0029***		-0.0050***	-0.0046***
	(-9.02)	(-8.40)		(-9.02)	(-8.33)
Male	0.1042***	0.0686***		0.1042***	0.1014***
	(5.30)	(5.02)		(5.30)	(5.28)
Education	0.1730***	0.1018***		0.1731***	0.1673***
	(17.12)	(12.78)		(17.14)	(16.97)
Log(Wealth)	0.3397***	0.2100***		0.3395***	0.3554***
	(26.58)	(17.54)		(26.52)	(27.46)
Sociability	0.3281	11.8527***	6.7914	0.2152	
	(0.22)	(12.62)	(0.40)	(0.14)	
Trust	0.7028***	0.9273***	1.2454	0.6853***	
	(3.26)	(8.52)	(0.79)	(3.10)	
Financial Literacy	0.8042***	-0.1433	1.7599	0.7946***	
	(6.24)	(-1.63)	(1.47)	(6.01)	
Local Financial Development (LFD)	1.0614***		0.9629	1.0511***	
	(11.99)		(1.15)	(11.72)	
Local GDP Per Capita			-0.0001		
			(-0.96)		
District			0.7089**		
			(2.14)		
Local Private Firm Volume			0.7165***		
			(4.17)		
Local IPO Volume (t-1)			0.4006*		
			(1.86)		
λ Pr(IPO In Region = 1)				-0.0102	
				(-0.30)	
Constant	-7.4725***	-3.0299***	-5.5739***	-7.3799***	-6.0766***
	(-9.49)	(-4.81)	(-7.89)	(-8.87)	(-38.75)
Observations	53,372	53,372	224	53,372	53,372
Pseudo R^2	0.190	0.181	0.394	0.190	0.171
X^2 - test	2,164***	260***	83.61***	2,168***	2,072***

Table 5
Local Household Stock Market Participation and Geographic Variables of Clustering

This table relates *GeoClustListed* variable with the local household stock market participation from SHIW (*Equity_D*). The table reports quartiles (Min-Max) of *GeoClustListed*, the average number of the listed firms located within a 100-, 300-, and 600-kilometer radius from the firm headquarters, and the proportion of households located within a 100-, 300-, and 600-kilometer radius from the firm headquarters that hold stocks in SHIW (*Equity_D*). *GeoClustListed* is defined as

$$GeoClustListed_{i,j,t} = \frac{1}{n}\sum_{j=1}^{n}\frac{1}{Distance_{i,j,t}}$$

where $Distance_{i,j,t}$ is the shortest spherical distance between the headquarters of the firm *i* and the headquarters of the listed firms *j*. *Equity_D* is 1 if the household holds stocks in SHIW and 0 otherwise The household sample is of 55,871 households from SHIW 2000-2012. The firm sample is of firms that went public at MSE (157) and firms that remained private (110,317) between 1999 and 2012.

GeoClustListed		Number of Local Listed Firms						Proportion of Local Households that Own Stocks (%)		
*n*th-quartile	Min-Max	< 100km		< 300 km		< 600km		< 100km	< 300 km	< 600km
		N	%	N	%	N	%			
1	0.00136-0.00638	7	3.1	65	29.0	155	69.2	1.40	0.42	0.06
2	0.00649-0.00971	23	10.3	140	62.8	214	96.0	0.56	0.08	0.05
3	0.00982-0.03173	53	23.7	146	65.2	214	95.5	0.33	0.10	0.05
4	0.03249-0.11360	75	33.9	142	64.3	210	95.0	0.24	0.09	0.06
All	0.00136-0.11360	40	17.9	123	55.2	198	88.8	0.59	0.11	0.05

Table 6
The Firm Likelihood to Go Public and the Firm Location

This table reports probit model estimation of the probability to go public. The dependent variable equals 0 if the firm stays private and 1 otherwise. *GeoClustListed* is the index of geographic clustering of the listed firms around the going public firm headquarters. *GeoClustWealth* is the index of geographic clustering of the investor wealth around the going public firm headquarters. *Industry Median MTB* is the median market-to-book ratio of the listed firms in the firm industry. *Roa* is the lagged value of return on assets. *Leverage* is the lagged value debt-to-equity book value ratio. *Age* is the number of years since firm incorporation. *Assets* is the lagged value of firm total assets in thousands of euros. *Local Financial Development (LFD)* is the Guiso et al. (2004)'s indicator of regional financial development. *λ Pr(IPO In Region = 1)* is the self-selection correction term estimated from the model on the likelihood that a region hosts at least 1 IPO in the year (Table 4: Model 3). The regression also includes a constant term and calendar year dummies (not reported). *t*-statistics based on standard errors clustered by year and sub-sector are reported in parentheses. ***, **, * indicate significance at the 1%, 5%, and 10% levels.

	Stay Private (0) or Going Public (1)			
	(1)	(2)	(3)	(4)
GeoClustListed		-0.0103**	-0.0075**	-0.0078**
		(-2.48)	(-2.05)	(-2.05)
GeoClustWealth		0.0137**	0.0102*	0.0096*
		(2.08)	(1.81)	(1.72)
Industry Median MTB	0.0001***	0.0001***	0.0001***	0.0001***
	(5.92)	(5.83)	(5.97)	(5.99)
Roa	-0.0001	-0.0001	-0.0001	-0.0001
	(-0.50)	(-0.42)	(-0.42)	(-0.40)
Leverage	0.0009***	0.0009***	0.0008***	0.0008***
	(5.86)	(6.06)	(6.07)	(6.02)
Log(1+Age)	-0.0002***	-0.0002***	-0.0002***	-0.0002***
	(-5.14)	(-5.11)	(-5.52)	(-5.54)
Log(Assets)	0.0002***	0.0002***	0.0002***	0.0002***
	(10.66)	(10.10)	(10.25)	(10.29)
Local Financial Development (LFD)			0.0008***	0.0007***
			(3.62)	(3.00)
λ Pr(IPO In Region = 1)				-0.0001
				(-1.26)
Constant	-0.0002**	-0.0002**	-0.0002**	-0.0002*
	(-2.39)	(-2.38)	(-2.36)	(-1.95)
Observations	110,317	110,317	110,317	110,317
Pseudo-R^2	0.240	0.246	0.257	0.256
χ^2-test	720.7***	776.4***	830.4***	826.9***

Table 7
Remote vs. Clustered IPOs - Summary Statistics

This table presents summary statistics for the IPO sample, distinguishing the remote IPOs and clustered IPOs. The remote (clustered) IPOs are those IPOs with *GeoClustListed* below (equal or above) the cross-sectional median. *GeoClustListed* is the index of geographic clustering of the listed firms around the IPO headquarters. *Underpricing* is the percentage difference between the first trading-day market price and the offer price. *σIPO_After30dd* is the daily standard deviation of the IPO stock raw returns in the 30 trading days after the offering date. *Reputation* is the Megginson and Weiss's (1991) measure of underwriter reputation (underwriter relative market share). *Range* is the prospectus offering price range. *Revision* is the percentage difference between the offer price and the mean of the indicative price range. *Proceeds* is the value of offer gross proceeds (in millions). *Shares* is the number of shares (in millions) offered in the IPO. *Dilution Factor* is the number of primary (new) shares sold relative to pre-IPO share outstanding. *Participation Ratio* is the number of secondary (old) shares sold relative to pre-IPO share outstanding. *Second* is the fraction of the total issue offered by existing pre-issue shareholders. *Institutional* is the percentage of the IPO issue allocated to institutional investors. *Age* is the number of years since firm foundation. *Assets* is the value of firm total assets in thousands of dollars. All the euro values are in real terms. The last two columns report the *t*- and the *z*-statistics for the test of difference in means and the distributions between the sample of the remote IPOs and the sample of the clustered IPOs, respectively. ***, **, * indicate significance at the 1%, 5%, and 10% levels.

	All IPOs (N = 157)		Remote IPOs (N = 78; GeoClustListed < Median)		Clustered IPOs (N = 79; GeoClustListed ≥ Median)		Tests of differences: Remote IPOs - Clustered IPOs	
	Mean	Median	Mean	Median	Mean	Median	Mean diff *t*-test	Kruskal-Wallis test
Underpricing	8.94%	3.40%	9.91%	2.84%	7.98%	3.40%	0.54	0.05
σIPO_After30dd	0.038	0.025	0.028	0.023	0.038	0.026	0.22	1.09
Reputation	0.105	0.031	0.110	0.036	0.100	0.014	0.38	0.42
Range	0.251	0.247	0.243	0.240	0.259	0.248	-0.73	0.30
Revision	0.195	-0.021	0.041	-0.021	0.345	-0.022	-1.36	0.87
Proceeds (€Mln)	389.2	56.2	129.9	64.0	651.7	51.5	-1.70*	0.07
Shares (Millions)	3.7	2.8	3.4	3.2	3.9	2.4	-0.74	2.28
Dilution Factor	0.270	0.251	0.256	0.242	0.284	0.287	-0.85	1.03
Participation Ratio	0.142	0.100	0.168	0.143	0.116	0.045	2.28**	7.46***
Second	0.354	0.236	0.408	0.333	0.300	0.124	1.91*	6.26**
Institutional	0.648	0.639	0.631	0.634	0.665	0.651	-0.45	0.18
Age (Years)	17	13	18	14	16	10	0.92	4.58**
Assets (€th)	872,544	115,222	219,531	115,100	1,478,065	115,345	-1.84*	0.45

Table 8
The IPO Underpricing and the Firm Location

This table reports results from multivariate analysis of *Underpricing*. *Underpricing* is the percentage difference between the first trading-day market price and the offer price. *GeoClustListed* is the index of geographic clustering of the listed firms around the IPO headquarters. *GeoClustWealth* is the index of geographic clustering of the investor wealth around the IPO headquarters. *IndustryRet_Before60dd* is the average of daily industry-specific index returns in the 60 trading days before the offering date. *σIPO_After30dd* is the daily standard deviation of the IPO stock raw returns in the 30 trading days after the offering date. *Revision* is the percentage difference between the offer price and the mean of the indicative price range. *Reputation* is the Megginson and Weiss's (1991) measure of underwriter reputation (underwriter relative market share). *Participation Ratio* is the number of secondary (old) shares sold relative to pre-IPO share outstanding. *Dilution Factor* is the number of primary (new) shares sold relative to pre-IPO share outstanding. *Institutional* is the percentage of the IPO issue allocated to institutional investors. *Proceeds* is the value of offer gross proceeds. *Age* is the number of years since firm incorporation. *Assets* is the value of firm total assets. *Local Financial Development (LFD)* is the Guiso et al. (2004)'s indicator of regional financial development. *λ Pr(Firm Go Public = 1)* is the self-selection correction term estimated from the model on the likelihood of a private firm to go public (Table 6: Model 2). *λ Pr(IPO In Region = 1)* is the self-selection correction term estimated from the model on the likelihood that a region hosts at least 1 IPO in the year (Table 4: Model 3). Model 1-7 are on the whole IPO sample, Model 8-9 are on the subsamples of opaque (*Opaque_D*=1) and non-opaque IPOs (*Opaque_D*=0), respectively. *Opaque_D* is a dummy variable that equals one if the number of newspaper articles reporting the firm name in the year before the IPO is below the median, and zero otherwise. The regression also includes calendar year dummies (not reported). *t*-statistics based on standard errors clustered by industry and year are reported in parentheses. ***, **, * indicate significance at the 1%, 5%, and 10% levels.

Table 8 – continued

	IPO Underpricing								
			LFD	Self-selection by firm and/or region			IV	Opaque_D=1	Opaque_D=0
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
GeoClustListed		-1.1653**	-0.9243**	-0.9323**	-0.7808*	-0.9271**	-1.2951**	-1.2776***	-0.8453
		(-2.12)	(-2.28)	(-2.17)	(-1.72)	(-2.11)	(-2.00)	(-2.68)	(-1.45)
GeoClustWealth		15.7335***	12.0660**	13.1795***	11.7965*	13.1732**	14.8779*	7.6777**	6.0203
		(3.17)	(1.99)	(2.76)	(1.97)	(2.38)	(1.76)	(2.08)	(0.88)
IndustryRet_Before60dd	0.7900***	0.7467***	0.7384**	0.7887***	0.7355**	0.7885***	1.1243***	0.8875**	0.5800
	(2.64)	(2.66)	(2.57)	(2.70)	(2.62)	(2.62)	(4.18)	(2.01)	(1.36)
σIPO_After30dd	4.6876***	4.7047***	4.7558***	4.7869***	4.7474***	4.7864***	5.2011***	4.5338***	5.3207***
	(9.72)	(10.46)	(8.47)	(8.42)	(8.50)	(8.60)	(20.58)	(9.73)	(15.31)
Revision	0.0009*	0.0013*	0.0010	0.0011*	0.0010	0.0011*	0.0012	0.0019	0.0014
	(1.70)	(1.75)	(1.41)	(1.75)	(1.35)	(1.74)	(0.89)	(1.34)	(0.77)
Range	0.0392	0.0286	0.0101	0.0413	0.0245	0.0417	0.0478	-0.0168	0.0901
	(0.33)	(0.25)	(0.09)	(0.39)	(0.21)	(0.38)	(0.62)	(-0.08)	(0.92)
Reputation	0.0504	0.0299	0.0029	0.0076	0.0034	0.0078	-0.1127*	0.0578	-0.0576
	(0.76)	(0.56)	(0.05)	(0.15)	(0.06)	(0.15)	(-1.66)	(1.04)	(-0.59)
Participation Ratio	-0.1585	-0.1585*	-0.2020**	-0.1761*	-0.2026**	-0.1762**	-0.2183**	-0.1914*	-0.1577
	(-1.45)	(-1.70)	(-2.18)	(-1.98)	(-2.26)	(-2.03)	(-2.29)	(-1.68)	(-1.25)
Dilution Factor	-0.1812**	-0.1534*	-0.1950***	-0.1793**	-0.1910**	-0.1791**	-0.2192***	-0.1481*	-0.1955
	(-2.30)	(-1.97)	(-2.78)	(-2.54)	(-2.56)	(-2.39)	(-3.08)	(-1.67)	(-1.55)
Institutional	0.0718	0.0756	0.1052**	0.0847*	0.1033*	0.0847*	-0.0300	0.2346***	-0.0469
	(1.45)	(1.49)	(1.98)	(1.66)	(1.93)	(1.68)	(-0.49)	(5.05)	(-0.82)
Log(Proceeds)	0.0023	0.0107	-0.0000	0.0017	-0.0009	0.0017	0.0064	0.0246	-0.0317*
	(0.09)	(0.41)	(-0.00)	(0.07)	(-0.04)	(0.07)	(0.46)	(1.28)	(-1.77)
Log(1+Age)	-0.0077	-0.0047	-0.0121	-0.0095	-0.0125	-0.0095	-0.0165	-0.0099	-0.0109
	(-0.66)	(-0.43)	(-1.17)	(-1.07)	(-1.17)	(-1.05)	(-1.72)	(-0.64)	(-0.97)
Log(Assets)	0.0098	0.0038	0.0132	0.0132	0.0134	0.0131	0.0073	-0.0207*	0.0391**
	(0.42)	(0.15)	(0.65)	(0.61)	(0.66)	(0.64)	(0.58)	(-1.72)	(2.41)
Local Financial Development (LFD)			0.1037**	0.1117***	0.1271***	0.1125***	0.0396	0.1429	0.1222
			(2.46)	(3.05)	(2.68)	(2.68)	(0.52)	(0.91)	(1.30)
λ Pr(Firm Go Public = 1)				-0.0033		-0.0035			
				(-0.22)		(-0.26)			
λ Pr(IPO In Region = 1)					0.0191	0.0007			
					(0.64)	(0.03)			
Constant	-0.1729	-0.2352	-0.2981	-0.3197	-0.3180	-0.3196	0.0600	-0.0925	-0.3784
	(-0.55)	(-0.73)	(-1.29)	(-1.29)	(-1.32)	(-1.30)	(0.37)	(-0.61)	(-1.44)
Observations	157	157	157	157	157	157	157	79	78
R^2-adj	0.741	0.753	0.757	0.749	0.706	0.711	0.785	0.713	0.704
F-test	8.75***	8.29***	7.80***	7.89***	7.43***	7.34***	8.86***	9.582***	6.833***

Table 9
The Variability of IPO Initial Returns and the Firm Location

The columns labeled OLS show cross-sectional regressions of IPO initial returns (*IPO_IR*) on firm- and offer-specific characteristics; the *t*-statistics, in parentheses, use White's (1980) heteroskedasticity-consistent standard errors. The columns labeled MLE show maximum likelihood estimates of these cross-sectional regressions where the log of the variance of the IPO initial return (*σIPO_IR*) is assumed to be linearly related to the same characteristics that are included in the mean equation. The large sample standard errors are used to calculate the *t*-statistics in parentheses under the coefficient estimates. *IPO_IR* is the percentage change from the offer price to the closing price on the 21st day of trading. *σIPO_IR* is the cross-sectional volatility of *IPO_IR*s. *GeoClustListed* is the geographic clustering of the listed firms around the IPO headquarters. *GeoClustWealth* is the geographic clustering of the investor wealth around the IPO headquarters. *Reputation* is the Megginson and Weiss's (1991) measure of underwriter reputation (underwriter relative market share). *Shares* is the number of shares (in millions) offered in the IPO. *Tech dummy* equals one if the firm is in a high-tech industry, and zero otherwise. *AIM dummy* equals one if the IPO is listed on the MSE segments with minimal regulations and zero otherwise. *Age* is the number of years since firm incorporation. |*Revision*| is the absolute value of the percentage change between the offer price and the middle of the range of prices in the prospectus. The regression also includes calendar year dummies (not reported). ***, **, * indicate significance at the 1%, 5%, and 10% levels.

	IPO Initial Returns					
	OLS	MLE		OLS	MLE	
		Mean	Variance		Mean	Variance
	(1)	(2)	(3)	(4)	(5)	(6)
GeoClustListed				-0.8168*	-0.8312**	-0.8877***
				(-1.67)	(-2.43)	(-2.62)
GeoClustWealth				12.9465*	7.2826**	1.7121***
				(1.77)	(2.06)	(2.63)
Reputation	-0.1086*	0.0285	-0.8638**	-0.1320	0.0318	-0.9781**
	(-1.84)	(0.67)	(-2.18)	(-1.09)	(0.77)	(-2.45)
Log(Shares)	-0.1662*	-0.0515***	-0.7542***	-0.1642*	-0.0571***	-0.7866***
	(-1.92)	(-4.16)	(-8.46)	(-1.91)	(-4.69)	(-7.79)
Tech dummy	0.0244	0.0056	0.2932*	0.0158	0.0014	0.3781**
	(0.48)	(0.21)	(1.69)	(0.32)	(0.06)	(2.03)
AIM dummy	0.0868*	0.0525	0.7727**	0.0772	0.0220	0.3465*
	(1.77)	(1.15)	(2.25)	(1.22)	(0.62)	(1.94)
Log(1+Firm Age)	-0.0192	-0.0152**	-0.1427**	-0.0204	-0.0133*	-0.1530**
	(-0.79)	(-1.96)	(-2.25)	(-0.76)	(-1.85)	(-2.47)
|Revision|	0.0035**	0.0163***	0.0863***	0.0036*	0.0178***	0.0882***
	(2.32)	(4.14)	(9.00)	(1.99)	(4.63)	(8.96)
Constant	0.0745*	0.1015***	-1.0642***	0.0502	0.0681**	-0.9843***
	(1.86)	(3.35)	(-5.96)	(1.07)	(2.02)	(-3.13)
Observations	157	157		157	157	
R^2-adj	0.125			0.156		
F-test (χ^2-test)	1.422	22.92***		1.932	31.02***	