

Why Do (or Did ?) Internet-Stock IPOs Leave So Much "Money on The Table" ?

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Abstract. The "new economy" advent and the Euro's arrival have given energy to EU stock markets. Even though late with respect to the US and the UK, the number of firms going public on these markets has considerably increased, even as a consequence of the birth of new pan-European second markets. Most IPOs resulted in huge short-run returns, compared to the offer price. The initial underpricing has been particularly manifest for firms whose products and service pertain to high-tech sectors, and distinctively to the Internet world. Yet, a substantial correction in stock prices has occurred in 2000 driven by investors' concerns about Internet companies' cash flow deficits. Many firms have been induced to delay their offerings, and the offer prices were revised downward either by the issuers or by the market with mortifying initial returns.

In this paper we analyze a survey of Internet stock IPOs, listed on the Euro's secondary Stock Exchanges. The sample is made up by 86 IPOs, listed on the EASDAQ and EURO-NM markets from 1/1/1999 to 1/5/2000.

We find an initial average return equal to 76.43%, i.e. the first-day offer price is much higher than the offer price. More than 4.6 billion euro were "left on the table" by the IPOs issuers (54.3 million euro on the average). We aim at investigating why Internet-stock IPOs leave (or just left ?) so much "money on the table". We find that the initial underpricing is strongly related to the information gathered during book building activity in the pre-selling period, which drives the revision of the prospectus price range and signals the IPO quality to uninformed investors. In fact, when the offer price is equal to the maximum price in the ex-ante file range the mean underpricing is equal to 93.71% while it is negative when the offer price is equal to the minimum price. By focusing on Italian Internet companies IPOs we also verify that "hot" IPOs underpricing does not annoy the issuers, since they discover to be much wealthier than expected, coherently with the "prospect theory" by Loughran and Ritter (2000).

Finally we find that the initial return is driven by a number of determinants: it is positively related to the market momentum but negatively related to the density of IPOs in the same national market during the 30 days before the offering, consistently with the "hot issue markets" theory. Interestingly, accounting data from the prospectus about sales and profits seem to force the initial underpricing, too. The dilution of insiders' ownership is not recognized as a significant determinant.

We argue that the remarkably high initial return of Internet stock IPOs in Euro-land is related to Internet euphoria, but also to the limits of traditional evaluation methods adopted by intermediates in determining the offer price.

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

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1. Introduction

The "new economy" paradigm and the Euro's arrival helped make 1999 a record year for Europe's IPO market. The number of companies listing sensibly rose across Germany, Italy, France and Spain, reducing the gap between these countries and the UK and US markets. This tendency has been confirmed during the first months of 2000. In determining such an exploit an important role has been played by secondary stock markets, in which young starting-up firms, often characterized by intangible assets, scarce present profitability but promising growth opportunities, may find adequate places. Most of these markets (EASDAQ and markets joining the EURO-NM network) were born in the late '90s attracting firms which failed to be listed on the traditional stock exchanges.

With high-tech and Internet stock offerings making huge gains on their market debuts and swings in sentiment unnerving the markets, investors and analysts have focused their attention on IPO market performance and on the valuation of Internet stocks. Ritter (2000) states that in the US "more money was left on the table in 1999 than during the first nine years of the decade combined". The money left on the table is defined as the number of shares sold multiplied by the change in price from the offer price to the first-day price. Manigart and De Maeseneire (2000) consider all the IPOs on the EASDAQ and Euro-NM markets before October 1 1999 and find a mean initial return equal to 36%, which is remarkably high if compared to the results reported by other authors for primary markets².

Yet the "bursting of the bubble" on the NASDAQ in 2000 badly mauled Internet stocks, since many investors realized about Internet companies cash flow deficits (consider for example the default of Boo.com company). Both in the U.S. and in Europe many companies ready to go public delayed their offerings, other companies marked down their initial market valuation, other firms were found to be significantly overpriced by the market. For example, after the Nasdaq downfall in April 2000 in Germany the Deutsche Telekom spin-off T-online revised downward the initial offer price range.

Therefore, it is quite interesting to point out the (rational or irrational) determinants of Internet stock IPOs market value.

In this work we analyze the first day market performance of a unique sample of 86 Internet stock IPOs newly listed on the pan-European second markets (EASDAQ and EURO-NM) from January 1 1999 (coinciding with the Euro's arrival) and May 1 2000. We define an Internet-related firm a company offering products and service employed by Internet users. We require that these products and service do engender a relevant fraction of the firm's sales and do play a strategic role in the firm's plans.

We find a mean first-day return equal to 76.43%, which is remarkably high if compared to other IPOs in the same countries. More than 4.6 billion euro were "left on the table" by these firms going public (54.3 on the average). Yet, entrepreneurs did not get upset about these wealth losses (Loughran and Ritter, 2000): as we show for the sample of Italian Internet-stock IPOs, they discovered to be much wealthier than they expected, and this unexpected gain largely counterbalances the opportunity cost.

We aim at investigating the determinants of the first-days returns invoking traditional theories of IPOs underpricing. Most of these 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.

We find that the initial return is positively related with the market momentum, but negatively related with the number of simultaneous IPOs on the same national market, this suggesting new evidence for the "hot issue markets" theory (Ibbotson et al., 1994). The performance of the immediately preceding IPOs on the same market (also related to other business sectors) is not linked to the underpricing, this suggesting that investors do attribute peculiar value to Internet stock IPOs.

Interestingly, the higher the net profit, and the lower the gross sales, the higher the underpricing. On the contrary, no significant correlation is pointed out with the assets value and composition (in terms of intangible resources) and the debt ratio. As a consequence, we posit that the valuation of Internet stock

leaves most accounting data (especially about the firm's capital assets) out of consideration. Investors seem to rely on the composition of revenues and costs, but in an unclear manner.

We argue that Internet-stock huge initial returns are basically explained by three factors: investors' euphoria for the "new economy", the quality of the private information about the issuing firm and publicly available information from the prospectus. Private information is gathered during book building by the issuers and signaled to the market by optimistic (pessimistic) revisions of the final offer price with respect to the initial file range. Public information is extracted by the firm's accounts in the prospectus.

The remainder of the paper is organized as follows. Section 2 highlights the recent literature about IPOs performance in the short-run. Section 3 contains the description of the sample and shows the results of the empirical analysis. In Section 4 some concluding observations are derived.

2. Related research on Internet stock IPOs

The existence of the underpricing phenomenon in IPOs is well known by the economic literature, and seems to be a common characteristic of most international markets, as highlighted by Loughran et al. (1994).

The interpretations 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 behaviors due to market "fads" (see for example Aggarwal and Rivoli, 1990), to noisy trading activities (Chen et al., 1999), to investors' overoptimism about growth prospects (Rajan and Servaes, 1997; Bossaerts and Hillion, 1998). In Welch's (1992) framework investors observe the behavior of other individuals; therefore, an offering may fail due to a "cascade" effect, since investors may be irrationally conditioned by other investors' behavior. 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.

The best-known model is provided by Rock (1986), who categorizes 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 rate.

Benveniste and Spindt (1989) 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. Hanley (1993) demonstrates that the relationship between the IPO offer price and the preliminary price range predicts the direction of the initial stock returns. Stocks that are priced above the initial range perform very well in the short-run; therefore, the offer price is "partially adjusted" to the information about investor demand received during the underwriter's institutional activity. In this case 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 underpricing³. Loughran and Ritter (1999) hypothesize other explanations for partial adjustment, such as underwriters anchoring to the file price range or "leaning against the wind" (investors overreaction).

Mandelker and Raviv (1977) and Baron (1979) highlight the relationship between the firm's managers and the intermediates, therefore relating the underpricing to the underwriters' risk-aversion. 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. Baron and Holmstrom (1980) and Baron (1982) also state that the underpricing is

caused by information asymmetry, since the intermediate has private information about the demand level and the seller is not able to verify the intermediate's effort in sponsoring the offer. Grinblatt and Hwang (1989), Allen and Faulhaber (1989), Welch (1989) and Chemmanur (1993) instead identify the firm's managers as the informed party, and interpret the underpricing as a "signal" of a firm's quality and as a mean to counterbalance the costs borne by the investors in collecting information.

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. Allen and Faulhaber (1989) hypothesize that underwriters also want to gain the goodwill of strategic clients, assigning them underpriced shares. More easily, Baron and Holmstrom (1980) highlight that marketing expenses have a decreasing marginal return and it is less costly to convince investors to subscribe underpriced IPOs. On one hand, underpricing may be desired also by the issuing firm if the managers want to stimulate the small investors' demand and avoid monitoring shareholders to purchase large blocks (Brennan and Franks, 1997). On the other hand, it can be argued that the controlling shareholders welcome monitoring large shareholders in order to commit themselves to the investors and obtain research coverage (Stoughton and Zechner, 1998).

Among the above interpretations, the most influential have been the theories based on information asymmetry between firms and investors. In order to find empirical evidence about them, Beatty and Ritter (1986) introduced the concept of "ex-ante uncertainty" based on the positive correlation between the expected underpricing and the lack of information, which may be expressed by some proxy variables, the most common⁴ being (ex-ante) the firm's age, size and assets typology, the fraction of equity capital held by the controlling shareholder, as well as (ex-post) the bid-ask spread, the price volatility. Besides, the ex-ante uncertainty may be reduced through suitable placing strategies⁵, by adequately selecting the intermediates and the auditors⁶, by the presence of a venture capitalist⁷ (certification hypothesis), or by providing adequate commitment (for example through lock-up provisions⁸).

Recently a pioneer literature has faced the topic of Internet stock IPOs. Valuing Internet stock is a difficult task, since Internet companies are endowed with intangible assets and their profitability, at least in the short term, is scarce. Yet, many Internet stocks listed on Stock Markets have a huge market capitalization, if compared to "traditional" stocks, and are often valued in multiples of their revenues due to the absence of positive earnings. Schill and Zhou (1999) analyze a survey of equity carve-outs in which a firm hands over its Internet business portfolio to a new subsidiary via an IPO. They notice that after the spin-off the market value of the Internet subsidiary exceeds the initial market value of the holding firm over an extended period of time. Cooper et al. (2000) document a striking positive stock price reaction (+77%) to the announcement of corporate name changes to Internet related .com names, regardless of the company's actual involvement with the Internet. Higson and Briginshaw (2000) posit that many Internet valuations are stretched. Investors are focused on growth prospects for the firms, but realistic analysis about future profitability has been neglected in what will be an increasingly competitive world.

There are several explanations for why Internet stock IPOs have become so popular (Schultz and Zaman, 2000). First, the market is irrationally overpricing Internet stocks, and managers are hurrying to take their companies public. Second, Internet companies are rushing to grab market share and first-mover advantages in an industry in which economies of scale ensure that only a few firms will survive. Others dispute that the prices of Internet stock is reasonable given the tremendous growth and potential of the net (Schwartz and Moon, 2000a).

The evidence seems to diverge from the traditional financial and evaluation frameworks, lending more support to *naïve* investors mania than to rational pricing hypotheses. Yet the problem of pointing out new adequate non-financial measures of value for Internet stocks arises, since the Internet industry is evolving at such a rapid pace that historical information and accounting data (if existing) may not be useful for valuing these firms, while on the contrary future growth opportunities have to be considered (Amir and Lev, 1996).

Rajgopal et al. (2000) hypothesize that an important value driver for an Internet company is the ability to attract "web traffic", since this creates future growth potential through network effects and customer relationship, i.e. potential future demand for the company's products. They find that "web traffic", defined by the number of unique users divided by the total estimated population viewing the web during the reported time period, is positively associated with stock prices and adds significant explanatory power to financial statement information. Trueman et al. (2000a) find an incremental explanatory power for unique visitors of the web site and pages viewed per visitor. The same authors in another paper (2000b) posit that estimates of web usage growth have significant incremental value for predicting the revenues of the e-tailers, but little predictive power for the revenues of the p/c firms.

Demers and Lev (2000) consider three primary web performance measures: "reach" (the extent to which the company is able to attract unique visitors), "stickiness" (how long visitors stay at the site) and "customer loyalty" (average number of visits to the site per unique visitor) and find that these factors are value-relevant to the share price of Internet stocks. Yet traffic is an available measure of value just for portals, e-tailers and web sites in general.

On the contrary Hand (2000a) states that neither web traffic and demand forces drive Internet stock prices. Rather, economic fundamentals in the form of current book equity, forecasted one year ahead earnings and forecasted long run earnings growth dominate in explaining Internet stock returns. Interestingly, he finds that when Internet firms' earnings are decomposed into revenues and expenses, revenues are found to be weakly positively priced, while selling and marketing expenses are reliably positively priced. It can be argued that larger losses and expenses create higher market values because they reflect huge investments in intangible assets⁹. Since many of these companies do not have earnings, investors may rely on revenue growth as a key benchmark¹⁰.

Also Trueman et al. (2000a) decompose net income into its components, and find gross profits to be positively and significantly associated with prices. Moreover, they find that bottom-line net income is

positively associated with stock price for p/c firms but negatively associated for the e-tailers. Demers and Lev (2000) find that Internet companies' periodic expenditures on knowledge, customer acquisitions and technology appear to be capitalized as assets by investors. Most notably, the authors examine the value-drivers of Internet stocks both before and after the bursting of the Internet "bubble" in 2000 and find that companies' ability to sustain the "cash burn" emerges as an important value-driver in the "post-bubble" period, while other previously significant value indicators appear to lose importance.

Other analyses (see Hand, 2000b) show that the market value of Internet stocks is sensibly driven by the supply of shares compared to the demand. In particular, since high-tech and Internet-related IPOs are generally smaller than the "old economy" IPOs, the supply of shares is very low if compared to the demand, and this may cause huge initial returns. A similar story is modeled by Wen (1999): in his framework investors are willing to buy IPO Internet stocks (or in general in the "new economy" stocks) in order to diversify their portfolios and reduce systematic risk.

Finally, Perotti and Rossetto (2000) propose a model to evaluate Internet firms' investments as "platform investments", i.e. innovative distribution and production infrastructure which increases access to customers, creating a set of entry strategic options in an uncertain market, to be exercised once demand ensures profitability. The authors claim that the company controlling a "platform investment" is in an advantageous position to develop subsequent applications compatible with the platform establishing a strong standard which would ultimately dominate the market. Thus the more uncertain the market segment, the higher the value of the strategic growth option.

The real option approach for pricing Internet companies has been proposed and immediately revisited also by Schwarz and Moon (2000a; 2000b) who combine capital budgeting techniques with options theory.

3. The sample and the empirical analysis

In this study we consider Internet stock IPOs listed on the two pan-European markets: EASDAQ and Euro-NM.

EASDAQ is a Belgian stock market, founded in 1996 by US and European financial intermediates. It aims to attract international-oriented fast growing high-tech companies and its trading rules are very similar to the NASDAQ ones. At May 1 2000 its market capitalization was equal to 52,800 million euro, and 62 companies were listed on this market, while 39 were listed as at January 1 1999. During the same months the market index performed +112.5%.

The Euro-NM is a network of regulated national markets dedicated to growth companies, made up by the German *Neuer Markt* (born in 1997, 251 listed companies at May 1 2000), the French *Nouveau Marché* (born in 1996, 123 listed companies), the Dutch Euro-NM Amsterdam (born in 1997, 15 listed companies), the Belgian Euro-NM Belgium (born in 1997, 15 listed companies) and the Italian *Nuovo Mercato* (born in 1999, 10 listed companies). Each market corresponds to its home country requirements, although some basic set of rules are common.

The Euro-NM exhibited an impressive growth track doubling the number of IPOs from 1998 to 2000 (total listed firms grew up from 163 to 414 and the index performance has been +152.51%). In particular, most of these firms gained a listing on the German *Neuer Markt*. On the contrary the EASDAQ market (perhaps due to admission criteria more difficult to meet) attracted a much lower number of firms. Nowadays, the EURO-NM market capitalization is more than 5 times the EASDAQ one.

Table I shows some key statistics (number of listed companies, market capitalization, index performance) about the EASDAQ and Euro-NM markets from January 1999 to March 2000. EASDAQ, the Italian *Nuovo Mercato* and the French *Nouveau Marché* clearly outperformed the German *Neuer Markt*, and even more the Dutch and Belgian Markets (which performed quite badly).

Table I

Compared with the official markets standards, the rules of the secondary EU markets are less strict. The offered shares must represent a fraction of the equity capital which is lower than required by primary markets, and the minimum offering size is smaller, too. Most of the provisions tend to facilitate starting-up firms. In Italy, for example, only one set of published financial statements is required before the offering. Special rules apply to the trading method in order to provide liquidity. A sponsor collaborating in the procedure for the admission and a specialist displaying continuous bids and offers on the book after the listing have to be pointed out.

We tracked all the IPOs newly listed on the two pan-European markets after January 1 1999, that is after the Euro's arrival, up to May 1 2000. We selected Internet-related IPOs, excluding firms already listed on other stock exchanges. We define an Internet-related company as in <http://www.internet.com> (Demers and Lev, 2000; Hand, 2000a, 2000b): “firms that would not exist without the Internet”. We require that these products and service do engender a relevant fraction of the firm's sales and do play a strategic role in the firm's plans. Therefore we do not consider an Internet-related IPO a company simply selling its products on the Web. From the same source we obtain a categorization of the Internet industry: e-tailers and e-commerce, software, enablers, security, content and portals, high speed and infrastructure, ISPs and access.

The final sample is made up by 86 IPOs; 4 firms listed on the EASDAQ markets (2 from Belgium, 1 from Italy, 1 from the Netherlands) while 82 listed on national second markets joining the Euro-NM (60 on the German *Neuer Markt*, 14 on the French *Nouveau Marchè*, 5 on the Italian *Nuovo Mercato*, 2 on the Belgian Euro-NM, 1 on the Dutch Euro-NM). The sample is reported in Table II, by business activity and IPO market.

Table II

Most of the firms sell Internet software and services, in particular solutions for E-commerce. Some of them provide Internet business consulting while just a few provide Internet access. Finally, among the sample we find also Internet trading companies, portals, on-line auctions, music, art and financial information.

Notice also that the great majority of the listings occurred in particular periods of the year: in June and July 1999 18 Internet companies (almost 21% of the sample) went public, while just a few listed on the stock exchanges during the months of December and January, preferring November (11 IPOs).

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. Some descriptive statistics for the Internet companies sample are reported in Table III.

Table III

Notice that in most cases the accounting value of the firms' assets and of the equity is lower than 10 million euro, since Internet companies are mainly endowed with intangible assets. Interestingly, 5 firms exhibit a negative value of the equity capital, due to the "cash burn" shortage and to losses carried forward.

The data show also that only 17 firms (19.8% of the sample) in their accounts exhibit net profits higher than 1 million euro, while more than half of the companies bear losses. Last, the fraction of equity capital retained by controlling shareholders is considerably high; on the average it is equal to 72.63% and in only one case after the IPO the outsiders own more than 50% of the equity capital. Therefore, there is no evidence that insiders try to sell as many of their personal shares in Internet stock IPOs, taking advantage of market mispricing. Interestingly, this result is symmetrical to the findings reported by Schultz and Zaman (2000) for US Internet stock IPOs. On the contrary, they report that only 10% of the Internet companies in their survey report positive profits, this confirming that US Stock Exchanges are more aggressive in

attracting fast growing (but still not profitable) firms. In fact, the mean initial market capitalization after the first day of listing in Europe is equal to 978 million euro (although 12 large companies capitalize more than 1 billion euro), while in the US is equal to 419 million dollars.

For each IPO considered, we computed the underpricing, defined as the difference between the closing price of the share after the first day of listing and the offer price. We did not adjust this measure by looking at the market index return since in some cases (due to the small number of listed companies) the index performance is strongly influenced by the IPO performance itself. Following Ritter (1984) the amount of “money left on the table” is also reported: it is 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).

Table IV summarizes the results obtained for the whole sample and for single stock exchanges. The number of firms outstanding a positive underpricing is also reported; appropriate tests have been conducted in order to determine the statistical significance of the initial underpricing.

Table IV

Table IV shows that the highest mean initial return has been registered on the French *Nouveau Marchè* (+84.20%) and the Euro-NM Amsterdam (+160.00% but in this case it's just one IPO) while the lowest competes to the Belgian Euro-NM (+30.54%). EASDAQ Internet stock IPOs experienced a performance slightly lower than Euro-NM counterparts. In the whole sample, just five IPOs (Job&Adverts, ProDV, Gigabell and Brain Force on the German *Neuer Markt* and Freedomland ITN on the Italian *Nuovo Mercato*) closed the first-day of listing at a price lower than the offer price; 5 IPOs (Lycos Europe, Digital adv., Fluxx.com and IDS Scheer, on the German market and Netgem on the French *Nouveau Marchè*) exhibited a null initial return.

Notice that the mean underpricing for the whole survey (+76.43%) is quite relevant, if compared to the results obtained by other studies on primary stock exchanges. Arosio et al. (2000) explore 1999 "old economy" IPOs on the Milan Stock exchange and find an average underpricing equal to 7.94%; they also report from other authors a mean underpricing (considering IPOs in the '90s) equal to 13.2% in France, 9.2% in Germany, 10.1% in Belgium, 4.0% in the Netherlands. On the contrary, the results are similar to the findings reported by Schultz and Zaman (2000) for US Internet stock IPOs from January 1999 to March 2000, in which the mean underpricing is equal to 91%.

Then, more than 4.6 billion euro were "left on the table" by Internet-stock IPOs on the Euro "second markets" from January 1 1999.

It is worth asking why Internet companies are willing to go public at issue prices much below the price that investors pay. Loughran and Ritter (2000) introduce a "prospect theory" of issuers behavior; they argue that the IPOs where wealth losses are large are almost invariably those where the offer price and market price are higher than had originally been anticipated. 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.

We verified this theory for the Italian *Nuovo Mercato*, since on this market IPOs were larger than in other markets and (see Table IV) on the average more money was left on the table by Italian IPOs than by other European IPOs. In Table V we list the five IPOs, and we compare the amount of "money left on the table" with the variation of expected wealth of controlling shareholders. We assume that before the IPO their wealth (in term of number of shares retained) is measured by the midpoint in the price range fixed during the pre-selling period, and after the IPO by the market price.

Table V

Notice that when the underpricing is positive the wealth gain obtained by controlling shareholders is always higher than the amount of "money left on the table" deriving both from existing and newly issued offered shares. In "hottest" IPOs (E.biscom and I.net) the wealth gain is more than 4 times the cash loss, consistently with the "prospect theory". Notice also that in one case (Freedomland ITN) the cash raised from purchasers of overpriced shares is lower than the wealth loss of the controlling shareholders. Therefore in this case the company raises more cash from the market, but at the same time the controlling shareholders discover to be poorer than expected.

We now aim at determining if a particular pattern may be detected in the underpricing level, according to the market sentiment from January 1999 to May 2000, especially coinciding with the Nasdaq crisis in the first months of 2000. In Exhibit 1 we plot the sample IPOs initial return, by subsequent listing date. The IPOs initial returns appear to be auto-correlated; two "hot issue" periods may be pointed out, in which the underpricing level is significantly high, probably due to investors' euphoria: the first one is January-March 1999, while the second one is November 1999-March 2000. The last IPOs, in April 2000, do appear to be less underpriced, according to the change of the market sentiment.

Exhibit 1

Almost all the IPOs we consider were preceded by book building activity (only one IPO, Trius, was auctioned). The literature supports the hypothesis that book building induces revelation of the investors' beliefs and contributes to reduce the underpricing (Benveniste and Wilhelm, 1990; Ljungqvist et al., 2000; Sherman, 2000). Thus, we expect also the final offer price to partially adjust to the new information collected by the underwriter, consistently with Ritter (1984) and Hanley (1993).

Table VI (which categorizes the 85 IPOs with book building by the final offer price relative to the file price range) confirms this hypothesis: the choice of the maximum price in the ex-ante fixed range (or, at least, of a

price higher than the average one) is informative and interpreted by the market as good news resulted from the information gathering activity. On the contrary the choice of a low or average price reveals a less optimistic judgement of the investors reached during the book-building procedure.

Table VI

Therefore we posit that investors may extract private information by looking at the price revision, this reducing asymmetries. Notice that the IPOs that performed worst during the first day of trading were offered at a price equal to the minimum price in the range. In this case the initial return is not statistically different from zero, consistently with the "partial adjustment theory" by Hanley (1993).

We now aim at investigating about the correlation between the initial return and firm-specific determinants. Manigart and De Maeseneire (2000) find that IPOs underpricing on the EASDAQ and Euro-NM markets is positively correlated with three indicators of market sentiment at IPO time: the oversubscription rate, the market momentum and the mean initial returns of the three previous IPOs on the market. They also find that IPOs concerning software, internet and telecommunications have higher returns. On the contrary the first-day return is negatively correlated with the stock volatility after the IPO and the number of IPOs during the month of the offering.

Therefore two different phenomena seem at work: investors' euphoria for high-tech stock (and in particular for Internet stock) and uncertainty about the IPO value. On one hand investors are willing to purchase Internet stock, in order to diversify their portfolios and maintain an option on future growth opportunities of the "new economy". On the other hand, uncertainty affects the evaluation process, both for the intermediates (who fix the offer price range) and for the market at the listing.

Kim and Ritter (1999) state that to value young companies, discounted cash flow analysis is very imprecise and the use of accounting numbers is standard practice in many IPO cases. Yet the approach of price-

earnings ratios and other multiple of comparable firms as benchmarks results in very little precision when historical accounting data are used. This task may be quite complex for Internet-related IPOs whose assets are essentially intangible and do not appear in balance sheets. Then, no benchmark listed firms exist for Internet IPOs, by their young age. These are the reasons why intermediates and investment bankers may fail in pricing issues.

Thus it is worth analyzing which are the determinants of so much money "left on the table". We propose a model in which the initial underpricing depends upon three kinds of variables:

- a) proxies of the market and investors "sentiment": the performance and volatility of the target market index referring to the month prior to the listing (MRK_PERF and MRK_VOL), the number of all IPOs on the target market during the month prior to the listing (IPOS_NUM), the average underpricing of the three preceding IPOs on the target market (UND_3IPOS); we hypothesize that the more optimistic the market sentiment, the higher the underpricing, but we may expect that when too much firms go public at the same moment, the market faces an excessive supply of stock;
- b) firm-specific accounting data: the total accounting value of assets¹¹ (LOG_ASSETS) as a measure of the firm's size, the ratio between intangible assets and total assets (UNTANG_ASSETS) as a proxy of investments' typology, the total revenues (LOG_SALES), the net profit (LOG_PROFIT), the ratio between total debts and equity capital (LEVERAGE); by the existing literature on Internet stock IPOs we have no general accepted hypothesis and we aim at discovering if the underpricing is driven by any accounting measure;
- c) IPO-specific data: the log of the offer price (LOG_OFFER_PRICE), the percentage of free floating shares after the IPO as a measure of ownership dispersion (FLOAT), the standard deviation of the stock price in the five days after the listing (STD_DEV) as a measure of stock risk, a dummy variable (DUMMY_REV), which is equal to 1 when the revised offer price is lower than the maximum price in the file range, related to the quality of information gathered during book building activity. We expect the

underpricing to be higher when the systematic stock risk is high and when the offer price is lower¹² and is revised upwards with respect to the file range, according to the analyses above; we also want to identify any correlation between the underpricing and the ownership dispersion after the IPO¹³. We added a dummy control variable (FRENCH) which is equal to 1 if the IPO is listed on the French *Nouveau Marché*: in fact, in France IPO shares are offered partially at a fixed price and partially after book building: therefore we expect the underpricing to be higher, according to the theory.

In Table VII the OLS regression results are reported¹⁴. Most of the variables are significantly correlated with the initial underpricing, and the expected sign of the coefficient is confirmed.

Table VII

Internet-stock IPOs seems to be positively priced by the investors according to the market momentum and volatility but not to the initial performance of the last IPOs in the same market, this suggesting that investors are peculiarly concerned about the value of Internet stock among high tech sectors. Yet, the more the IPOs during the same month, the lower the initial return, maybe because the demand for Internet-stock IPOs is satisfied by a higher supply of shares, consistently with the "hot issue markets" theory.

The most interesting results refer to the accounting measures. The size and composition of assets (tangible vs. intangible) is found not to be relevant. On the contrary, sales are negatively related but the opposite is true for the net profit. This puzzling result suggests that the market is not concerned about the capital assets of the IPO firm, since Internet investments are considered as strategic options on future growths. Yet, it could be argued that sales are considered as a cash source, in order to finance R&D, marketing and skill costs and reduce uncertainty about the firm's success in competing on the Internet business. Therefore the requested underpricing may be lower.

On the contrary profits in Internet companies may enhance underpricing by the fact that lower losses may increase the probability of the firm's survival, this increasing the duration and value of the entry option in the Internet business. In this case the underpricing is forced to be higher, since traditional methods of IPOs evaluating hardly keep into account strategic options.

The offer price and the IPO stock volatility are significantly related to the underpricing, consistently with the previsions above. The positive coefficient of the FRENCH dummy confirms that French IPOs are expected to be more severely underpriced, since a fraction of the shares are offered at a fixed price.

Not surprisingly, when the offer price is not equal to the maximum level of the file range, the underpricing is lower, consistently with the results listed in Table VI. No evident correlation is pointed out between the initial return and the free float of shares.

Notice that we obtain a remarkably high level of statistical significance for the regression analysis, since the adjusted R^2 coefficient is equal to 48.89%.

4. Concluding remarks

In this paper we aimed at analyzing Internet-stock IPOs on the Euro's secondary stock markets. Using a unique and cross-country set of data we have presented some results about the short-run market performance. We find a remarkably high mean initial return (+76.43%), in countertendency with the results obtained for primary EU stock markets (in which the underpricing level is decreasing over the last years). The amount of "money left on the table" by Internet stock IPOs is indeed high (more than 4.6 billion euro) but entrepreneurs did not suffer from this renounce. By focusing on Italian Internet-stock IPOs we show that controlling shareholders after the IPO discover to own a larger wealth, and this is good news consistently with the "prospect theory" recently advanced by Loughran and Ritter (2000). We do not find evidence that managers hurry to take public their companies in order to benefit from temporary

overvaluation, since they sell fewer of their shares in the IPO than do insiders in the "old economy" offerings.

We posit that the initial return is related to investors' Internet euphoria, but also to public and private information acquired by investors during the IPO. Investors are influenced by the market momentum and volatility, but they seem not to appreciate too many IPOs at the same time. This is consistent with the "hot issue markets" theory, which states that a low number of severely underpriced IPOs is often followed by a higher number of firms going public exhibiting lower underpricing. A peculiar value is attributed to Internet stock IPOs, since the investors seem not to be concerned about the underpricing of previous IPOs in other sectors on the same market.

Public information, i.e. accounting data from the IPO prospectus, do have a role (although unclear) in investors' judgement. The assets size and typology and the debt ratio are not related to the initial underpricing, this suggesting that information asymmetry is reduced by book building procedures. On the contrary data about sales and profits are found to be relevant in mispricing IPOs. Therefore, we posit that the market recognizes as value drivers for Internet stock some information that the offering party neglects in pricing the IPO. We hypothesize that these factors concern the capability of the firm to survive for a longer time and sustain a "cash burn", this enhancing the value of the strategic option held by the Internet companies.

Yet, we could not disaggregate expenses, in order to explore the informative role of R&D costs, investments and marketing expenses for investors. The reason is that across EU countries the accounting standards are still not homogeneous.

Investors rely also on private information signaled by the revision of the final offer price, compared to the initial file range. The more optimistic the price revision in the prospectus range after book-building activity, the higher the initial return, since investors are provided with good news.

We verified that the ownership concentration in Internet companies seems not to be relevant for investors.

Although we shed some light on an unexplored world, a deeper analysis of EU Internet-stock IPOs after May 2000 is clearly needed. Surely a fast and relevant evolution of the sector, in terms of competitors and success drivers, is occurring. The determinants of the value creation will more evidently appear and more information will be available for investors. Intermediates will provide more efficient and specific evaluation frameworks for the Internet business. It will be clearer why in 1999 Internet stock IPOs exhibited huge returns, while after May 2000 many of them closed their first-day of listing with a negative initial return.

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Endnotes

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² See Table I in Arosio et al. (2000) which reports the results of several studies on IPOs underpricing in the world.

³ See also Weiss (1989) and Maug (1999). Cornelli and Goldreich (1999) also find that IPO bidders who provide valuable information to the underwriter are allocated more shares than others.

⁴ See Miller and Reilly (1987) and Garfinkel (1993).

⁵ See Loughran et al. (1994).

⁶ See Booth and Smith (1986), Carter and Manaster (1990) and Carter et al. (1998). Nevertheless this hypothesis is refused by Michaely and Shaw (1994), Beatty and Welch (1996), Cooney et al. (1999), who argue that in high-demand IPOs high-reputation underwriters are able to exploit their superior bargaining position to underprice the IPO more severely, consistently with the monopsony power hypothesis introduced by Ritter (1984).

⁷ See Megginson and Weiss (1991), Hamao et al. (1998). More recent evidence of an apparent reversal in this relationship is provided by Francis et al. (1999) and Ljungqvist (1999), explained by conflict of interests between the venture capitalist, the underwriter and the entrepreneur.

⁸ 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).

⁹ "In this marketplace, the more money you lose, the more valuable you are" (The Wall Street Journal, May 19th, 1999).

¹⁰ "Price-to-sales ratios have increased in popularity as a benchmark" (The Wall Street Journal, November 26th, 1999).

¹¹ All extensive variables (except the net profit, which is often negative) are adjusted considering the log of the value.

¹² Ibbotson et al. (1988) state that the lower the offer price, the more speculative the offering, the higher the initial underpricing. This theory is not suitable for EU primary stock markets, since only fixed lots of shares (or multiple) may be traded. On the contrary, on EASDAQ and EURO-NM single shares may be traded.

¹³ According to the "agency costs hypothesis" by Jensen and Meckling (1976) the underpricing should be positively related to the ownership dispersion; yet the "signalling hypothesis" by Leland and Pyle (1977) would predict the opposite.

¹⁴ We excluded the Belgian IPO (Fidelity Net Marketing) because the accounting data were not available.

TABLE I - The EASDAQ and Euro-NM statistics from January 1, 1999, to May 1, 2000.

Market capitalization in million euro. Source: <http://www.euro-nm.com>, <http://www.easdaq.be>

Stock exchange	Market capitalization		Listed companies		Index performance (1/1/1999 - 1/5/2000)
	1/1/1999	1/5/2000	1/1/1999	1/5/2000	
EASDAQ	13,600	52,800	39	62	+112.50%
EURO-NM	31,503	260,648	163	414	+152,51%
Neuer Markt	26,113	207,280	63	251	+137.09%
Nouveau Marché	4,176	25,610	81	123	+253.74%
Nuovo Mercato	-	25,348	-	10	+817.40%
Euro-NM Amsterdam	1,095	1,850	12	15	+51.53%
Euro-NM Belgium	119	560	7	15	+23.62%

TABLE II - The sample: Internet stock IPOs on the EASDAQ and EURO-NM markets
(January 1999 - May 2000)

	Company	Listing	Business activity	Stock market
1	ABIT	03/02/2000	E-commerce solutions	Neuer Markt
2	Access Commerce	16/11/1999	E-commerce software	Nouveau Marché
3	ACG	01/07/1999	Chipcards	Neuer Markt
4	ADS System	17/11/1999	Network services	Neuer Markt
5	Alsoftw@re	23/11/1999	Software	EASDAQ
6	Alti	12/11/1999	Internet consulting	Nouveau Marché
7	Artnet.com	17/05/1999	Art market portal	Neuer Markt
8	Artprice.com	21/01/2000	Online art databases	Nouveau Marché
9	Bechtle AG	30/03/2000	E-commerce	Neuer Markt
10	Bourse Direct	10/11/1999	On line brokerage	Nouveau Marché
11	Brain Force Software	10/06/1999	E-business enabler	Neuer Markt
12	Bricsnet	30/06/1999	Software	EASDAQ
13	Buch.de	08/11/1999	E-commerce	Neuer Markt
14	Buecher.de	05/07/1999	E-commerce	Neuer Markt
15	Carrier 1 International	24/02/2000	Internet carrier	Neuer Markt
16	Computerlinks	07/07/1999	High-end Internet products	Neuer Markt
17	Consors	26/04/1999	Internet trading	Neuer Markt
18	CPU Softwarehouse	19/04/1999	Internet software	Neuer Markt
19	Cross Systems	03/11/1999	Internet solutions	Nouveau Marché
20	DCI Database for Comm.	13/03/2000	E-commerce solutions	Neuer Markt
21	Digital adv.	29/10/1999	E-marketing and software	Neuer Markt
22	E-biscom	30/03/2000	Broad band network services	Nuovo Mercato
23	Ebookers.com	12/11/1999	Internet travel store	Neuer Markt
24	Endemann !	10/03/1999	Internet on-line services	Neuer Markt
25	Fidelity Net Marketing	03/06/1999	Internet marketing	Euro-NM Belgium
26	Fimatex	21/03/2000	On-line brokerage	Nouveau Marché
27	Fluxx.com	28/09/1999	E-commerce services	Neuer Markt
28	Freedomland ITN	19/04/2000	Internet access via TV	Nuovo Mercato
29	Freenet AG	03/12/1999	Internet provider	Neuer Markt
30	Gedys Internet Products	27/09/1999	E-business software	Neuer Markt
31	GFT Technologies	28/06/1999	Web-based solutions	Neuer Markt
32	Gigabell AG	11/08/1999	Internet services	Neuer Markt
33	GL Trade	16/02/1999	Internet trading solutions	Nouveau Marché
34	Haitec	14/07/1999	E-business solutions	Neuer Markt
35	Himalaya	27/03/2000	Web design	Nouveau Marché
36	IDS Scheer	11/05/1999	E-business services	Neuer Markt
37	I-FAO	01/03/1999	Internet applications	Neuer Markt
38	I.net	04/04/2000	Internet service provider	Nuovo Mercato
39	Infotel	21/01/1999	Internet-designed database	Nouveau Marché
40	Integra	02/06/1999	E-commerce software	Nouveau Marché
41	InternetMediaHouse.com	30/07/1999	Internet services	Neuer Markt
42	Internolix	27/03/2000	E-commerce software	Neuer Markt
43	ISION Internet	17/03/2000	Internet access / solutions	Neuer Markt
44	Job & Adverts	06/04/2000	Internet job market	Neuer Markt
45	Kabel New Media	15/06/1999	E-commerce solutions	Neuer Markt
46	Lycos Europe NV	22/03/2000	Internet service provider	Neuer Markt
47	M+s Elektronik	29/02/2000	Internet infrastructures	Neuer Markt

TABLE II (continued) - The sample IPOs

48	Met@box	07/07/1999	Internet access via TV	Neuer Markt
49	Meta4	02/07/1999	Internet software	EASDAQ
50	Multimania	08/03/2000	Internet portal	Nouveau Marché
51	Musicmusicmusic	01/10/1999	Music via Internet	Neuer Markt
52	Net Value	26/01/2000	Internet activity tracking	Nouveau Marché
53	Netgem	06/04/2000	Internet access via TV	Nouveau Marché
54	Netlife	01/06/1999	E-business solutions	Neuer Markt
55	OnVista	28/02/2000	Financial info provider	Neuer Markt
56	Openshop Holding	21/03/2000	E-commerce solutions	Neuer Markt
57	Pironet	22/02/2000	Internet business management	Neuer Markt
58	Pixelpark AG	04/10/1999	Internet solutions	Neuer Markt
59	Plaut	09/11/1999	E-business consulting	Neuer Markt
60	Poligrafica S. Faustino	29/10/1999	Internet solutions	Nuovo Mercato
61	Popnet Internet	02/02/2000	Internet multimedia	Neuer Markt
62	PRO DV AG	22/03/2000	Web-based information	Neuer Markt
63	PSB	27/07/1999	IT and Internet services	Neuer Markt
64	QSC	19/04/2000	Internet provider	Neuer Markt
65	Realtech	26/04/1999	E-commerce software	Neuer Markt
66	Ricardo.de	21/07/1999	Internet auctions	Neuer Markt
67	Selftrade	16/03/2000	Online trading provider	Neuer Markt
68	Sinnerschrader	02/11/1999	Internet consulting	Neuer Markt
69	Softline	14/02/2000	Internet b-to-b software	Neuer Markt
70	Teamwork Inf. Manag.	14/07/1999	Internet-based solutions	Neuer Markt
71	Tie Holding	02/03/2000	E-commerce software	Euro-NM Amsterdam
72	Tiscali	27/10/1999	Internet provider	Nuovo Mercato
73	Tiscon Infosystems	14/10/1999	Internet systems	Neuer Markt
74	Tomorrow Internet	30/11/1999	Internet multimedia	Neuer Markt
75	T-Online International	17/04/2000	Internet provider	Neuer Markt
76	Tria Software	10/05/1999	Internet services	Neuer Markt
77	Trintech Group PLC	24/09/1999	E-payment solutions	Neuer Markt
78	Trius	09/03/2000	Internet software	Neuer Markt
79	TV Loonland	22/03/2000	Internet television	Neuer Markt
80	Ubizen	10/02/1999	E-business security	EASDAQ
81	Update.com	11/04/2000	E-commerce software	Neuer Markt
82	Utimaco	16/02/1999	Internet security	Neuer Markt
83	Varetis	07/02/2000	Internet software	Neuer Markt
84	VMS Keytrade	10/12/1999	Internet trading	Euro-NM Belgium
85	Web.de	17/02/2000	Internet portal	Neuer Markt
86	WWL Internet	15/07/1999	Internet strategies/provider	Neuer Markt

TABLE III - Some descriptive statistics about the IPO firms listed in Table II.
All amounts in million euro.
Data about sales are projected on a 12-monts basis.

	Mean value	Sample distribution	
Assets accounting value	36.074	Lower than 10:	46
		From 10 to 100:	30
		Higher than 100:	9
Equity capital	8.400	Negative:	5
		From 0 to 10:	66
		Higher than 10:	14
Gross sales	29.396	Lower than 1:	9
		From 1 to 10:	41
		From 10 to 100:	30
		Higher than 100:	6
Net profit	1.118	Negative:	44
		From 0 to 1:	24
		Higher than 1:	17
Initial market capitalization	978.415	Lower than 100:	20
		From 100 to 500:	40
		From 500 to 1,000:	13
		Higher than 1,000:	12
Fraction of equity capital retained by controlling shareholders	72.63%	Lower than 50%:	1
		From 50% to 70%:	22
		From 70% to 90%:	58
		Higher than 90%:	2

TABLE IV - Initial returns and “money left on the table”. Sample: 86 Internet stock IPOs.

	IPOs (#)	Mean initial return	Distribution of initial returns			“Money left on the table”	
			Positive	Null	Negative	total amount (mean amount) - million euro	
Neuer Markt	60	+77.11% ***	52	4	4	3,308.396	(55.139)
Nouveau Marché	14	+84.20% ***	13	1	-	388.227	(27.730)
EASDAQ	4	+73.94%	4	-	-	77.779	(19.444)
Nuovo Mercato	5	+50.16% *	4	-	1	830.526	(166.105)
Euro-NM Belgium	2	+30.54%	2	-	-	7.571	(3.785)
Euro-NM Amsterdam	1	+160.00%	1	-	-	60.000	(60.000)
Whole sample	86	+76.43% ***	76	5	5	4,672.499	(54.331)

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

* Statistically different from zero at the 90% level.

TABLE V – Comparison between “money left on the table” and variation of controlling shareholders’ expected wealth at the IPO.

Sample: 5 Internet-stock IPOs on the Italian *Nuovo Mercato* between 1/1/1999 and 1/5/2000.

IPO company	Shares offered (million)	Offer price (euro)	First-day price (euro)	Underpricing	“Money left on the table” (million euro)	Initial price range (euro)	Shares retained by controlling shareholders (million)	Initial expected wealth (million euro)	Actual wealth after the IPO (million euro)	Wealth gain (million euro)
E.biscom	9.500	160	220.71	+37.94%	+576.745	25 - 160	38.000	3,515.000	8,386.980	+4,871.980
Freedomland ITN	3.300	105	99.18	-5.54%	-19.206	90 - 120	11.111	1,166.667	1,102.000	-64.666
I.net	0.834	176	418.37	+137.71%	+202.209	138 - 176	3.266	512.762	1,366.396	+853.634
Poligrafica S. Faustino	0.300	37	49.08	+32.65%	+3.624	31.5 - 42.35	0.600	22.156	29.448	+7.292
Tiscali	3.098	46	68.09	+48.02%	+68.435	38 - 46	12.060	506.520	821.165	+314.645

EXHIBIT 1 – The sample IPOs underpricing, by listing date.

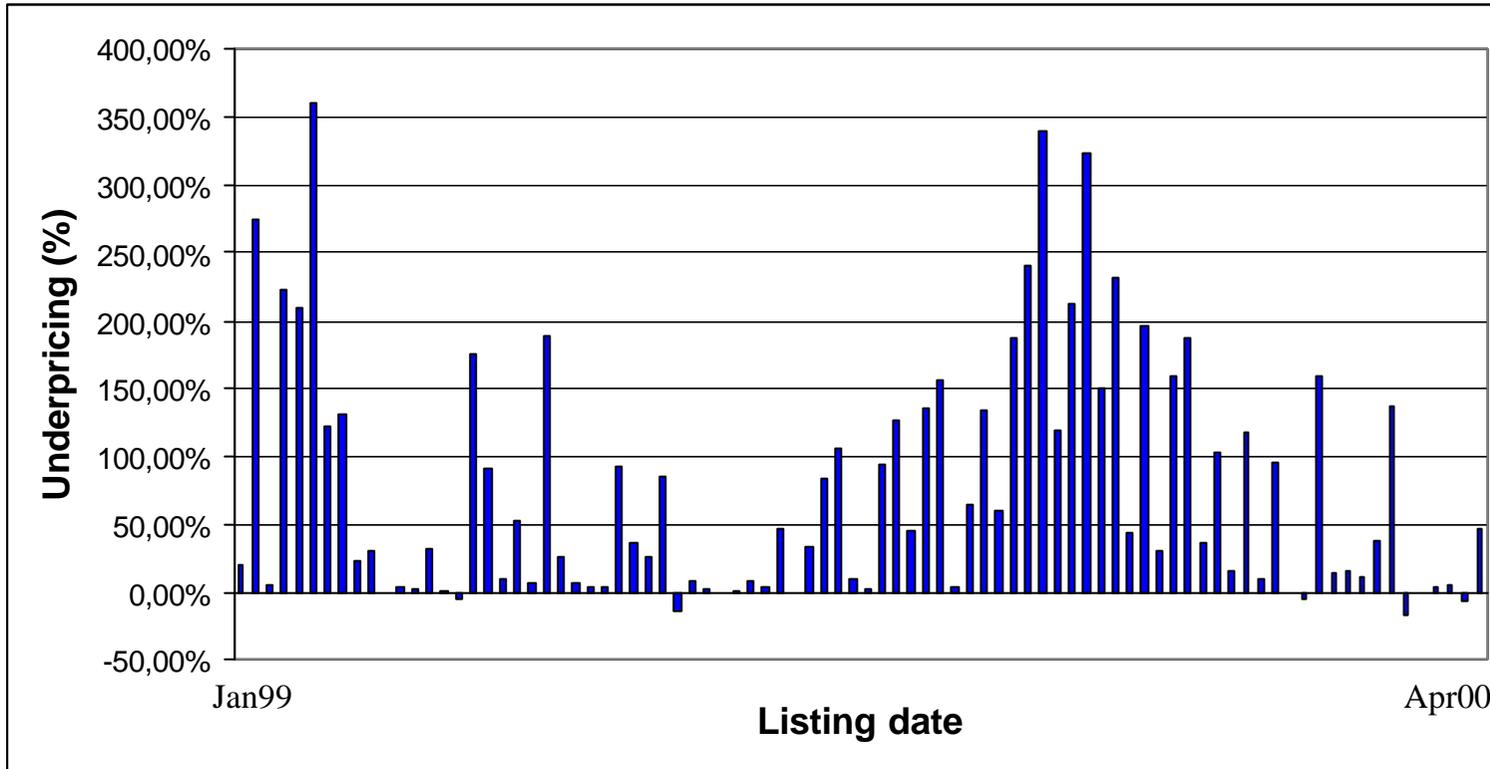


TABLE VI – The relationship among initial return, money left on the table and the revisions from the prospectus price range.

The average price is defined as the arithmetic average of the minimum and maximum price of the range.

Sample: 85 Internet stock IPOs with book-building.

Kind of revision	IPOs (#)	Mean initial return	Money left on the table
			Total value (mean value) - million euro
The offer price is equal to the maximum price	69	+93.71% ***	4,422.486 (64.094)
The offer price is comprised between the maximum price and the average price	5	+7.72%	-9.082 (-1.816)
The offer price is comprised between the average price and the minimum price	6	+10.09%	262.76 (43.793)
The offer price is equal to the minimum price	5	-5.89%	-17.165 (-3.433)

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

TABLE VII – The determinants of the underpricing in Internet stock IPOs: regression analysis.

Sample: 84 Internet stock IPOs on the EASDAQ and EURO-NM stock markets. The statistics are adjusted using White (1980) heteroskedastic-consistent standard error.

Variable	Coefficient
Constant	3.4239 ***
MRK_PERF	1.0762 **
MRK_VOL	0.0053 ***
IPOS_NUM	-0.0577 ***
UND_3IPOS	0.1835
LOG_ASSETS	-0.0185
UNTANG_ASSETS	0.5175
LEVERAGE	0.0002
LOG_SALES	-0.1081 *
PROFIT	0.009 **
FRENCH	0.8558 ***
LOG_OFFER_PRICE	-0.3535 **
FLOAT	0.3336
STD_DEV	0.0292 *
DUMMY_REV	-0.4114 ***
Adjusted R ²	48.89%
Durbin-Watson Statistic	2.0829

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

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

* Statistically different from zero at the 90% level.