

What Drives the Initial Market Performance of Italian IPOs ? An Empirical Investigation on Underpricing and Price Support

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Abstract. The pricing of Initial Public Offerings (IPOs) in the short-run has been analyzed by several theoretical and empirical studies referring to the major international stock markets; recently this topic has been particularly popular in Europe due to the high-tech and Internet stock IPOs euphoria (partially flopped in 2000) and to the increasing number of firms going public as well.

This paper presents an empirical study conducted on a unique survey of 164 IPOs on the Milan Stock Exchange between January 1985 and August 2000. In particular we aim at determining the driving forces of IPOs initial and short-run market performance.

First, we analyze the first-day abnormal return. We find a significantly positive underpricing, equal to 23.94%; nonetheless, 25% of IPOs in our sample are initially overpriced. Second, we separately consider fixed-price IPOs (basically between 1985 and 1994) and IPOs with book building (mostly between 1995 and 1999): we find significantly different levels of underpricing (28.33% vs. 8.12%), and an informative role of revisions in the filed price range, this supporting the “information gathering” and “partial adjustment” theories. Thus we stress the importance of choosing adequate IPO placing strategies in order to reduce information asymmetries between the market and the investors. Third, we try to point out proxies of information asymmetries influencing the initial underpricing. For fixed-price IPOs we find a negative correlation between the underpricing and the age and systematic risk of the firm, and a positive correlation between the underpricing and the market index momentum and volatility. Coherently with the findings above, with book building the correlation with the market sentiment still remains, but the age of the firm is no more significantly correlated; all information collected by the offering parties are endogenized in the revision of the file price range, which is informative for investors. Therefore, we contend that book building allows investors to gather information at a lower cost: they obtain public information by looking at the market momentum and may extract private information from the revision of the prospectus price range as to require a lower underpricing.

Finally, we look at the IPOs performance and trading volume in the first weeks of listing. We find that the initial returns contain almost all the underpricing. While the buy-and-hold performance of "hot" IPOs does not sensibly change after the listing, we highlight that "cold" IPOs move to negative returns, this suggesting temporary price support activity by underwriters. We verify that underwriters manage over-allotment and green shoe options and buy IPOs shares in the after-market in order to avoid negative initial returns.

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

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1. Introduction

Hunger for high-tech stocks and the Euro's arrival helped make 1999 a record year for Europe's IPO market. The number of new companies listing rose 30% to 309 from 237 across Germany, Italy, France, Spain and UK. Italy boosted its contribution significantly: aside from the privatization of energy and telecommunication giant ENEL (one of the world's largest IPO, collecting more than 8 billion €) Italy attracted more than 10 billion € on the money-raising front².

With Internet and high-tech offerings making huge gains on their market debuts (Italy's Finmatica rising 531% in one day after the listing) and swings in sentiment unnerving the markets in 2000 (so that many IPOs have been delayed and others resulted in initial negative returns³), investors and analysts have focused even more their attention on IPO market performance.

The pricing of IPOs both in the short-run and in the long-run is somewhat of a mystery and poses several problems to the theories of market efficiency (Ibbotson et al., 1994). While the evidence on IPOs long-run underperformance is mixed⁴, the most striking and widely diffused empirical regularity is the initial underpricing.

Most of the theoretical models explaining IPO important initial returns share three features: (i) imperfect information and agency costs among firms, intermediates and investors, (ii) choice and institutional setting of introduction procedure and (iii) investors over-optimism in hot-issue markets.

More recently the IPO literature has documented another interesting, though less explored puzzle, i.e. the intermediates' activism in trading shares in the aftermarket in order to support or stabilize IPOs. This seems to be quite a common practice in IPOs, but little has been discovered about its determinants and implications for investors.

In this work we attempt to provide new evidence on the short-run performance puzzles using a unique set of data from the Italian Stock Exchange. We analyze the first days market performance of 164 IPOs newly listed on the Milan Stock Market between January 1985 and August 2000. We do not consider IPOs on

the ‘Nuovo Mercato’, the new stock market born in 1999 in which small fast-growing firms are listed, since the determinants of their market valuation are completely different⁵.

We find that the first day underpricing persists on the Italian Stock Exchange, as previously highlighted by Cherubini and Ratti (1991), Basile and De Sury (1997) and Fabrizio (1998) and substantial money is “left on the table” by issuers⁶. Yet we document a strong reduction of the mean underpricing in the ‘90s, and especially in 2000. We claim that a crucial role is played by the offering strategy. By separately analyzing IPOs with book building (which are significantly less underpriced than fixed-price IPOs) we confirm the “information gathering theory” by Benveniste and Spindt (1989): book building allows underwriters to reduce information asymmetries and stimulates investors to disclose information. We also validate the “partial adjustment theory” by Hanley (1993) i.e. the more optimistic the revision in the offer price from the file price range, the higher the underpricing in order to compensate investors for truthfully revealing their expectations.

We point out a correlation between the underpricing level and variables identified by the literature as proxies for information asymmetry such as the firm’s age, and the price volatility after the IPO (Ritter, 1984; Beatty and Ritter, 1986; Friedlan, 1993). We also point out a correlation with the investors' sentiment, measured by the market index momentum and volatility. Yet, we find that when the offer price is fixed the underpricing is particularly affected by uncertainty proxies, but in IPOs with book building these variables are endogenized in the revision of the final offer price with respect to the initial file range, and a more accurate pricing is obtained. Therefore, we point out that book building allows information gathering at a lower cost, this reducing the requested initial underpricing.

Then, by looking at the market data on subsequent days, we find that the initial IPO returns contain almost all the underpricing. We also detect evidence of price stabilization activity, this suggesting that underwriters are keen on supporting "weak" IPOs in order to avoid negative initial returns. In detail, we note that the worst performing IPOs in some cases exhibit first-day positive returns, but in the following weeks, when

underwriters' activism on the market is over, the performance gradually drifts to negative values. We claim that the initial overallocation of shares and the managing of the green shoe option are crucial in order to allow underwriters to support "cold" IPOs at no cost.

This paper is divided in five sections. Section 2 highlights the recent literature about IPOs underpricing and short-run performance. In Section 3 we give a short description of the going public institutional framework in Italy. Section 4 shows the results of the empirical analysis. In particular, Section 4.1 describes some basic characteristics of the survey, Section 4.2 specifically deals with the underpricing phenomenon. In Section 4.3 an econometric analysis is presented with the objective to determine the causes of the underpricing in Italian IPOs. Section 4.4 describes a first analysis on the short-run performance, focusing on price support by underwriters. In Section 5 the findings of the analysis are summarized and some concluding remarks are derived.

2. Why IPOs are (often but not always) underpriced ?

The existence of the underpricing phenomenon in Initial Public Offerings (IPOs) is well known by economic literature (Ibbotson, 1975), and seems to be a common characteristic of most international markets, as highlighted by Loughran et al. (1994). Table I reports the most recent evidence we found about IPOs underpricing in the world.

Table I

The explanations of this widely diffused "anomaly" of the financial markets are quite numerous and in most cases they interpret the underpricing as the outcome of an equilibrium consistently with modern financial theories. Nevertheless other works relate the underpricing to irrational behaviours due to speculation bubbles and market "fads" (see Aggarwal and Rivoli, 1990), to noisy trading activities (Chen et al., 1999),

to *naïve* investors' overoptimism (Rajan and Servaes, 1997; Bossaerts and Hillion, 1999). Yet, the persistence of the phenomenon has induced the research towards theoretical models in which the underpricing is a rational solution to information asymmetry, agency problems and institutional settings when firms go public.

We attempt to build a taxonomy by introducing five broad categories: (i) theories invoking some investors possessing private superior information than other outsiders, (ii) theories invoking information asymmetry between the investors and the offering parties, (iii) theories invoking information asymmetry between the issuing firm and the underwriter, (iv) theories invoking agency costs (in this case moral hazard phenomena and conflict of interests are the topic, apart from information asymmetry), and (v) models claiming that markets are not efficient. Obviously some of the theories presented by the literature share several features among these categories: therefore we just propose a referring classification.

Within the first category the best-known model is provided by Rock (1986), who categorize investors into two types: informed and uninformed. Informed investors will only attempt to buy underpriced shares. Uninformed investors cannot discriminate between issues, and they will be allocated only a small fraction of the most desirable issues, while they get full allotment of the least attractive ones. Therefore they face a "winner's curse" due to the adverse selection externalities. Shares must be offered at a discounted price to compensate them for at least a risk-free rate⁷.

Let us now imagine that information asymmetry exists between the offering parties and the investors about the price and the level of the stock demand. Benveniste and Spindt (1989) introduce the "information gathering theory" and state that the underpricing is a mean to induce informed investors to reveal private information about the demand for shares in the pre-selling phase, thus allowing the intermediates to better evaluate the offering. Chemmanur (1993), Jegadeesh et al. (1993) and Spiess and Pettway (1997) show that the underpricing may also generate useful information for the firm in order to plan future seasoned offerings ("*market feedback hypothesis*"). Allen and Faulhaber (1989) and Welch (1989) instead identify

the firm's managers as the informed party, and interpret the underpricing as a "signal" of a firm's superior quality ("*signalling hypothesis*").

Consider now the third type of information asymmetry. Baron (1982) assumes that the underwriters are endowed with private superior information about the demand of shares, and they are encouraged to sell underpriced shares⁸. A similar story is modeled by Mandelker and Raviv (1977) who state that the underpricing is related to underwriters' risk aversion. Tinic (1988), Hughes and Thakor (1992) and Drake and Vetsuypens (1993) hypothesize that risk aversion derives also from the willing of the underwriter to avoid litigation.

Let us now introduce agency and moral hazard considerations. Ibbotson (1975) states that the underwriter may be induced to underprice an IPO to leave "a good taste in investors' mouth" in order to capture buyers for the following offerings driven by the same intermediate. Fulghieri and Spiegel (1991) hypothesize that underwriters also want to gain the goodwill of strategic clients, assigning them underpriced shares. More easily, Baron and Holmström (1980) highlight that marketing expenses have a decreasing marginal return and it is less costly to convince investors to subscribe underpriced IPOs. Ritter (1984) claims that the underpricing is asked by investors, since they realize that after the IPO the controlling shareholders may extract private benefits from the firm. Su and Fleisher (1999) admit that also bribery and corruption can explain high underpricing in IPOs⁹.

Finally, some models invoke markets' inefficiency. Mauer and Senbet (1992) propose an explanation based on stock pricing in segmented markets; in particular, they assert that in these markets problems of incomplete access and incomplete spanning do exist, causing a remarkably high risk for investors. In Welch's (1992) framework an offering may fail due to a "cascade" effect, since investors may be irrationally conditioned by other investors' behaviour.

Among the above interpretations, the most influential ones have been the theories based on information asymmetry between firms and investors. In order to provide some empirical evidence, Beatty and Ritter

(1986) define the “ex-ante uncertainty” as a proxy of information asymmetry, which in turn is related to some variables, such as the firm’s age, size and assets typology, as well as the filed price-range spread. Ritter (1984) contends that the deviation of the daily returns after the listing is a proxy of the IPO systematic risk. Friedlan (1993) effectively finds that the lower the underpricing the more detailed the information in the prospectus, the older the issuing firm and the larger its assets value and revenues.

Besides, the ex-ante uncertainty may be reduced by adequately selecting the intermediates and the auditors¹⁰, by the presence of a venture capitalist¹¹, or by providing adequate commitment (for example through lock-up provisions¹²), or through suitable placing strategies¹³.

Actually, a debate is going on about optimal selling procedures in IPOs (fixed price offer vs. book building vs. auction-like). We believe that the analysis of Italian IPOs is particularly interesting in this case, since in Italy in the ‘80s almost IPOs were sold at a fixed price, while book building has become popular in the ‘90s. Thus we have the opportunity to test if the underpricing is a mean to induce informed investors to reveal private information about the demand for shares in the pre-selling phase, allowing the intermediates to better evaluate the offering.

This is a topic recently faced by several related analyses. Benveniste and Wilhelm (1990) show that book building stimulates investors to disclose private information, this increasing the total collection of capital. Ljungqvist et al. (2000) document a growing diffusion of book building in worldwide IPOs, since it allows underwriters to reduce information asymmetries. Chowdry and Sherman (1996) and Cornelli and Goldreich (1999) demonstrate that IPO bidders who provide valuable information to the underwriter are allocated more shares than others. Moreover Hanley (1993) demonstrates that the offer price is “partially adjusted” to the information about investor demand received during the underwriter’s institutional activity. In this way the underpricing may be exploited to reward investors for having provided good information about the firm. Consequently, the more qualified the information gathered during the pre-selling activity, the higher will be the expected underpricing. Sherman (2000) underlines that book-building (contrary to the

auction method and to the fixed-price offering) allows the underwriter to discriminate in the allocation of shares and to establish long-run relationship with intermediates. In fact, Hanley and Wilhelm (1995) show that institutional investors are often favored in the allocation of underpriced shares, but they are asked also to participate in “cold” IPOs.

In this paper we will verify if in Italy book building is useful to reduce underpricing, and we will explore if investors are rewarded with underpriced shares for truthfully revealing good information to the market. We will look also at the short run performance of IPOs after the listing, in order to detect any trace of price support for weak offerings.

It is well known that intermediates may actively support IPOs after the listing, in order to stabilize and provide liquidity to the market price (Prabhala and Puri, 1999) or support weaker offerings ("cold IPOs"). This activity is temporary and often implies that underwriters re-purchase on the market a consistent fraction of the offering (Aggarwal, 2000; Ellis et al., 2000). Nevertheless, Schultz and Zaman (1994) and Thomas and Cotter (1998) show that price support is not a cost, if managed through an over-allotment of shares. If the offering is underpriced, the short position is covered through the exercise of the green shoe option; if the offering is overpriced, shares are bought on the market after the listing, this pressuring the market demand. Thus, our final aim is to investigate about the existence of such a practice also in Italy.

3. The going public process in Italy

In most countries a diversity of options is available to introduce new shares on the Stock Exchange. As we highlighted, several underpricing theories invoke aspects of regulatory environment; therefore in this Section we provide a short description of the Italian setting.

The going public process in Italy starts with a firm and an advisor selecting a Stock Market, choosing the flotation mechanism and estimating an offer price range¹⁴. A “book-running” manager and the co-managers (if any) are given the responsibility to assemble a syndicate (lead by the underwriter) to assist in the public

offering of the shares. A letter of intent is drawn protecting the underwriter in the event the offer is withdrawn, determining the gross spread and eventually a commitment by the company to grant an overallotment option to the underwriter, typically 15% of the total issue. The most diffused kinds of agreements in Italian IPOs are the Firm Commitment and the Stand-by Agreement. With a Firm Commitment the investment bank guarantees to purchase the whole issue from the corporation and then re-offer the shares to the public. With a Stand-by Agreement the intermediate agrees to purchase the newly issued shares not subscribed by the investors, to a limited amount. The Best Effort Agreement, which does not guarantee that enough buyers will be found to sell the entire offering, is almost never used in Italy¹⁵.

After the authorities' approval¹⁶, a legal notice and a prospectus are published specifying the number of shares sold, the price at which these shares will be sold and the date of the listing.

In the prospectus the intended use of the new funds must be largely commented on, and detailed information about the firm, its controlling shareholders and its subsidiaries have to be provided. An intermediate is selected as the "sponsor", and certifies that the issuing firm complies with the listing requirements.

The shares marketed through a public offer may be existing shares (OPV, *Offerta Pubblica di Vendita*) or newly issued shares (OPS, *Offerta Pubblica di Sottoscrizione*) or both (OPVS, *Offerta Pubblica di Vendita e di Sottoscrizione*). Voting, non voting or restricted voting shares may be offered to the public.

From 1985 to 1994 almost all IPOs adopted the fixed-price issue procedure, i.e. the (fixed) price of the shares was published in the prospectus. A few IPOs adopted an auction-like procedure, in which competitive price-quantity bids were collected from investors. Actually this procedure has been no longer adopted for an IPO in Italy¹⁷ after 1986.

From 1992 for large IPOs (to coincide with the first large privatization IPOs led by the Italian governments), and from 1994 for almost all IPOs, the investment banks are used to start gathering indications of interest from the regular investors, which are non-binding orders at different price levels. This

collection helps the underwriter to determine the final offer price and a list of potential buyers (*book building with fixed price*). Therefore, just a referring price range is published in the official prospectus. The final issue price is not set according to any explicit rule, but rather at a level at which demand exceeds supply, determined after observing all the indications of interest. Up to now in almost all Italian IPOs the final offer price has been never set below or above the file price range¹⁸.

Once the offer price is set, bids are solicited from investors and shares are finally assigned. In case of oversubscription, the effective allocation of shares to the public is generally driven by casual drawing or allotment of smaller tranches. In 1999 a new procedure (*book building with open price*) has been developed, according to which the final price is set after the collection of bids. In this case the investors do not know exactly the offer price when they purchase shares. Nowadays this is the most diffused IPO procedure in Italy.

From 1994 tax incentives for Italian firms going public are at work¹⁹. Up to 1997 income realized by newly listed small and medium size firms (issuing new shares) has been levied at a reduced rate equal to 21%. In 1997 a further tax reform allowed all Italian companies to apply a reduced tax rate equal to 19% (*dual income tax*) at the income deriving from new equity capital raised or ploughed-back profits. In order to induce firms, particularly SMEs, to go public, a particular disposal has been introduced for companies newly listed on Stock Markets: for three years the relief of 19% can be reduced to 7%.

The Italian Stock Exchange (*Mercato Telematico Azionario*, MTA) is divided into three markets: the official Stock Exchange (*Mercato di Borsa*), a market for small caps (*Mercato Ristretto*) and a market for small firms having a high growth potential (*Nuovo Mercato*). To be admitted to the official Stock Exchange, the issuing firm must publish the last three annual reports, exhibit an “active capability” to generate revenues and undertake to adopt a disclosure policy. The offered shares should represent at least 25% of the equity capital, and the total capitalization should exceed 5.16 millions €. These rules have been

introduced as soon as the Stock Exchange has been privatized in 1998; before the rules were somewhat more severe.

The Official Stock Exchange lists a relatively low number of companies (238, as at September 2000), with a gross market capitalization equal to 822.982 billion € representing 71.1% of Italian GNP. Therefore, the mean size of the listed companies is quite large in comparison with other industrialized countries²⁰.

The firms listed on the *Mercato Ristretto* (16) are essentially small cooperative banks and local utilities and capitalize 6.064 billion €

In 1999 a new Second Market (*Nuovo Mercato*), joining the Euro-NM network, opened to Italian small fast-growing firms, especially belonging to high-tech sectors. 27 firms (mainly from the IT and telecom sectors) are listed on this market, as at September 2000. They capitalize 26.453 billion € and the popularity of this Market has increased so much that in 2000 most firms did prefer to go public on the *Nuovo Mercato* than in the traditional exchange.

Compared with the traditional standards, the rules of the *Nuovo Mercato* are less strict. For example, offered shares (at least half of them must consist of newly issued shares) must represent more than 20% of the equity capital, and the offering size has to exceed 2.58 millions €. Only one set of audited published financial statements is required before the offering. Special rules apply to the trading method in order to provide liquidity: for example, a specialist displaying continuous bids and offers on the book have to be appointed.

On the Italian Exchange the underwriters may engage in price stabilization during the first months of listing of an IPO firm. Yet, only after 1995 the IPOs prospectuses started to provide *ex-ante* information about the underwriter's behavior in the 30-45 days after the listing. *Ex-post* disclosure of price support activity is requested by the market authorities to intermediaries, but these data are not publicly available, and however often incomplete and not suitable for analyses.

4. The empirical analysis

4.1 The sample

In this study 241 firms listed for the first time on the Milan Stock Exchange between 1985 and 1999 have been considered. Nevertheless, not all of them may be considered Initial Public Offerings. In particular, 43 of them simply transferred from other national Stock Markets (in 24 cases from the “*Mercato Ristretto*” and in 19 from former local markets), 8 were already listed on other foreign Stock Markets, 11 simply made no public offerings, 2 have been re-admitted after a long period of suspension and finally 13 are spin-offs. Therefore, the sample is made up of 164 offerings, summarized in Table II, where the number of cases excluded is also reported. In this study we do not consider IPOs on the *Nuovo Mercato*, because their characteristics and evaluation frameworks are peculiar, and the determinants of their (hugely positive in 1999, often negative in 2000) initial returns appear to be quite different (Arosio et al., 2000; Arosio and Giudici, 2000).

The sample we analyze is unique and, to our knowledge, this is the first time such a research is carried out on a wide basis in Italy.

Table II

As Table II shows, in the years considered two different periods may be distinguished, in which the number of IPOs is relevantly high (“hot issue markets”). The first is between 1985 and 1987 (when in most industrialized countries stock markets registered brilliant performance), the second refers to the last six years (in this case we have to keep into account that Italian IPOs have been boosted also by tax relief). In 2000 a few IPOs are filed; this is due to two reasons: the survey is limited to August 2000, and the increasing popularity of the *Nuovo Mercato*, which hosted 25 IPOs in 2000.

From several public sources we collected the relevant data about the sample firms relatively to the periods before and immediately after the offering, and about the placement's strategies and techniques.

Among the IPOs of the survey 30 offerings are privatization operations and in 39 cases the issuing firm belongs to business groups whose holding company is already listed (equity carve-outs). With reference to the privatization operations, in the first period banks and assurance companies are especially at stake, whereas in the second public utilities are involved above all²¹. Equity carved-out IPOs are essentially related to the period between 1985 and 1988 and involve almost all the largest business groups listed on the Stock Market in those years²². We will attempt to find specific determinants of their initial market performance, compared to other IPOs.

Considering the sector subdivision of the sample, we referred to a classification adopted by the Italian Stock Exchange, which distinguishes among three 'macrosectors', i.e. "industrial" securities, "financial" securities and "utilities". Table III shows that the majority of the IPOs refers to "industrial" firms, even if "financial" companies have a relevant importance, especially in the first period.

Table III

4.2 Underpricing and "money left on the table"

For each IPO considered, we computed two measures of underpricing: (i) the "simple" underpricing, defined as the difference in percentage between the official price of the share after the first day of listing and the offer price; (ii) the "adjusted" underpricing, defined as the difference between the "simple" underpricing above and the market index return measured between the day of the admission to the trading and the beginning of the public offering; in our analysis the market index was assumed to be the historical MIB index.

Table IV summarizes the results obtained in computing the “simple” and “adjusted” underpricing, along the years. The mean value and the number of firms outstanding a positive (negative) underpricing is also reported; t-tests have been conducted²³ in order to determine the statistical significance of the underpricing. In 1999 we also report the results excluding the IT company Finmatica, because its huge underpricing, due to the high-tech and Internet euphoria documented also by Ritter (2000) in the U.S. market, heavily affects the mean value.

Table IV

Table IV clearly confirms the results obtained by Cherubini and Ratti (1991), Basile and De Sury (1997) and Fabrizio (1998) who considered smaller periods of our survey. Namely, the underpricing phenomenon is indeed common in IPOs also in the Italian case. The mean “simple” underpricing, relatively to the whole sample of 164 firms, is equal to 23.94%, while it is equal to 21.02% if we consider the “adjusted” one. The sample mean values are statistically different from zero with a remarkably high significance (99%), nevertheless they do not appear to be homogeneously distributed across time. In particular, in 1985 and 1986, consistently with the “hot issue markets” theory (Ibbotson and Jaffe, 1975; Ritter, 1984), IPOs were significantly underpriced. In some of the following years, the results are not statistically significant, because of the small number of firms going public. Only in 1989, 1990 and 1995 the mean values are significantly different from zero. The analysis of the most recent IPOs seems to reveal a strong reduction of the underpricing, with mean values of about 10%, and even lower in 1999, excluding Finmatica’s success. Remarkably, in 2000 IPOs are on the average initially overpriced. Therefore it is worth investigating which are the determinants of this progressive decline.

Table V

In Table V we computed the amount of money “left on the table” (Ritter, 2000), defined as the offer price to closing market price on the first-day of trading, multiplied by the number of shares offered (excluding overallotment options). Habib and Ljungqvist (1999) underline that underpricing is not the entrepreneur’s primary concern. Entrepreneurs are expected to minimize the reduction in underpricing-induced wealth losses (“money left on the table”), which increase in the underpricing but also in the number of shares sold in the IPO. Therefore it is worth analyzing both underpricing and total wealth losses. Yet, Loughran and Ritter (1999) notice that issuers rarely get upset about “money left on the table”. Introducing a “prospect theory” of issuers behavior, they argue that IPOs where wealth losses are large are almost invariably those where the offer price and market price are higher than had originally been expected²⁴. Thus, controlling issuers are generally simultaneously discovering they are wealthier than they expected to be, and underpricing may be considered an indirect form of underwriter compensation.

Since in Italy inflation has been not negligible during the '80s and the early '90s, we had to adjust all the statistics by considering inflation ratios, provided by the Italian Official Bureau of Statistics ISTAT²⁵. The mean amount of "money left on the table" is equal to 22.671 million €. The largest amounts of "wealth loss" (359 million € and 289 million €) have been experienced in an IT stock IPO (Finmatica in 1999) and in a bank privatization (IMI in 1994) respectively. From 1995 to 1998 only four IPOs (two of them refer to privatizing companies, the others two are large companies of the Fininvest group – Mediaset and Mediolanum) left on the table more than 50 million €. On the contrary, in 1986 a very large amount of wealth was lost in IPOs (six IPOs over 50 million €).

Like in the U.S. (Ritter, 2000) in Italy more money was "left on the table" in 1999 than during the first nine years of the decade combined. Moreover, from 1995 to 1999, we observe an increase of the mean amount of wealth loss, even excluding Finmatica IPO; therefore, we observe that in these years firms selling a large number of shares tend to be more underpriced than small companies, since the mean underpricing

level decreases. To contrast, in 2000 the offering parties on the average have been able to raise more capital than the market value of the IPO companies.

In order to test the effects of different placing strategies on the underpricing level, we identified two subsamples. In particular, the first includes 79 IPOs in which the offer price was fixed in the prospectus, and the second 82 IPOs (81 excluding Finmatica) in which the final offer price is determined after book building (in the prospectus a price range is filed). The remaining IPOs (3, all in 1986) were auctioned.

From the analysis of the literature, we expect the underpricing to be lower in IPOs with book building, coherently with the "information gathering theory" by Benveniste and Spindt (1989).

Table VI shows the underpricing levels, by offering strategy; we included also the three auction-like IPOs to show that, consistently with the literature²⁶, the auction mechanism is associated with a lower underpricing and money left on the table, although the sample size does not provide statistical significance.

Table VI

Notice that the underpricing is much lower in IPOs preceded by "book-building" activity than in fixed-price IPOs and, if we exclude Finmatica, the difference is statistically significant. On the contrary, note that the amount of "money left on the table" is not significantly different: in fact on the average in IPOs with book building more shares are offered to investors than in fixed-price IPOs. These results add new empirical evidence to the hypothesis that book building induces revelation of the investors' beliefs and contributes to reduce the underpricing. Thus, we also expect the final offer price to partially adjust to the new information collected by the underwriter, consistently with Hanley (1993).

Table VII (which categorizes the 82 IPOs with book building by the final offer price relative to the file price range) confirms the informative role of book-building: the choice of the maximum price in the *ex-ante* fixed band (or, at least, of a price higher than the mid-point one) is interpreted by the market as good news

resulted from the information gathering activity. In these cases the underpricing is significantly high. On the contrary the choice of a low price reveals a less optimistic judgement of the investors reached during the book-building procedure: in this case notice that the underpricing is not statistically different from zero, and on the average it is lower than zero. To our knowledge, this is the first time that such a result is pointed out for the Italian stock market.

Table VII

4.3 The determinants of the underpricing phenomenon: an econometric analysis

In order to test the correlation between the underpricing and some explicative variables pointed out by the literature, we considered the data summarized in Tables VIIIa and VIIIb. In Table VIIIa we split financial and insurance companies from the others, because they have different accounting standards. In Table VIIIb we report (if available) some data about the offerings, the firms' ownership structure and the aftermarket price volatility.

Tables VIIIa and VIIIb

First, it is evident a strong scattering of the firms' size, revealed by the high standard deviation; this is due to sectorial peculiarities, as shown by the comparison between the mean and median data of banks and insurance companies and the data of industrial firms, and to the presence of very large IPOs (Enimont, ENI, Mediaset, ENEL). The mean age of the firms is about 49 years, which is remarkably high if compared to US IPOs but similar to other European samples²⁷. The fraction of equity capital held by the controlling shareholder after the IPO is on average equal to 60.82%, not sensibly different from other markets²⁸.

In order to control for alternative determinants of the underpricing in privatization IPOs (PIPOs) and equity carved-out IPOs in Table IX we split the whole sample in three parts.

PIPOs may behave differently from other IPOs: governments may have great discretion in pricing the shares, to pursue political and economic ends (Megginson et al., 2000). On one hand privatization IPOs may be perceived as having lower cash flow risks (Huang and Levich, 1998) and thus less underpriced. On the other hand, several studies have presented evidence for a political explanation for the short-run underpricing effect; dispersing share ownership and favoring underpricing could be a way to curry favor with small investors, or an attempt to establish a culture of private investing and deepen capital markets (Ibbotson et al., 1994). Nevertheless Dewenter and Malatesta (1997) conclude that on average the initial returns of privatization IPOs and private company offerings are similar. Huang and Levich (1998) find evidence consistent with proceeds or value maximization in PIPOs and argue that traditional theories that are used to model the behavior of conventional IPOs can also be applied to privatization offerings.

Also equity carved-out IPOs may have peculiar characteristics, since they involve business groups whose holding companies are already listed, and most of them are closely held and controlled by a coalition. On one hand, information asymmetries and uncertainty should be less dramatic, but on the other agency costs should be more relevant. Therefore the effect on the underpricing is not clear.

Table IX

Table IX reports that the initial underpricing of PIPOs on the average is lower than other IPOs. Yet, the amount of “money left on the table” is consistently larger, since PIPOs in Italy involved very large companies in mature sectors (see the statistics about mean age and consolidated assets). Therefore there is no evidence in Italy of the government pursuing the objective to underprice privatization offerings more severely than other IPOs.

Equity carved-out IPOs generally involve smaller firms and exhibit a higher underpricing, but this is mainly due to the fact that most of them went public during the “hot period” of 1985-1987.

Therefore, in Italy we cannot detect any peculiar pattern for the underpricing in PIPOs and equity carve-outs.

Finally, the “adjusted” underpricing values²⁹ have been regressed in a linear multivariate model against some variables, in order to single out the determinants of the phenomenon and to analyze differences between fixed price IPOs and book building.

We first considered “firm-specific” variables, which the literature identifies as proxies of information asymmetries: the log of the age of the firm (LOG_AGE), the log of the accounting value of total assets (LOG_ASSETS). We hypothesize that the older and larger the firm, the lower the uncertainty and information asymmetry, the lower the underpricing.

Then we introduce “IPO-specific” variables, such as the log of the total offer size (LOG_OFFER_SIZE) and the fraction of equity capital maintained by the controlling shareholders (HELD_CAPITAL). We expect the underpricing to be negatively correlated with the offer size, if the demand from investors faces a too much large offering of shares. We also aim at providing empirical evidence either to the “agency costs” hypothesis (the higher the fraction of equity capital held by the controlling owner, the higher the commitment, the lower the separation between ownership and control, the lower the underpricing requested by the public) or to the “signaling” hypothesis which posits that the controlling owner signals superior quality by retaining a higher fraction of equity capital, this inducing higher underpricing. Unfortunately, we cannot adopt data about oversubscription, because they are not available for the oldest IPOs.

Last we consider some “market-sentiment variables”, the market index performance in 100 days before the offering (MARKET_INDEX) and the volatility of the market index in 60 days before the offering

(MARKET_VOL). We also estimate the price volatility of the newly listed share in 10 days after the listing (VOLATILITY), as we assume it is a proxy of the IPO idiosyncratic risk.

The analysis of IPOs with book building includes also the relative width of the file price range (RANGE) and the final revision of the offer price (REVISION, defined as the relative difference between the final offer price and the midpoint of the price range filed in the prospectus). We expect the underpricing to be larger, the larger the width of the price range, as a measure of initial uncertainty. Then, we already verified in Table VII that the revision of the file price range is informative for investors.

In order to define a homogeneous sample, we include in the regression analysis 146 IPOs, once having rejected 7 IPOs in which only restricted-voting shares or non-voting shares have been offered, 3 auction-based IPOs, 5 privatization IPOs in which a bonus share provision was offered, 2 outlier IPOs (Banca Toscana and Sondel) characterized by a remarkably long period of time (more than 200 days) elapsed between the offering and the admission on the Stock Exchange, and – again – Finmatica IPO.

We aim at determining the correlation between the initial underpricing and the variables above, both in fixed-price IPOs and in IPOs with book-building. Therefore in Table X we estimate the linear model for the two distinct sub-samples.

Table X

The adjusted R^2 statistics is equal to 35.25% and 36.14% respectively for fixed price IPOs and book building, which are remarkably high if compared to the few previous multivariate analyses on the Italian market³⁰.

When the IPO price is fixed, the firm's age and the price volatility after the listing (as a measure of idiosyncratic risk) are significantly correlated with the underpricing and the expected sign are confirmed. On the contrary the accounting value of the assets seems not to influence the initial underpricing. The "market-

specific" variables are significantly correlated and the investors' sentiment seems to have an important effect. The size of the offer and the fraction of equity capital held by the controlling party are not significantly correlated. We may synthesize that in fixed-price IPOs the higher the risk and uncertainty perceived by investors, the higher the underpricing.

Notice that on the contrary in IPOs with book-building, no "firm-specific" variables (apart from the systematic risk) are correlated with the underpricing, neither the width of the price range. Interestingly, all information derives from the market momentum and volatility (although to a lower degree than in fixed price IPOs), and above all from the revision of the prospectus price range. Again, the size of the offer and the fraction of equity capital held by the controlling party are not significantly correlated.

We posit that this result is consistent with the hypothesis that book building allows uninformed investors to learn about the IPO value by the information gathered from institutional investors during the pre-selling period. The signal of the final price revision is informative, and other proxies of information asymmetries and uncertainty do have a minor effect.

Therefore, with book building investors may extract information at a lower cost by this signaling effect, and require a lower underpricing.

4.3 The short-run market performance

In this Section we investigate the IPOs performance in the first weeks of trading. Table XI reports the first-day underpricing and the cumulated underpricing for the whole survey after 1 week up to 5 weeks.

Table XI

On the average the first-day return explains almost all the initial underpricing, since the mean initial return is not much different from the cumulated return in the following weeks. On the contrary the median value

decreases after the listing. Thus we may hypothesize that IPOs may be clustered according to their short-run performance. The literature (see Section 2.2) highlights that after the listing the weakest IPOs are temporarily supported by underwriters. Since the data about underwriters' trading are not publicly available in Italy³¹, we had to detect any price-stabilization activity by looking at the market prices distribution after the IPO, as in Ruud (1993). We assume that the worst performing IPOs are more likely to have experienced price support in the first days of trading. Therefore we split the sample of 164 IPOs in "hot IPOs" and "cold IPOs". The latter are defined as one third of the sample IPOs performing worst after 5 weeks of trading (i.e. 55 IPOs showing the lowest - in most cases negative - underpricing). Following Ruud (1993), in Table XII we have analyzed the distribution of the "simple" underpricing for "cold IPOs" with reference to the day of listing, up to 5 weeks.

Table XII

Note that cold IPOs on the average have a negative initial return, which - contrary to the whole sample - is decreasing over the following weeks. The buy-and-hold underpricing median value is negative and tends to decrease as well. The maximum value decreases, too, and after 5 weeks all 55 IPOs exhibit a negative cumulated return.

These results are consistent with price support activity, whose effects tend to disappear over time, consistently with Aggarwal (2000). The "coldest" IPOs are initially supported by underwriters, who in the short-run push the underpricing distribution towards positive values; yet this activity is limited in time and the following returns are negative. Figure 1 shows the "cold" IPOs underpricing distribution up to five weeks after the listing.

Figure 1

Notice that at the listing day 35 firms exhibit a negative initial return: in particular in 9 cases the overpricing is higher than 10%. Among "cold" IPOs, 20 exhibit a first-day positive return. In the following weeks we observe two phenomena: the "coldest" IPOs persist to be overpriced; the initially underpriced IPOs worsen and move to negative returns. Consider that among the 38 IPOs with negative first-day return (see again Table V) 35 are comprised in our sample of "cold" IPOs. This means that IPOs initially overpriced almost never become underpriced in the following weeks.

Therefore we may hypothesize that a small group of IPOs are immediately pointed out by investors as "bad" IPOs and do not benefit from price support. Other offerings are initially supported in the aftermarket, but in the following weeks (when the support is over) they are recognized as overpriced IPOs.

Then, following Ellis et al. (2000) we analyzed the exercise of the *green shoe* option combined with overallotment for "cold" and "hot" IPOs, as emerging from the market performance in 4 weeks after the listing. We considered only 76 IPOs from January 1995 and August 2000, since in Italy the green shoe option has been commonly adopted just from 1995.

Table XIII

Table XIII highlights that the green shoe option was adopted in 51 IPOs (67% of the sample); yet in 35.3% of the offerings the option was not exercised by the underwriter. On the average, the underwriter decides to purchase 58.28% of the shares additionally sold by the company. Coherently with the previous analysis, in 14 "coldest" IPOs (i.e. when the closing price is always lower than the offer price in the four weeks after the listing) the green shoe is filed but partially exercised only in two IPOs. Since the overallotment of shares is common practice in all Italian IPOs, it is clear that in "cold" IPOs the underwriters cover the overallotment by purchasing shares on the market after the listing, and this helps to

support the poor market performance. On the contrary, in "hottest" IPOs (i.e. when the market price is always higher than the offer price) the green shoe is always exercised, and the additional shares sold by the offering parties cover the over-allotment. Therefore, also in Italy price support is not a cost for the underwriter, but may generate additional profits.

5. Concluding remarks

In this paper we analyzed a comprehensive and unique data set about IPOs short-run market performance in Italy and we shed some light on topics never faced by any existing analysis on the Italian IPO market, providing original contributions in a number of features.

We computed the first-day return of 164 IPOs from January 1985 to August 2000 obtaining a mean (adjusted) underpricing equal to 23.94% (21.02%). We verified that the underpricing is particularly high during "hot issues" markets, and it has been decreasing during the last years (in 2000 it is on the average negative). We computed the amount of money "left on the table" by issuers, when they sell underpriced shares: we found that in 1999 more wealth was lost than during the first nine years of the decade combined; on the contrary a negative value of "money left on the table" characterizes 2000 IPOs, as a reaction to negative market swings.

We argued that placing strategies influences the IPOs initial return: if the offering is preceded by book building, the underpricing is significantly lower (8.12% vs. 28.33% in fixed-price offerings) coherently with the "information gathering theory" by Benveniste and Spindt (1989) and Hanley (1993). Indeed, under book building the underwriter is able to reduce information asymmetry collecting valuable information.

We also validated the "partial adjustment theory" by Hanley (1993) i.e. the more optimistic the revision in the offer price from the file price range, the higher the underpricing in order to compensate investors for truthfully revealing their expectations. On the contrary the choice of a low price reveals a less optimistic

judgement of the investors reached during the book-building procedure: in this case we noticed that the underpricing is not statistically different from zero.

After having rejected the hypothesis that in Italy privatization IPOs and equity carve-outs are intentionally more underpriced than other offerings, we regressed the underpricing against some variables pointed out by the literature as proxies of information asymmetry, uncertainty, risk, investors' sentiment.

When the offer price is fixed the underpricing is particularly affected by the age of the firm, the systematic IPO risk and the market momentum and volatility. In IPOs with book building the age of the firm is no longer significant and proxies of market sentiment do play a minor role. On the contrary, the fraction of equity capital held by the controlling shareholder and the accounting value of the assets seem not to be relevant.

We claim that book building allows the issuing parties to collect information from the informed investors and to signal good news or bad news to uninformed investors through the revision of the prospectus price range. Therefore, the cost of raising private information is reduced and the requested underpricing is lower, even negative if the public information conveyed by the market momentum is discouraging.

Finally we explored the short-run return of IPO stocks. We showed that generally the first-day return contains almost all the underpricing. We found a group of IPOs (which we named "cold" IPOs) exhibiting persistent negative initial return. We also pointed out that in some cases IPOs are initially underpriced but in the following weeks they turn to negative cumulated return. We related this fact to underwriters' temporary price support in the first days of trading: they short sell shares prior to the IPO and cover their position either exercising the green shoe option (in "hot IPOs") or purchasing shares on the market after the listing (in "cold IPOs").

Such results stimulate to advance some remarks about the Italian IPOs market. The number of firms going public in Italy has recently increased, but we are much far from the standard of EU countries: therefore often IPOs are considered as a speculative opportunity more than an occasion to diversify portfolios. The

sudden reversal from huge IPO underpricing in 1999 (especially on *the Nuovo Mercato*) to the negative initial returns in 2000 has troubled many Italian small savers. This is particularly the case of information technology and telecom IPOs, such as Finmatica.

Remarkably, the evolution of the placing procedure, from fixed price offerings to book building, has considerably improved the efficiency of Italian IPOs market. Yet, it is a pity that in Italy no transparency characterizes underwriters' activism after the listing. As soon as possible the market authorities should arrange a list of detailed information to be filed and published by the underwriters when trading shares after the listing.

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Endnotes

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² The data are quoted from the Wall Street Journal Europe, Friday-Saturday 10th-11th 1999.

³ In Italy, in 2000, 3 IPOs among 7 have been initially overpriced (see Table IV).

⁴ Loughran and Ritter (1995) contend that US IPOs significantly underperform both the market and comparable firms in the first three years after listing, and similar results are reported in the UK (Espenlaub et al., 2000) and Italy (Giudici and Paleari, 1999). In other countries IPOs in the long-run do not behave differently from comparable firms (see Holmen and Högfeldt, 1999, for Sweden; Sapusek, 1997, for Germany; Almeida and Duque, 2000, for Portugal). A significantly high overperformance is highlighted in Turkey (Kiymaz, 1997) and Hungary (Jelic and Briston, 1999).

⁵ A first analysis of these IPOs is contained in Arosio et al. (2000) who analyze Internet-stock IPOs on the "Nuovo Mercato". A comprehensive survey of the IPOs on this new market is forthcoming (Arosio and Giudici, 2000).

⁶ Cherubini and Ratti (1991) analyze 69 firms, Basile and De Sury (1997) 77 firms, while Fabrizio (1998) 71 IPOs. They all consider a short time-window characterized by a high heterogeneity (in terms of firms' sector, size and ownership structure).

⁷ This hypothesis is empirically supported by Koh and Walter (1989) for the Singaporean market, Levis (1990) for the UK, Keloharju (1993) for Finland, since they are able to observe rationing in oversubscribed IPOs.

⁸ This theory is refuted by Muscarella and Vetsuypens (1989), who analyze IPOs in which the intermediate sells its own shares (thus without information asymmetry) and nonetheless find significant underpricing.

⁹ See the Japanese scandal of Cosmos IPO. Intentionally, shares had been severely underpriced and allotted to politicians.

¹⁰ Titman and Trueman (1986) and Beatty (1989) find a lower underpricing in IPOs monitored by superior analysts and auditors. Booth and Smith (1986) and Carter and Manaster (1990) sustain the “certification hypothesis”: the more reputable the underwriter, the lower the underpricing. More recently this hypothesis has been refuted by Michaely and Shaw (1994) and Beatty and Welch (1997). Cooney et al. (1999) argue that in high-demand IPOs high-reputation underwriters are able to exploit their superior bargaining position to underprice the IPO more severely.

¹¹ See Megginson and Weiss (1991), Barry et al. (1991). More recent evidence of an apparent reversal in this relationship is provided by Francis et al. (1999) and Ljungqvist (1999), explained by a conflict of interests between the venture capitalist, the underwriter and the entrepreneur, especially when the venture capitalist is affiliated with the underwriter.

¹² In this case the investment bank requires that insiders agree to refrain from selling their stock in the aftermarket for a period of time after the IPO. See Brav and Gompers (2000).

¹³ See Loughran et al. (1994).

¹⁴ For the purpose of this paper, we focus only on public offerings and neglect private placements.

¹⁵ Fische (1999) states that in the US Best Efforts contracts tend to be used for smaller IPOs where demand is more uncertain. In fact in Italy IPOs rarely involve very small firms.

¹⁶ The new issue process is regulated by a public authority, CONSOB, which performs a role that is comparable to the SEC in USA, and by a private company, Borsa Italiana SpA, who manage 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.

¹⁷ On the contrary single-bid and multiple-bid auctions are common in other countries, such as France, Japan and Israel. For a detailed description of these procedures see Vandemaele (1999).

¹⁸ Truly in 2000 2 IPOs on the "Nuovo Mercato" (CHL and CTO, not considered in this survey) prudentially chose an offer price lower than the minimum price.

¹⁹ See Giudici and Paleari (2000).

²⁰ Details about general characteristics and ownership structure of the Italian listed companies may be found in the CONSOB and Borsa Italiana SpA Internet pages (see footnote 16). Although in the last years the number of listed companies has not significantly increased, a relevant turnover has considerably reset the Stock Market outline.

²¹ Actually also in the second period the privatization process in the banking sector has been relevant; nevertheless, it has been realized through public offerings of shares held by the State but already listed on the Stock Market.

²² In fact, the phenomenon is imputable to the process of “financial dismantling” and separation between ownership and control experienced in Italy during the ‘80s by large business groups and documented by Brioschi et al. (1990).

²³ Since the t-test implies a normal distribution of the stochastic variable and this may not be justified in our case, we validated the tests also through the Tchebyceff inequality.

²⁴ This result is confirmed also by Arosio and Giudici (2000) for recent IPOs in Italy.

²⁵ <http://www.istat.it>

²⁶ Leleux and Paliard (1995) and Derrien and Womack (1999) state that the auction mechanism is associated with less underpricing and thus more efficient, since this procedure is able to incorporate more information from recent market momentum into the pricing of the IPO. Also Biais et al. (1998) suggest the optimality of the auction-like procedure. Kandel et al. (1999) examine the IPO auctions in Israeli; they state that in auctioned IPOs investors gain information about the elasticity of the demand for stock, revising the prices of securities according to the new information. In this case the underpricing is entailed by the uncertainty about the demand elasticity, which is assumed to be important to determine the stock value.

²⁷ For example, in Ljungqvist’s (1999) survey of US IPOs the mean age is 10 years; Habib and Ljungqvist (1999) also refer to the US market and report a mean age equal to 14 years. In Europe a higher comparable mean age is reported by Vandemaele (1999) for the French market (44 years), Roosenboom et al. (1999) for the Netherlands (35 years), Holmen and Högfeldt (1999) for Sweden (31 years).

²⁸ Cooney et al. (1999) find 67.4% in their US sample, Lee et al. (1999) 53% for the Australian market, Goergen (1998) 76.4% and 62.6% for the German and UK market respectively, Roosenboom et al. (1999) 64.6% for the Netherlands.

²⁹ We adopted the “adjusted” underpricing, since on average 58 days (a remarkably long period) elapsed between the offering and the listing. Yet the length of this period has decreased in the last years, due to the book building procedure.

³⁰ See Cherubini and Ratti (1991), Basile and De Sury (1997), Fabrizio (1998).

³¹ Curiously, the underwriters are required to provide data to the CONSOB authority about their activism in trading shares after the listing, but these data are not publicly available, and most of the times not useful for any analysis, since there are no specific requirements about what kind of data are needed. Sometimes, the underwriter just notifies how many shares she bought and how many shares she sold on the market in 30 days after the listing, neglecting other information such as the price of the deal !

Country	Reference	Period	Sample size	Mean underpricing
Australia	Lee et al. (1999)	1976-1994	328	+15.2% ^a
Austria	Aussenegg (2000b)	1984-1999	76	+6.5%
Belgium	Rogiers et al. (1993), Manigart ^b	1984-1999	69	+15.7%
Brazil	Leal (1998)	1979-1992	66	+74.1%
Canada	Jog and Srivastava ^b	1971-1992	258	+5.4% ^a
Chile	Aggarwal et al., Maturana ^b	1982-1997	55	+8.8% ^a
China	Datar and Mao ^b	1990-1996	226 (A-shares)	+388.0% ^a
	Su and Fleisher (1999)	1987-1995	57 (B-shares)	+37.1% ^a
Denmark	Jakobsen and Sørensen (1999)	1984-1998	117	+5.4% ^a
Finland	Keloharju (1993), Rimpi (1998)	1984-1997	102	+9.9%
France	Derrien and Womack (1999)	1983-1998	448	+9.5%
Germany	Ljungqvist (1999)	1978-1999	407	+27.7%
Greece	Kazantzis and Thomas (1996)	1987-1994	129	+51.7%
Hong Kong	Zhao and Wu ^b	1980-1996	334	+15.9% ^a
Hungary	Jelic and Briston (1999)	1990-1998	25	+44.0%
India	Krishnamurti and Kumar (1999)	1992-1994	386	+72.3%
Indonesia	Hanafi (1997)	1989-1994	106	+15.1%
Israel	Kandel et al. (1999)	1993-1994	28	+4.5%
Italy	Giudici and Paleari (1999)	1985-1998	135	+20.3%
Japan	Fukuda et al., Hamao et al. ^b	1970-1996	975	+24.0% ^a
Korea	Dhatt et al., Choi and Heo ^b	1980-1996	477	+74.3% ^a
Malaysia	Isa and Yong ^b	1980-1998	401	+104.1%
Mexico	Aggarwal et al. (1993)	1987-1990	37	+33.0%
Netherlands	Wessels, Jenkinson et al. ^b	1982-1999	143	+10.2% ^a
New Zealand	Vos and Cheung ^b	1979-1999	201	+23.0% ^a
Nigeria	Ikoku ^b	1989-1993	63	+19.1%
Norway	Emilsen et al. ^b	1984-1996	68	+12.5%
Philippines	Sullivan and Unite ^b	1987-1997	104	+22.7% ^a
Poland	Aussenegg (2000a)	1991-1998	159	+33.1%
Portugal	Almeida and Duque (2000)	1992-1998	21	+10.5% ^a
Singapore	Lee et al. ^b	1973-1992	128	+31.4% ^a
South Africa	Page and Reyneke (1997)	1980-1991	118	+32.7% ^a
Spain	Otero and Fernandez (2000)	1985-1997	58	+12.8% ^a
Sweden	Holmen and Högfeltdt (1999)	1979-1997	233	+29.3% ^a
Switzerland	Ogna et al. (1999)	1985-1994	55	+34.6%
Taiwan	Lin and Sheu ^b	1986-1995	241	+34.6% ^a
Thailand	Wetyavivorn and Koo-Smith ^b	1987-1997	292	+46.7 ^c
Turkey	Kiymaz (1997)	1990-1995	138	+13.6%
UK	Loughran et al. (1994, upd. 2000)	1959-1999	2,802	+13.9%
USA	Ibbotson et al. ^b	1960-1999	14,376	+17.4% ^a

TABLE I – IPO underpricing (first day excess return) in the world. Source: various studies cited.

^a First day raw return.

^b Cited in Loughran, Ritter and Rydqvist (1994, updated 2000).

^c The initial excess return is excluding 12 issues with additional rights offerings.

Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Firms newly listed (No.)	12	42	23	14	7	4	8	5	4	17	14	14	13	25	31	8	241
... already listed on the "Mercato Ristretto"	2	3	1	1	-	-	-	2	1	5	2	-	1	4	2	-	24
... already listed in other national markets	-	4	4	1	-	1	1	-	-	8	-	-	-	-	-	-	19
... already listed in other foreign markets	-	-	-	-	-	-	2	1	1	-	-	-	-	1	3	-	8
... with no public offering	1	2	1	1	-	-	1	-	-	-	-	1	-	2	2	-	11
... re-admitted after a period of suspension	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	2
... after a spin-off	-	-	-	-	-	-	-	-	2	-	1	1	2	3	3	1	13
Sample of IPOs	9	32	17	11	7	3	4	2	-	3	11	12	10	15	21	7	164

TABLE II - Firms newly listed on the Italian Exchange between January 1985 and August 2000 and IPOs considered in the sample.

Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
"Industrial" sector (total No.)	6	18	11	8	5	-	2	-	-	-	9	7	9	9	12	3	99
- Foodstuff	-	-	-	-	-	-	-	-	-	-	1	-	-	1	1	-	3
- Cars	-	2	-	-	-	-	-	-	-	-	2	-	1	-	2	-	7
- Papermaking	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	2
- Chemicals	1	2	2	3	1	-	-	-	-	-	2	1	1	2	1	-	16
- Building	-	4	4	1	-	-	1	-	-	-	-	-	1	-	1	-	12
- Electronics and electromechanical	3	4	4	1	2	-	1	-	-	-	1	5	1	6	3	1	32
- Mechanics	2	3	-	-	-	-	-	-	-	-	1	-	1	-	1	-	8
- Others	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	1	2
- Metallurgy and mineral	-	1	-	-	-	-	-	-	-	-	1	-	1	-	-	-	3
- Textile & Clothes	-	2	1	1	2	-	-	-	-	-	1	-	3	-	3	1	14
"Financial" sector (total No.)	3	8	4	3	1	2	2	2	-	3	2	2	-	1	4	1	38
- Assurance	-	2	-	1	-	-	-	-	-	1	-	1	-	1	-	-	6
- Banking	1	3	2	1	-	-	-	1	-	1	2	1	-	-	4	1	17
- Estate	-	-	-	1	-	1	-	1	-	-	-	-	-	-	-	-	3
- Holding companies	2	2	1	-	1	-	1	-	-	-	-	-	-	-	-	-	7
- Financial services	-	1	1	-	-	1	1	-	-	1	-	-	-	-	-	-	5
"Services" sector (total No.)	-	6	2	-	1	1	-	-	-	-	-	3	1	5	5	3	27
- Delivery	-	2	-	-	-	-	-	-	-	-	-	-	-	1	1	-	4
- Media	-	2	1	-	-	-	-	-	-	-	-	1	-	2	-	2	8
- Public utilities	-	1	-	-	-	-	-	-	-	-	-	1	-	1	4	-	7
- Tourism and transport	-	1	1	-	1	1	-	-	-	-	-	1	1	1	-	1	8
Total (No.)	9	32	17	11	7	3	4	2	-	3	11	12	10	15	21	7	164

TABLE III - The IPOs of the survey, by firm's sector and by offering year.

Year	IPOs (No.)	Underpricing (%)			Adjusted underpricing (%)		
		Mean	Positive	Negative	Mean	Positive	Negative
1985	9	80.825%***	9	0	61.208%***	9	0
1986	32	40.404%***	27	5	26.627%***	25	7
1987	17	11.936%	11	6	17.030%**	12	5
1988	11	-0.346%	5	6	8.284%	6	5
1989	7	47.924%*	6	1	42.278%*	6	1
1990	3	71.933%**	3	0	77.131%**	3	0
1991	4	0.211%	3	1	3.225%	3	1
1992	2	-9.657%	1	1	-3.710%	0	2
1993	0	-	-	-	-	-	-
1994	3	8.118%	2	1	6.587%	2	1
1995	11	7.846%***	10	1	8.379%**	9	2
1996	12	10.470%*	9	3	10.732%*	8	4
1997	10	11.178%**	9	1	8.397%**	7	3
1998	15	9.370%*	10	5	7.831%*	11	4
1999	21	32.924% ^a	14	7	33.282% ^a	15	6
2000	7	-0.798%	4	3	-0.805%	4	3
Total	164	23.943%***	123	41	21.016%***	120	44

TABLE IV - IPOs mean underpricing, by listing year.

Sample: 164 IPOs on the Italian Stock Exchange between January 1985 and August 2000.

^a Excluding Finmatica IPO the mean simple and adjusted underpricing are equal to 7.940% (*)

and 8.369% (*) respectively.

* Statistically different from zero at the 90% level.

** Statistically different from zero at the 95% level.

*** Statistically different from zero at the 99% level.

Year	IPOs (No.)	Money left on the table			
		Total amount (million €)	Total amount (inflation adjusted)	Mean amount (million €)	Mean amount (inflation adjusted)
1985	9	187.297	345.506	20.811	38.390
1986	32	728.755	1,295.804	22.774	40.494
1987	17	70.016	120.630	4.119	7.096
1988	11	-30.112	-50.436	-2.737	-4.585
1989	7	157.873	236.711	22.553	33.816
1990	3	17.126	24.581	5.709	8.194
1991	4	0.279	0.381	0.070	0.095
1992	2	-10.846	-13.811	-5.423	-6.906
1993	0	-	-	-	-
1994	3	318.501	380.287	106.167	126.762
1995	11	34.993	38.891	3.181	3.536
1996	12	133.710	143.972	11.142	11.998
1997	10	144.096	152.597	14.410	15.260
1998	15	226.197	235.778	15.080	15.719
1999	21	867.713 ^a	885.363 ^a	41.320 ^a	42.160 ^a
2000	7	-78.168	-78.168	-11.167	-11.167
Total	164	2,767.431	3,718.086	16.875	22.671

TABLE V – “Money left on the table” in the IPOs survey, by listing year.

Inflation adjusted amounts are also reported.

Sample: 164 IPOs on the Italian Stock Exchange between January 1985 and August 2000.

^a Excluding Finmatica IPO the total values are equal to 508.200 million €(520.000 million €inflation adjusted);
the mean values are equal to 25.410 million €(26.000 million €inflation adjusted).

	Placing strategy		
	Auction	Fixed Price	Price-range with book-building ^a
IPOs (No.)	3	79	82 (81)
Mean adjusted underpricing (%)	6.44%	28.33%	14.50% (8.12%)
t-test on the difference		1.637 (3.724 ***)	
Money left on the table (mean inflation adjusted amount - million €)	1.228	22.757	23.373 (19.151)
t-test on the difference		-0.064 (0.414)	

TABLE VI – The relationship among underpricing, "money left on the table" and placing strategies. Sample: 164 IPOs on the Italian Stock Exchange between January 1985 and August 2000.

^a Statistics in parentheses exclude Finmatica IPO.

*** The difference is statistically different from zero at the 99% level.

Kind of revision	IPOs (No.)	Mean adjusted underpricing (%)	Money left on the table (mean inflation adjusted amount – million €)
The offer price is equal to the maximum price	21	42.04% ***	59.589
The offer price is comprised between the maximum price and the midpoint price	27	11.47% **	26.324
The offer price is lower than the midpoint price	34	-0.10%	-1.338
All IPOs with book building	82	14.50% **	23.373

TABLE VII – The relationship among underpricing, "money left on the table" and the revisions from the prospectus price range.

Sample: 82 IPOs with price-range preceded by book-building.

*** Statistically different from zero at the 99% level.

** Statistically different from zero at the 95% level.

Parameter	Variables	Mean	Median	Minimum value	Maximum value	Observations
Company size (whole sample)	Company's assets (<i>million €</i>)	2,905.50	118.24	7.65	82,320.47	164
	Consolidated assets (<i>million €</i>)	3,452.67	159.98	16.87	84,726.34	164
	Equity capital (<i>million €</i>)	353.65	38.55	3.70	14,827.62	164
Company size (banks / insurance companies)	Consolidated assets (<i>million €</i>)	17,675.12	3,765.15	69.33	84,726.34	23
	Equity capital (<i>million €</i>)	1,015.74	318.58	23.20	6,912.23	23
	Income from investments (<i>million €</i>)	1,592.33	561.51	15.42	6,271.71	17
	Total premia (<i>million €</i>)	661.79	390.38	4.86	1,943.39	6
Company size (other companies)	Consolidated assets (<i>million €</i>)	1,132.69	147.24	16.88	53,007	141
	Equity capital (<i>million €</i>)	245.65	31.87	3.70	14,827.62	141
	Gross sales (<i>million €</i>)	857.77	128.04	15.02	46,197.27	126 ^a
Company age	Whole sample (<i>years</i>)	48.85	36.0	1.0	527.0	164
	Banks/insurance (<i>years</i>)	99.57	63.0	4.0	527.0	23
	Other companies (<i>years</i>)	40.57	34.0	1.0	263.0	141

TABLE VIIIa – Some descriptive characteristics of the sample (I).

^a In some cases the data were not available: thus the observations do not always coincide with the sample size.

Parameter	Variables	Mean	Median	Minimum value	Maximum value	Observations
Offering size	Public offering (<i>million €</i>)	164.51	29.19	4.95	10,597.47	164
	Total offering (<i>million €</i>)	260.62	47.77	6.39	16,819.61	164
Daily price volatility (10 days after the listing)		2.50%	1.73%	0.50%	15.13%	164
Fraction of equity capital held by the controlling shareholders...	... before the IPO	86.65%	95.82%	28.65%	100.00%	157 ^a
	... after the IPO	60.82%	60.00%	19.01%	89.00%	157 ^a
Offered existing shares as a percentage of “old” capital before the IPO		18.17%	17.77%	0.00%	52.29%	157 ^a
Total offered shares as a percentage of “total” capital after the IPO		31.00%	27.86%	9.07%	60.00%	157 ^a
Shares reserved to institutional investors (private placement)		64.41%	69.30%	35.00%	84.19%	72
Oversubscription level: ratio between total demand and supply	7.81	5.01	0.62	74.12	72 ^b
	... institutional investors’ demand and supply	7.31	4.38	0.37	46.56	69 ^b
	... public demand and supply	9.72	5.31	0.92	129.24	75 ^b
Market performance	(100 days before the IPO)	8.24%	3.76%	-30.59%	+75.50%	164
Daily market volatility	(60 days before the IPO)	1.31%	1.09%	0.06%	3.21%	164
Days between the offering and the listing		57.64	21.5	2	311	164

TABLE VIIIb – Some descriptive characteristics of the sample (II).

^a We exclude 7 IPOs in which only restricted voting shares are sold.

^b In some cases the data were not available: thus the observations do not always coincide with the sample size.

	PIPOs	Equity carve-outs	Other IPOs
IPOs (No.)	30	39	95
Mean adjusted underpricing (%)	18.32% **	24.24% ***	20.53% ***
Money left on the table (mean inflation adjusted amount - million €)	78.297	6.693	11.665
Mean age	84.0	44.8	39.4
Total consolidated assets (mean inflation adjusted amount - million €)	17,193.107	306.847	405.025

TABLE IX – Privatization IPOs (PIPOs) and equity-carved out IPOs versus other IPOs.

Sample: 30 PIPOs, 39 equity carved-out IPOs and 95 other IPOs on the Italian Stock Exchange between 1985 and August 2000.

** Statistically different from zero at the 95% level.

*** Statistically different from zero at the 99% level.

Variable	Coefficient: Fixed price IPOs	Coefficient: IPOs preceded by book building
Constant	0.472	0.145
LOG_AGE	-0.165 ***	-0.001
LOG_ASSETS	0.017	-0.011
LOG_OFFER_SIZE	0.001	-0.001
HELD_CAPITAL	0.003	0.001
VOLATILITY	7.697 **	2.099 ***
MARKET_INDEX	0.733 ***	0.17 *
MARKET_VOL	-12.462 *	-8.351 ***
RANGE	n.a.	0.252
REVISION	n.a.	0.884 ***
R ²	41.82%	43.91%
R ² (adj.)	35.25%	36.14%

TABLE X – The regression results: determinants of the underpricing. The statistics are adjusted using White (1980) heteroskedastic-consistent standard error. Sample: 146 IPOs on the Italian Stock Exchange between 1985 and 2000.

* Statistically different from zero at the 90% level.

** Statistically different from zero at the 95% level.

*** Statistically different from zero at the 99% level.

Simple underpricing	1 day	1 week	2 weeks	3 weeks	4 weeks	5 weeks
Mean	+23.94% ***	+22.89% ***	+22.91% ***	+22.64% ***	+22.46% ***	+22.34% ***
Median	+6.81%	+6.70%	+4.08%	+3.99%	+4.33%	+3.63%
Minimum value	-38.75%	-38.75%	-40.00%	-42.86%	-40.12%	-41.87%
Maximum value	+532.60%	+401.40%	+393.4%	+447.20%	+391.40%	+521.80%
Skewness	5.47 ***	3.81 ***	3.39 ***	3.96 ***	3.42 ***	4.68 ***
Kurtosis	43.53 ***	22.04 ***	16.47 ***	22.75 ***	16.36 ***	32.17 ***

TABLE XI - Simple underpricing distribution after one day, one week, two, three, four, five weeks of listing. Sample: all 164 IPOs.

*** Statistically different from zero at the 99% level.

Simple underpricing	1 day	1 week	2 weeks	3 weeks	4 weeks	5 weeks
Mean	-4.60% ***	-7.28% ***	-9.47% ***	-10.88% ***	-12.07% ***	-13.15% ***
Median	-3.03%	-6.37%	-8.91%	-8.07%	-10.00%	-11.24%
Minimum value	-38.75%	-38.75%	-40.00%	-42.86%	-40.12%	-41.87%
Maximum value	+11.47%	+7.65%	+5.04%	+3.08%	+0.00%	-2.63%
Skewness	-1.44 ***	-1.39 ***	-1.12 ***	-1.16 ***	-0.99	-1.26 **
Kurtosis	2.85 ***	2.44 ***	1.48 **	1.25 *	0.53	1.36 *

TABLE XII - Simple underpricing distribution after one day, one week, two, three, four, five weeks of listing. Sample: 55 "cold" IPOs.

* Statistically different from zero at the 90% level.

** Statistically different from zero at the 95% level.

*** Statistically different from zero at the 99% level.

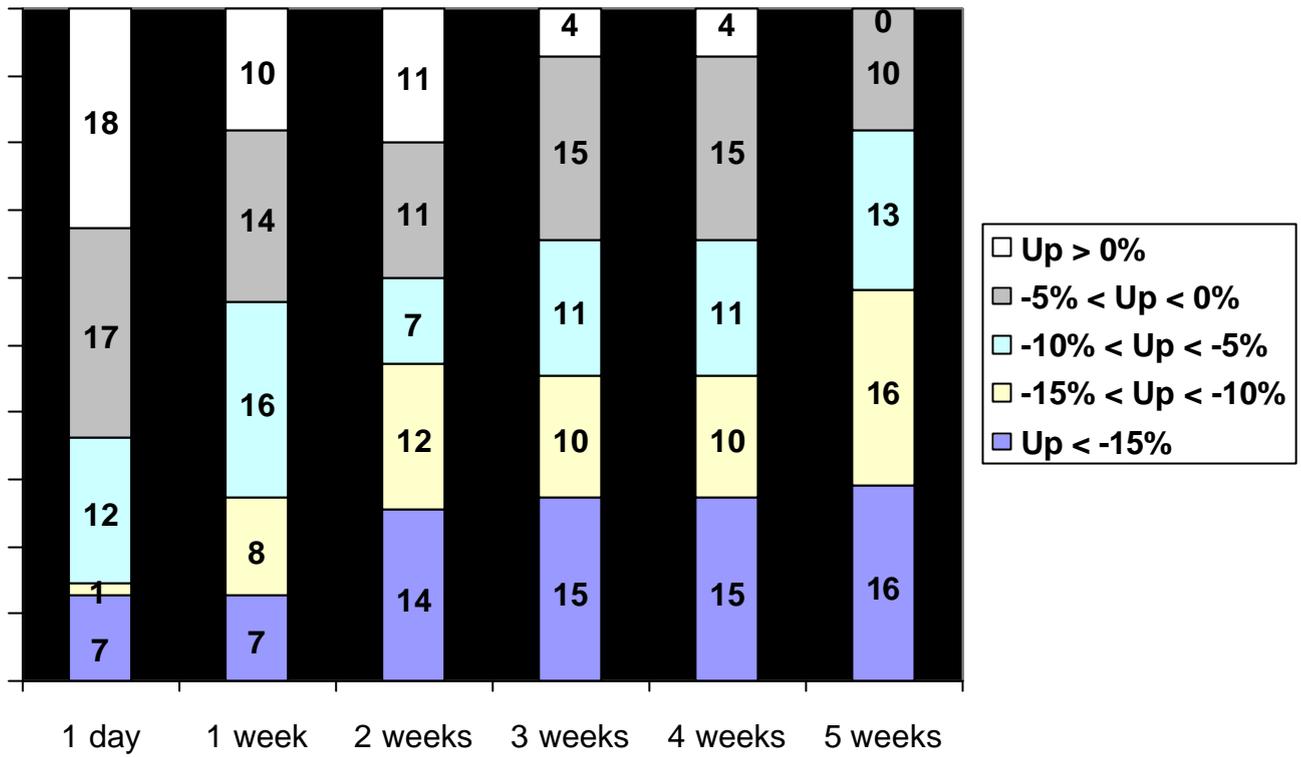


FIGURE 1 - Distribution of the underpricing Up after one day, one week, two, three, four, five weeks.

Sample: 55 "cold" IPOs.

Performance after 4 weeks of trading	IPOs (No.)	IPOs with green shoe option	Exercise of green shoe on average	Green shoe		
				No	Partial	Whole
Price always lower than the offer price	19	14 (73.7%)	6.07%	12 (85.7%)	2 (14.3%)	0 (0.0%)
Price sometimes lower sometimes higher than the offer price	23	14 (60.9%)	46.00%	6 (42.9%)	5 (35.7%)	3 (21.4%)
Price always higher than the offer price	34	23 (67.6%)	97.53%	0 (0.0%)	3 (13.0%)	20 (87.0%)
Total	76	51 (67.1%)	58.28%	18 (35.3%)	10 (19.6%)	23 (45.1%)

TABLE XIII - The relationship between the initial market performance and the exercise of the "green shoe" option by the underwriter. Sample: all 76 IPOs from January 1995 to August 2000.