The Discrimination between Professional and Retail Investors in Italian IPOs

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Abstract.

In this work we analyze the strategies of IPO share allocation in Italy. We examine a sample of 181 IPOs listed on the Italian Exchange from 1997 to 2007, in which shares have been assigned both to the public (with no discrimination among the bidders) and to professional institutional investors (with discretionary policies typical of book building). We focus on the portioning of the shares between the two categories of investors above. In Italy claw-back clauses allow underwriters to 'shift' tranches of shares from one category to the other, 'adjusting' the allocation policy declared in the official prospectus.

The IPO literature highlights that underwriters may 'reward' information revealed by professional investors with underpriced shares and leave some money on their table. We posit that underwriters have a further power: they have the option to subtract shares from the retail investors' table and put them on the other table.

We propose a simple model in which we disaggregate the changes in the allocation choices between the two categories of investors, considering the 'oversubscription ratio', the 'IPO scaling ratio' and the 'demand satisfaction' ratio.

We find that in hybrid IPOs with a private placement alongside the public offering, retail investors are not only affected by rationing due to the participation of (more informed) professional investors in the pre-IPO phase, but face even the adjustments in the allocation policies decided by the underwriters, in the post-IPO phase. In fact, we show that underwriters systematically increase the fraction of the shares allotted to the public when the first day return is negative.

We estimate that in 'hot IPOs' (i.e. when the IPO first day return is larger than 10%) the probability that professional investors are given the requested shares is equal to 20.98% compared to 18.74% for retail investors. Such probabilities are inverted in 'cold IPOs' (57.14% versus 64.73%).

Despite a mean first-day return of Italian IPOs equal to +12.9%, we compute that the 'real' expected return for the public has been 'only' +1.14%.

In multivariate analyses, we estimate that a 1% shift of the IPO shares from the public to institutions at the end of the offering is associated with a 1.94% increase in the underpricing level.

J.E.L Classification codes: G30, G32.

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1. Introduction

The topic of IPO shares allocation has become rather hot. Ritter and Welch (2002) write that "research into share allocation issues is the most promising area of research in IPOs at the moment". Such interest is a consequence of the diffusion of 'book building' around the world during the 1990s in the placement of IPO shares (Ljungqvist et al., 2003), which allows the IPO company and its financial intermediates to discriminate among different bidders and to discretionally allocate the shares to IPO bidders.

Such discretion may be adopted to reward investors for truthful revelation of their expectations about the value of the listing company during the pre-IPO period (Benveniste and Spindt, 1989) but also to 'assign' quick profits by allotting underpriced shares to favored customers and 'friends' (Liu and Ritter, 2007). Several studies (see Section 2) analyze the options held by underwriters in the IPO allocation and pricing processes. Most of the papers focus on the underwriters' discretionary decision about the allocation of underpriced IPO shares among professional investors. Some of them will be left some 'money on the table', while others will be not.

In this paper we contribute to the existing literature by shedding some light on a further option the underwriters have. Conditional on all information collected during the pre-IPO phase, they can 'shift' IPO shares from/to the table of small retail investors to/from the table of professional institutional investors.

Italy is one of the countries that recently moved towards the use of book building in IPOs, albeit the method being adopted is a hybrid offering, with book building for institutional investors and open offer for domestic retail investors. Generally the IPO prospectus indicates a the minimum number of shares to be allotted to retail investors, given the total number of offered shares. Indeed, 'claw-back' clauses disclosed in the prospectus allow the underwriters to discretionally 'shift' a tranche of the offering from/to institutional investors. The option may be exercised by underwriters in a number of variants. First, they can increase (decrease) the portion of shares reserved to institutions if the demand from the public is weak (strong), or vice versa. Combining the claw-back option with

the ‘green shoe’ option, the intermediates may increase the number of shares allotted to one or both categories. Given that on the average IPOs leave some ‘money on the table’ (Loughran and Ritter, 2002) and exhibit positive initial returns, underwriters do have the power to decide which category of investors will benefit from this quick profit.

In this work we collected data about the allocation policy of IPO shares in 181 offerings filed on the Italian Exchange from 1997 to June 2007. Details about the allotment of shares to single investors are not publicly available, but the number of total shares assigned to qualified and retail investors respectively are publicly available.

We compare the fraction of IPO shares initially reserved to small retail investors declared in the prospectus, with the effective allocation, decided after collecting the bids from both institutions and retail investors. We find that, on the average, retail investors are strongly rationed. They are entitled to receive only 27.34% of the offered shares, according to the initial prospectus. They effectively receive 30.50% of the total offering, meanwhile the remaining shares are assigned to institutional investors.

We are able to ‘disaggregate’ the difference between ex-ante and ex-post allocation strategy into three different factors. The first one is the ‘oversubscription’ ratio, that is related to the difference between the demand for IPO shares and the supply (the offer size) destined to the categories of investors involved in the IPO (institutions and retail). The second one is the ‘demand satisfaction’ ratio, that is directly related to the choice of the underwriter to satisfy (or not) the demand collected from the two categories. The third one is the ‘IPO scaling’ ratio, that is related to the option to increase the total offering size (for example by exercising the green shoe option) or to reduce the supply, in case of undersubscription.

By comparing the factors above with the IPO initial returns, we show that institutional investors in Italy are systematically favored in the allocation decision. The initial IPO underpricing is positively correlated with the fraction of shares allotted to institutions. Therefore, according with the ‘winner’s curse’ model by Rock (1986) retail investors are more easily rationed in ‘hot’ IPOs.

Given that the mean IPO initial return in our sample is equal to +12.90%, we compute that the 'true' expected return for retail investors has been only +1.14%.

We find that on the average small retail investors are allocated 5.40% more shares than initially declared in the prospectus, in 'cold IPOs' (i.e. IPOs with a negative initial return), while no significant increase is detected in the remaining offerings.

Interestingly, we compute that in 'hot' IPOs (i.e. IPOs with an initial positive return larger than 10%), the probability that institutions receive the requested shares is equal to 20.98%, while it is equal to 18.74% for small retail investors. In 'cold IPOs' the situation is reverted (57.14% versus 64.73%).

Multivariate analyses confirm that the initial IPO return is significantly correlated with the revision in the IPO shares allocation. In fact, larger underpricing is associated with a reduction in the fraction of the IPO shares allocated to small retail investors, and assigned to institutions. The result is robust even if we treat the revision of the allocation strategy as endogenous.

This work is organized as follows. Section 2 reviews the most recent literature about IPO shares allocation. Section 3 contains some information about the IPO regulatory framework in Italy. Section 4 presents the empirical analyses and finally Section 5 concludes.

2. Review of the literature

Book building is progressively spreading around the world (Ljungqvist et al., 2003) in the marketing of IPO shares. Several reasons may explain the phenomenon. Compared to fixed price IPOs, book building is more costly, but it may increase the amount of capital raised at the listing, since it boosts institutional investors to release and diffuse information about the demand for shares among the public. Information collected with book building reduces uncertainty and information asymmetries, allows a more accurate pricing and therefore the initial underpricing of IPO shares (Benveniste and Spindt, 1989; Benveniste and Wilhelm, 1990).

Contrary to auctions, book building allows underwriters to have total discretion in allocating shares to their clients thus exploiting short-run and long-run objectives.

Hanley and Wilhelm (1995), Sherman (2000), Ljungqvist and Wilhelm (2003), Boehmer et al. (2006) and Cornelli and Goldreich (2001) show that institutional investors are generally favored compared to retail investors in the allocation policy. Such preferential treatment is often considered as a compensation for the participation in less attractive offerings.

Ritter and Zhang (2007) study the allocation of IPO shares to mutual funds affiliated with the underwriter, and find evidence of a preferential treatment. The authors posit that underwriters try to boost the fund performance in order to attract more money from the market.

Cornelli and Goldreich (2003) show that in the allotment process underwriters tend to penalize 'flipper' investors, i.e. participants who immediately after the listing sold IPO shares in order to take advantage of quick initial profits.

A number of studies compared the fraction of IPO shares allotted to institutions to the fraction allotted to small retail investors. In Aggarwal's (2003) sample 73% of all IPO shares are allocated to institutions; interestingly, a larger proportion of IPOs priced above the filing range are allocated to institutions, irrespective of their initial aftermarket performance. Moreover, institutional investors are allocated a smaller percentage in companies taken public by a lead underwriter with a major retail operation.

Ljungqvist et al. (2003) and Jenkinson and Jones (2004) in their studies compute that on the average the fraction of IPO shares assigned to institutions is equal to 48% in Germany, 73% in the UK and 76% in France.

The 'green shoe' option, that allows the intermediates to underwrite an additional portion of shares from pre-IPO shareholders (typically 10%-15% of the IPO size) is a further discretionary option in the allocation strategy. Aggarwal (2003) show that underwriters are used to short-sell IPO shares to the participants ('overallotment'). The short position is then covered either by exercising the 'green

shoe' option (in the case of positive initial returns) or by open market repurchases (in the case of weak initial returns, thus supporting the demand for shares and stabilizing the price).

3. Book building and IPO share allocation in Italy

Italy is one of the countries that recently moved towards the use of book building in IPOs, albeit the method being adopted is a hybrid offering, with book building for institutional investors and an open offer for domestic retail investors.

The going public process in Italy starts with a firm and its advisors selecting a segment of the stock exchange. The Italian Exchange is divided into different segments: the main board (*Mercato di Borsa*), and a market for small caps (formerly *Mercato Ristretto*, now *Expandi*). The 'new market' *Nuovo Mercato*, established in 1999 for growth companies, has been closed in 2003 and the listed companies have been absorbed in the main board. In 2007 an unregulated market (*MAC, Mercato Alternativo del Capitale*) has been established for very small companies.

A 'book-running' manager and the co-managers (if any) are given the responsibility to assembly a syndicate (lead by the underwriter) to assist in the public offering of the shares. A letter of intent is drawn, determining the gross spread and eventually a commitment by the company to grant an overallotment option to the underwriter, typically 10% or 15% of the total issue.

After the authorities' approval[1], a legal notice and a prospectus are published specifying the number of shares sold, the indicative price range at which these shares will be sold and the expected date of the listing. An intermediate is selected as the 'sponsor', and certifies that the issuing firm complies with the listing requirements.

Starting from the mid 1990s, Italian underwriters are used to gather non-binding indications of interest from institutional investors, to whom a fraction of the offering is allocated. Before, most of the offerings were marketed at a fixed price, published in the prospectus, with no discrimination between small and qualified investors.

The public offering is defined as a minimum quantity of the global offering. Bids are collected from retail investors, and sometimes from specific targets (e.g. employees of the IPO company, or customers). In case of oversubscription, shares are allotted on a pro-rata basis. No discretion is allowed in the treatment of bids.

The private placement is targeted to domestic and foreign qualified investors (funds, investment and asset management companies, banks). Share are allotted on a discretionary basis. Data about the allotment policy are not publicly available. The market is informed only about the total number of shares assigned to retail investors and to institutions, respectively. The numbers may differ from those reported in the initial filing prospectus. In fact, underwriters have the option ('claw-back clause') to shift shares from the public to qualified investors, and vice versa. Green shoe and overallotment options are disclosed in the prospectus, as well.

Eventually based on information provided by the bids submitted by investors, the underwriter jointly with the offering party fixes the final price of the issue.

4. The empirical analysis

We collected data about all IPOs filed on the Italian Exchange from 1997 to June 2007 in which institutional investors compete with the public for the allotment of shares. Before 1997 there are very few new listings in Italy with a private placement reserved to institutions alongside the public offering.

The sample is made up by 181 new listings. Figure 1 describes the sample by listing year, and by market segment of the Italian Exchange.

(go to Figure 1)

Table 1 reports basic statistics about the fraction of IPO shares initially destined to the public of retail investors and to institutions, according to the numbers declared in the official IPO prospectus

('prospectus allotment')[2]. The numbers are compared with the effective allocation, disclosed by the company and by the underwriters after the listing, and published on newspapers ('effective allotment').

Statistics are influenced by a case in which shares are offered only to retail investors and by 7 cases in which only institutional investors are admitted to the offering (like in the UK 'placings').

(go to Table 1)

Despite P is for 'public', the fraction of IPO shares reserved for institutions is much larger than the fraction eventually reserved for retail investors. On the average only 27.34% of the offer size declared in the official prospectus is assigned to the public. Such percentage has been decreasing in the last years. In 2006 and 2007 the average percentage is below 20%.

Statistics about the effective allocation reveal that on the average after the offering there is an increase in the number of shares assigned to retail investors, compared to the expected size (+3.16%). Interestingly, in 2006 and 2007 on the average we register a small decrease.

In 47 IPOs no variation between the ex ante allocation and the effective allocation is detected.

In order to investigate the causes of the adjustments in the allocation policy, we derive three different indicators, that allow us to focus on specific determinants. Indeed, changes may be related to exogenous factors (e.g. insufficient demand from the market) or to endogenous factors (e.g. the willing to favour one of the categories of investors).

Let:

n_{p_eff}: the number of shares effectively assigned to the public (retail investors);

n_{p_in}: the number of shares initially assigned to the public, disclosed in the IPO prospectus;

n_{tot_in}: the total number of shares offered, net of the green shoe option, according to the IPO prospectus (offer size);

n_{p_req}: the number of shares requested by retail investors, during the offering;

n_{tot_eff}: the total number of shares effectively allotted by the underwriters.

The same variables may defined also for institutional investors, symmetrically.

The ratio between the number of shares effectively assigned to the public n_{p_eff} and the total number of shares effectively allotted in the IPO (defined in Table 1 as 'effective allotment') may be disaggregated as follows:

$$\frac{n_{p\_eff}}{n_{tot\_eff}} = \frac{n_{p\_in}}{n_{tot\_in}} \cdot \frac{n_{p\_req}}{n_{p\_in}} \cdot \frac{n_{p\_eff}}{n_{p\_req}} \cdot \frac{n_{tot\_in}}{n_{tot\_eff}} \quad (1)$$

The ratio $\frac{n_{p\_in}}{n_{tot\_in}}$ (defined in Table 1 as 'prospectus allotment') is decided by the IPO company and its intermediates before the offering, and disclosed in the prospectus. The larger is the ratio, the larger is the fraction of the offer size that is intended to be sold to retail investors.

The ratio between requested shares and the ex ante supply $\frac{n_{p\_req}}{n_{p\_in}}$ is commonly referred to as the 'oversubscription' level. When demand for shares deriving from retail investors exceeds the prospectus provision, the ratio is larger than 1. When the demand is insufficient, the ratio is lower than 1. The oversubscription is mostly an exogenous variable but the offering party has some influence over it. It depends on the underwriters' marketing efforts and on the convenience of the offering perceived by small investors (bonus share provisions may be useful to attract their attention) but even more on the market momentum during the offering. If the stock market is bearish during the offering, or the newspapers are talking about financial scandals, retail investors may be reluctant to book IPO shares.

Let $\frac{n_{p\_eff}}{n_{p\_req}}$ be the 'demand satisfaction' ratio. It represents the ratio between the shares effectively allotted to the public and the shares requested. This ratio is always lower or equal to 1 (in this latter case all retail investors do receive the shares booked during the IPO). The ratio is lower, the larger is the rationing degree suffered by retail investors. This ratio is under the control of the underwriter,

who has the power to shift a fraction of the offering from one category of investors to the counterpart.

Finally let $\frac{n_{tot\_in}}{n_{tot\_eff}}$ be the 'IPO scaling' ratio. It represents the ratio between the prospectus offer size and the total number of shares sold by the underwriters. It is lower than 1 when the underwriters exercises the overallotment option and short sell IPO shares. It is larger than 1 when the underwriters and the IPO company decide to reduce the offer size (when the offer is withdrawn, the ratio will be equal to zero).

The ratio between the 'effective allotment' and the 'prospectus allotment', which we adopt as a measure of the changes in the allocation strategy, may be disaggregated as follows:

$$\frac{n_{p\_eff}}{n_{tot\_eff}} / \frac{n_{p\_in}}{n_{tot\_in}} = \frac{n_{p\_rich}}{n_{p\_in}} \cdot \frac{n_{p\_eff}}{n_{p\_rich}} \cdot \frac{n_{tot\_in}}{n_{tot\_eff}} = \textit{oversubscription} \cdot \textit{demand satisfaction} \cdot \textit{IPO scaling} \quad (2)$$

Equation (2) shows that a variation in the allocation strategy, compared to the intention declared in the prospectus, may be related to three different and specific effects.

First, if the shares booked by one category of investors are less than the size of the offering initially reserved, the final allocation will be adjusted according to the scarce demand. On the contrary, if the demand is larger than the offer size, the underwriter has the option to assign more shares. In this case the underwriter may have the objective to favour either institutional investors or retail investors in the allocation.

Last, the underwriter has the option to increase or decrease the total offer size. Note that the offer size may be increased or reduced with no changes in the proportion of shares allotted to the two different categories of investors. Alternatively, the offer size may be adjusted in order to assign less or more shares to one category of investors, the number of shares assigned to the other party being constant.

Table 2 contains the average values of the ratios defined in Equations (1) and (2), computed for retail investors and for institutions, respectively.

(see Table 2)

In almost all IPOs the demand for shares is larger than the offer size. On the average retail investors bid 10 times the number of shares they are entitled, and institutional investors 6 times.

We detect undersubscription from retail investors in only 22 cases, and for institutions in 12 cases. In 5 cases both the categories of investors revealed not to appreciate the offering, and it has been necessary to reduce the size of the offering. In the other cases, shares not requested by a single category of investors have been allotted to the other category, that expressed a demand exceeding the initial supply.

Considering the 'demand satisfaction' ratio, we detect a strong rationing effect for institutional investors (that on the average receive only 38.91% of the requested shares compared to 44.89% for retail investors). This confirms that the issuing firm and the intermediates are used to set the final offer price as to leave a strong discrimination power among the bidding investors.

In two cases only, all institutional investors have been allocated the number of shares they asked for.

Considering the 'IPO scaling' ratio, in 97 cases the offer size has been augmented, through the overallotment option. In 9 cases the offer size has been reduced, due to insufficient demand for shares.

We aim at correlating the changes in allocation policy with IPO initial return, in order to detect any preferential treatment towards retail or professional investors.

Figure 2 describes the annual average initial return of the sample IPOs, by listing year. It is defined as the difference between the market price at the end of the first day of listing and the offer price, compared to the offer price (underpricing).

(go to Figure 2)

The mean initial return of the 181 offerings is equal to +12.90%, with more than one third of the sample companies (64 IPOs) displaying negative initial returns.

Yet, as the previous statistics would predict, the numbers reported in Figure 2 are not the 'real' expected return for small investors joining the offerings, because of the rationing effect. Moreover we cannot exclude that professional investors receive preferential treatment compared to the public.

Table 3 correlates the allocation strategies with the IPO initial return. The sample IPOs are divided into three groups: 'cold IPOs' (i.e. offerings with initial negative return), 'hot IPOs' (i.e. offerings with initial return larger than 10%), and the remaining IPOs (with positive initial return but lower than 10%).

(go to Table 3)

The numbers show several interesting results.

First, 'hot IPOs' are more easily allocated to institutional investors. Even at the time of the publication of the IPO prospectus (when the underwriters have no detailed information about the shares' demand function and a few elements in order to price the offering), 'hot IPOs' are more likely to be reserved to institutions. The portion of shares initially assignable to the public is equal on the average to 26.56% in 'hot IPOs' while it is equal to 28.98% in 'cold IPOs'. The difference is significant at the 95% level.

The final allocation is even more detrimental for small retail investors. On the average they receive a further 5.40% of the total offering in 'cold IPOs' while no significant increase is detected in 'hot IPOs'. Intermediates are more willing to increase the fraction of shares destined to small investors if

they perceive that the initial return will be negative. In ‘hot IPOs’, underwriters are less likely to shift shares from institutions.

The oversubscription ratios are obviously correlated with the initial return. Both retail and professional investors are able to ‘cherry pick’ the best offerings and face greater competition in ‘hot IPOs’.

The statistics about the ‘demand satisfaction’ ratios confirm the hypothesis that professional investors receive a preferential treatment. In ‘hot IPOs’, on the average only 18.74% of the bids collected from retail investors are satisfied, and 20.98% of the bids expressed by institutions are satisfied. Interestingly, in ‘cold IPOs’ 64.73% of the shares requested by the public are assigned, compared to 57.14% for institutional investors. Median values confirm the differences.

Thus we estimate that the probability that a small investor succeeds in obtaining ‘hot IPO’ shares is only 18.74% compared to 64.73% for ‘cold IPOs’.

Last, the mean ‘IPO scaling’ ratio is lower than 1 when the IPO initial return is positive, and it is larger than 1 (or often equal to 1) when IPOs are overpriced. This confirms that intermediates take advantage from the exercise of the green shoe option when the IPO initial market return is positive.

We separately examine privatisation IPOs, in order to find out peculiar patterns in the allocation strategy, related to political objectives. We define privatising companies as firms controlled (directly or indirectly) from the Government, regional and municipal administrations, foundations and chambers of commerce.

In our sample there are 18 privatising companies. In this cases the fraction of shares ex ante destined to the public (34.98%) is larger compared to other IPOs, and the final allocation is even larger (43.94%, with an increase of almost 9%). The ‘demand satisfaction’ ratio for retail investors on the average is equal to 42.07% compared to 33.72% for institutional investors. The difference is significantly larger, compared to other IPOs. To a larger extent, note that the initial underpricing in privatisation IPOs is equal to +9.21%. Therefore it seems that in such offerings there are specific

objectives aiming at favouring the diffused public of retail investors, to promote the culture of equity investing or maybe to attract political preference.

Finally we conducted a multivariate analysis in order to find out the determinants of the allocation strategy. First we explore the determinants of the prospectus allotment. Then we turn to explore the determinants of the changes in the effective allotment.

Table 4 reports the results of the regression analysis. We correlate the fraction of IPO shares reserved to retail investors, declared in the official prospectus issued before the offering with a series of variable. We consider the log of 1 + the company age (AGE); the log of the company consolidated assets (ASSETS); the log of the offer size (OFFER SIZE); a dummy variable which is equal to 1 for privatization IPOs, 0 otherwise (PRIV). We expect the fraction of shares destined to institutions to be larger, the younger and smaller the company, the lower the offer size. This should happen because information asymmetries are more severe, and the costs of marketing shares to small retail investors are larger. Privatizing companies should be characterized by larger tranches for retail investors, if we assume that politicians are willing to involve small investors in the privatization process.

(go to Table 4)

The regression results confirm the expected correlation with both the company and offer size. No significant correlation is detected with the company age and the privatization dummy.

Now we look at the adjustments in the allocation policy, in the post-IPO phase. The offering party in this phase has collected several information about the demand function. Bids from institutional investors has been registered during the book building process. Data about the number of participants in the public offerings are available. The decisions the underwriters have to take are: (i) the revision about the offer price, with respect to the prospectus range (that will lead to IPO underpricing), (ii) and the revision about the allocation strategies. The literature suggests that

underpricing and allocation strategies be modelled simultaneously. Conditional on information revealed during bookbuilding and long-term strategic relationships, the underwriter simultaneously revises the offer price and the final allocation of IPO shares, compensating investors for revealing private information and allocating more shares to one category of investors if the other counterpart generated undersubscription.

Table 5 reports the regression results. We exclude from the sample 9 IPOs in which only one category of investors is involved. Fist we estimate an OLS model (first column) in which the initial return is the independent variable. Then we estimate a 2SLS model (third column) that treats IPO underpricing as endogenous, starting from first-stage OLS regressions (second column).

The dependent variable is the difference between the percentage of the offering effectively allotted to the public, as disclosed by the company after the IPO ('effective allotment'), and the percentage of the offering destined to the public before the IPO, declared in the official prospectus ('prospectus allotment'). The variables included in the regression are: the first-day IPO return, compared to the offer price (UNDERPRICING); the control variables defined in the previous regression (AGE, ASSETS, OFFER SIZE, PRIV); the 'IPO scaling coefficient' (IPO SCALING) defined as the ratio between the prospectus offer size and the total number of shares sold by the underwriters; the 'oversubscription' ratios (OVERSUBSCRIPTION_P and OVERSUBSCRIPTION_I) defined as the ratio between requested shares and the ex ante supply, for the public and for institutional investors respectively. We expect more positive revisions in the allocation to retail investors, the larger is the oversubscription originated by retail investors, the lower is the oversubscription originated by professional investors. We expect a negative correlation with the 'IPO scaling' coefficient if we assume that the increase in the offer size is instrumental to an increase in the proportion of IPO shares allotted to the public.

Following Ljungqvist and Wilhelm (2003) we include in the regression also the ratio between IPO newly issued primary shares and the number of shares outstanding before the IPO (DILUTION) and

the ratio between secondary IPO shares sold by pre-IPO shareholders and the number of shares outstanding before the IPO (PARTICIPATION).

(go to Table 5)

The results are interesting. When treated as an exogenous variable, the shift in the allocation of IPO shares to the public is significantly and negatively correlated with the initial underpricing. This confirms that underwriters shift some money from the retail investors' table to the professional investors' table. A 1% shift of the IPO shares from the public to institutions is associated with a 1.94% increase in the underpricing. The control variable (the size of the firm and the privatization dummy) display the expected sign. Larger underpricing characterizes small companies and privatizing firms.

5. Concluding remarks

The strategies of IPO share allocation are complex, and take into account several objectives and information: the appreciation of the offering revealed by professional and retail investors, the market sentiment, long term relationship with the investors' community. Book building and claw-back clauses in IPO process gives the underwriters the power to discretionally allocate shares, eventually favouring different categories of investors.

In this work we propose a simple model in order to point out the different determinants of the allocation choices.

We propose a study on 181 IPOs listed from 1997 to June 2007 on the Italian Exchange. In Italy listing companies engage in a two-side hybrid offering, the first one being offered to the diffused public of retail investors (and allotted with no discrimination or discretion), and the second one being reserved to domestic and foreign professional investors (and allotted with discrimination and

discretion). We are able to look at the differences between the ex ante allotment policy and the ex post effective allocation, at the level of the two categories of investors.

The analysis show that actually in Italy most of the shares allocated in an Initial Public Offering are sold in a Private Placement. Adjustments in the allocation of shares between the public (retail investors) and institutions (professional investors) are frequent. The latter category is systematically favoured in the allocation of 'hot IPO' shares, both in the pre-IPO phase (at the issue of the prospectus) and even more in the post-IPO phase (when underwriters decide the effective allotment). In fact, the fraction of the issue assigned to institutions is reduced (and the fraction assigned to small investors is augmented) only when the initial performance of the stock will be negative.

We estimated that in 'hot IPOs' (i.e. when the IPO first day return is larger than 10%) the probability that professional investors are given the requested shares is equal to 20.98% compared to 18.74% for retail investors. Such probabilities are inverted in 'cold IPOs' (57.14% versus 64.73%).

We have been able to compute the 'real' expected initial return for small investors joining IPOs in Italy. Although the mean initial return of all IPOs from 1997 to June 2007 has been remarkable (+12.9%), due to the rationing effect and to the shift in the allocation policies this return is only a dream.

By weighting the first day return of each IPO with the 'demand satisfaction' ratio, which represents the probability of obtaining shares booked in an IPO, retail investors had to expect a much poorer return, equal to +1.14%.

Multivariate analyses confirm that there is a significant negative correlation between the increase in the tranche of share allotted to retail investors and the initial underpricing. Underwriters do leave money on the table for IPO investors, but a fraction of this money is subtracted to small investors and given to institutions.

In conclusion, we think that in the future more transparency is required in the IPO allocation policy in Italy. We showed that discretionary policies in the allotment of shares to institutional investors do have an effect on the expected return for small investors, and shift money from the latter category to the first. We propose that IPO participants should have the right to withdraw from the offering in the case of changes in the allocation policies declared in the prospectus.

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Endnotes

[1] The new issue process is regulated by a public authority, CONSOB, which performs a role that is comparable to the SEC in the USA, and by a private company, Borsa Italiana SpA, who manages the Stock Markets in Italy. CONSOB (http://www.consob.it) has to be informed in advance of the offering conditions and has to certify that the issuer provides adequate information to the public (collected in an officially approved prospectus). Borsa Italiana (http://www.borsaitalia.it) deliberates the admission to the listing, after having verified all the necessary requirements.

[2] We include in the public offering any solicitation reserved to customers and/or employees of the companies, since the allocation rules are the same. Similarly, any placement reserved to specific investors (so called 'family and friends') is included in the private placement for professional investors, since the allotment is discretionally attributed. Anyhow the incidence of such side offerings is negligible.

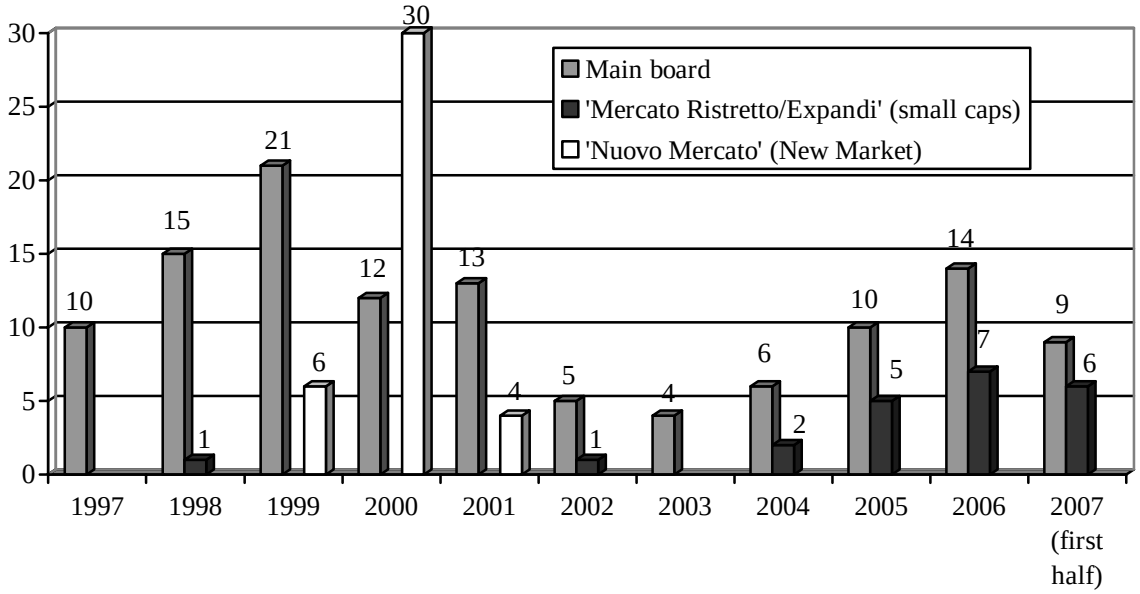

Figure 1. Initial Public Offerings filed on the Italian Exchange from 1997 to June 2007, by listing year and market segment

Table 1. Mean fraction of the IPO offer size reserved to retail small investors and to professional institutional investors, respectively, by listing year. The percentage is computer according to the ex ante declaration in the IPO prospectus ('prospectus allotment') and to the ex post effective allotment disclosed by the underwriting syndicate ex post ('effective allotment'). The difference between the prospectus and the effective allotment is indicated in parentheses. Sample: 181 IPOs listed on the Italian Exchange from 1997 to June 2007.

Listing year	*Prospectus allotment*		*Effective allotment*	
	% allotted to retail investors (filed in prospectus)	% allotted to institutions (filed in prospectus)	% allotted to retail investors (effective)	% allotted to institutions (effective)
1997	31.01%	68.99%	36.76% (+5.75%)	63.24% (-5.75%)
1998	33.63%	66.37%	37.14% (+3.52%)	62.86% (-3.52%)
1999	38.59%	61.41%	42.08% (+3.49%)	57.92% (-3.49%)
2000	30.27%	69.73%	33.76% (+3.49%)	66.24% (-3.49%)
2001	26.76%	73.24%	28.77% (+2.01%)	71.23% (-2.01%)
2002	21.67%	78.33%	28.14% (+6.48%)	71.86% (-6.48%)
2003	27.43%	72.57%	35.46% (+8.03%)	64.54% (-8.03%)
2004	22.49%	77.51%	25.66% (+3.17%)	74.34% (-3.17%)
2005	20.04%	79.96%	26.60% (+6.56%)	73.40% (-6.56%)
2006	17.70%	82.30%	17.60% (-0.09%)	82.40% (+0.09%)
2007 (first half)	15.98%	84.02%	15.37% (-0.61%)	84.63% (+0.61%)
Total	27.34%	72.66%	30.50% (+3.16%)	69.50% (-3.16%)

Table 2. Statistics about the 'oversubscription', 'demand satisfaction', 'IPO scaling' ratios. The 'oversubscription' ratio is the ratio between the number of shares requested by retail (professional) investors, during the offering and the number of shares initially assigned to the public (institutions), disclosed in the IPO prospectus. The 'demand satisfaction' ratio is the ratio between the total number of shares effectively allotted by the underwriters to the public (institutions) and the number of shares requested by retail (professional) investors, during the offering. The 'IPO scaling' ratio is the ratio between the total number of shares offered, net of the green shoe option, according to the IPO prospectus (offer size), and the total number of shares effectively allotted by the underwriters.
Sample: 181 IPOs listed on the Italian Exchange from 1997 to June 2007 (174 with public offering, 180 with private placement)

Category of investors	Ratio	Mean value	Median value	IPOs with index < 1	IPOs with index = 1	IPOs with index > 1
Retail investors (public offering)	Oversubscription	9.55 *	3.94	22	1	151
	Demand satisfaction	44.89% **	28.74%	135	39	-
Institutional investors (private placement)	Oversubscription	6.25 *	3.30	12	-	168
	Demand satisfaction	38.91% **	32.11%	178	2	-
All investors	IPO scaling	96.80%	95.56%	97	75	9

***, **, * The difference between the values for retail investors and institutional investors is significant at the 99%, 95%, 90% level respectively.

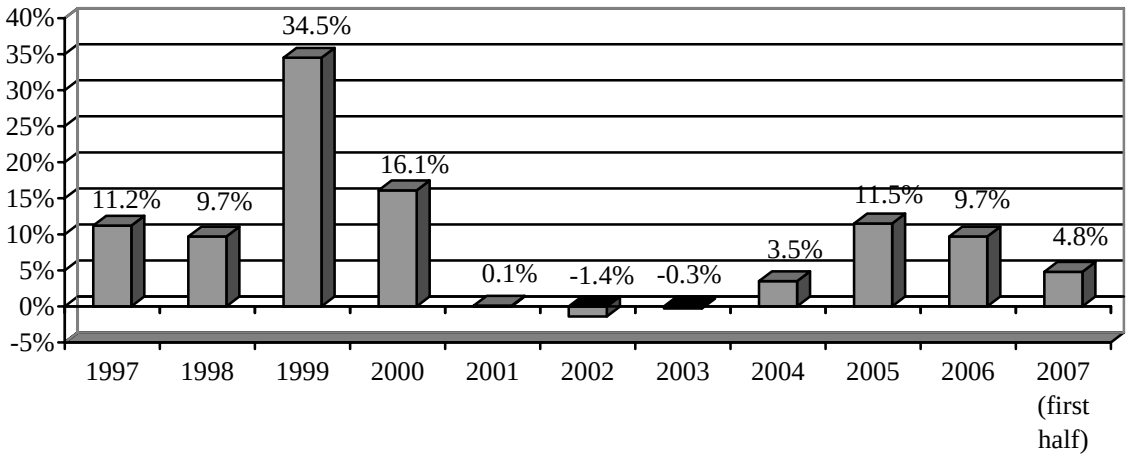

Figure 2. Mean IPO initial underpricing in Italy, by listing year. Sample: 181 IPOs listed on the Italian Exchange from 1997 to June 2007, by listing year

Table 3. Allocation strategies and IPO initial return. ‘Oversubscription’, ‘demand satisfaction’, ‘IPO scaling’ ratios categorised by IPO initial return. The ratios are defined as in Table 2.
Sample: 181 IPOs listed on the Italian Exchange from 1997 to June 2007. Mean values are reported. Median values in parentheses.

Ratio	IPOs with negative initial return (64 obs.)	IPOs with initial return comprised between 0% and 10% (55 obs.)	IPOs with inizial return larger than 10% (62 obs.)
Prospectus allotment (retail investors)	28.98% * (29.60%)	26.29% (25.00%)	26.56% * (25.00%)
Effective allotment (retail investors)	34.38% *** (30.00%)	29.91% (28.94%)	27.02% *** (25.00%)
Difference	+5.40%	+3.62%	+0.46%
Oversubscription (retail investors)	3.07 *** (1.70)	5.02 (3.36)	19.18 *** (8.30)
Oversubscription (institutional investors)	2.44 *** (1.49)	4.44 (3.34)	11.74 *** (7.65)
Demand satisfaction (retail investors)	64.73% *** (69.69%)	45.58% (30.94%)	18.74% *** (11.20%)
Demand satisfaction (institutional investors)	57.14% *** (54.48%)	38.23% (33.12%)	20.98% *** (13.99%)
IPO scaling	1.02 (1.00)	0.96 (0.91)	0.93 (0.91)

***, **, * The difference between ‘hot IPOs’ and ‘cold IPOs’ is significant at the 99%, 95%, 90% level respectively.

Table 4. Regression analysis. The dependent variable is the fraction of shares reserved to retail investors, as declared in the official prospectus issued before the offering (‘prospectus allotment’). The independent variable are: the log of 1 + the company age (AGE); the log of the company consolidated assets (ASSETS); the log of the offer size (OFFER SIZE); a dummy variable which is equal to 1 for privatization IPOs, 0 otherwise (PRIV).
Sample: 181 IPOs listed on the Italian Exchange from 1997 to June 2007.

Independent variable	Estimated coefficient
AGE	$0.75 \cdot 10^{-2}$
ASSETS	$1.95 \cdot 10^{-2}$ **
OFFER SIZE	$6.46 \cdot 10^{-2}$ **
PRIV	$-0.38 \cdot 10^{-2}$
Constant	$20.64 \cdot 10^{-2}$ *
R-squared	7.21%

***, **, * The coefficient is statistically different from zero at the 99%, 95%, 90% level respectively.

Table 5. Regression analysis. The first column reports the estimated coefficients for the OLS regression (dependent variable is the initial underpricing). The third column reports the estimated coefficients for the 2SLS regression, which uses the results in the second column as an instrumental first-stage regression, and considers the revisions in the allocation policy as an endogenous variable. The variables are defined as follows. DIFF is the difference between the percentage of the offering effectively allotted to the public, as disclosed by the company after the IPO ('effective allotment'), and the percentage of the offering destined to the public before the IPO declared in the official prospectus ('prospectus allotment'). The variables are: the first-day IPO return, compared to the offer price (UNDERPRICING); the log of 1 + the company age (AGE); the log of the company consolidated assets (ASSETS); the log of the offer size (OFFER SIZE); a dummy variable which is equal to 1 for privatization IPOs, 0 otherwise (PRIV); the 'IPO scaling coefficient' (IPO SCALING) defined as the ratio between ratio between the prospectus offer size and the total number of shares sold by the underwriters; the 'oversubscription' ratios (OVERSUBSCRIPTION_P and OVERSUBSCRIPTION_I) defined as the ratio between requested shares and the ex ante supply, for the public and for institutional investors respectively; the ratio between IPO newly issued primary shares and the number of shares outstanding before the IPO (DILUTION) and the ratio between secondary IPO shares sold by pre-IPO shareholders and the number of shares outstanding before the IPO (PARTICIPATION).
Sample: 173 IPOs listed on the Italian Exchange from 1997 to June 2007, in which both retail and professional investors are allocated shares.

Variable	OLS regression	First-stage instrumental regression	2SLS regression
Dependent variable:	UNDERPRICING	DIFF	UNDERPRICING
Estimated coefficient:			
DIFF	-0.1169 **	-	-1.9452 *
AGE	0.0010	-0.5380	0.0021
ASSETS	-0.0522 ***	-0.0311	-0.0893 *
OFFER SIZE	-0.0058 *	-0.0021	-0.0088
PRIV	0.0859 **	0.3307 ***	0.6069 *
IPO SCALING	-0.3648 *	0.1424	-0.0667
OVERSUBSCRIPTION_P	-	0.0002	-
OVERSUBSCRIPTION_I	-	-0.0104 **	-
DILUTION	0.0746	-0.0282	0.0982
PARTICIPATION	-0.3609 ***	-0.1594	-0.5342
Constant	1.5866 ***	0.7400	2.2416 **
R-squared	9,69 %	8,07%	-

***, **, * The coefficient is statistically different from zero at the 99%, 95%, 90% level respectively.