

Underwriting Syndicate, IPO Placement Risk and Lead manager Reputation :
An Empirical Study on European Stock Markets

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Abstract

On the basis of a sample of 1605 Initial Public Offerings made on German, French and British stock markets, we try to understand the constitution of underwriting syndicate taking into consideration two hypotheses made on IPO placement risk and lead manager reputation. We show that the situations are highly contrasted between these three stock markets. The first fundamental result is the existence of various forms of syndication in German, British and French markets. German issues are characterized by large syndicates where the lead manager is joined by other banks. Conversely, British issues are strongly concentrated on syndicates with single bank. French IPOs present an intermediate situation with syndicate size composed of more than two banks. Our second result shows that the hypothesis of an increase in syndicate size, in the presence of great uncertainty seems well-founded on German and French markets. We noted that these two markets were on average more risky for share placement and that the mechanisms of the syndicate size increase worked to diversify the risk for syndicate members. On the other hand, the British market did not respond to the influences of risk variables. It is a market where initial return volatility, proportion of “paper return” and underpricing of previous IPOs were the lowest and the best controlled by banks. The third result relates to lead manager reputation. We noted that reputation building is founded on two different dimensions. The first is represented in terms of market share as regards IPO gross proceeds, the second as regards number of issues. That represents a certain form of IPO market segmentation, in which certain banks concentrated on large IPOs bringing a large amount of proceeds and other banks which tried to obtain a high number of small IPO contracts. This different approach of reputation gives opposing results on the French and British markets. The British IPOs underwritten by the more reputable lead managers, in terms of gross proceeds, were shared between several banks, whereas the IPOs underwritten by banks with a great reputation in terms of number of issues are rather assumed by only one bank. These relations are the opposite on the French market. The latter point indicates that it is not possible to have a single vision of lead manager reputation as a factor of IPO concentration.

1. Introduction

The Initial Public Offering is the first sale of a firm's common shares to investors on a public stock exchange. The main purpose of an IPO is to raise capital for the issuing firm. The success of this financial transaction depends on a multitude of criteria : suitable issuing time, syndicate member selection, choice of investor type, part of primary shares etc.

Since the founding works of Rock (1986) on information asymmetry, we note that IPOs on European and American markets have recorded an average initial return of 20% which reflects the underpricing of the offer price compared to investor's anticipations. This underpricing is a benefit for investors, but a cost for the existing shareholders. Uncertainty about the underpricing level leads issuers and investors to be very distrustful of the success of IPOs. The initial return tends to capture all the interests compared to the main reasons which lead the firm on the market, such as reinforcement of capital, multiplication of financing possibilities, improvement of corporate image and the transparency with regard to the third parties (Brau and Fawcett (2006)).

In their role as intermediaries between investors and issuing firms, investment and commercial banks take part in the IPO process. They are structured in underwriting syndicate to carry out the operation on stock market. Syndicate constitution provides substantial financial base for fundraising, ensuring a large coverage of equity placement and sharing out of potential subscription defects. Several empirical studies have analysed the role of banks in IPOs by putting forward the effect of the underwriter's reputation. By its quality, the reputation seems to reduce information asymmetry between all intermediaries during the IPO process (Rock (1986), Beatty and Ritter (1986), Allen and Faulhaber (1989)). It allows the underpricing phenomenon to be moderated (Baron and Holmstrom (1980), Baron (1982), Welch (1989), Habib and Ljungqvist (2001), Loughran and Ritter (2004)). Other research has concentrated on the underwriter certification effect, the bookbuilding process and the impact of IPO stabilization (Benveniste and Spindt (1989), Ljungqvist and Wilhelm (2002), Benveniste and Wilhelm (1990), Chen and Ritter (2000)).

However, recent researches pay attention to studying the syndicate structure rather than the underwriter's role. In particular, these works prove that the syndicate size is not a constant. Corwin and Schultz (2005) show that an IPO syndicate increases with the issue size (in terms of the amount of gross proceeds); and banks which benefit from a good financial analyst's coverage are ore likely to be selected as a member syndicate. According to Cooney & *al*

(2004), the syndicate members take part in a beauty contest where banks compete to be chosen by the issuer and the lead manager. In another approach, Davidson *et al.* (2006) show that co-managers mainly affect IPO aftermarket activities. They note that the number of co-managers is positively associated with different proxies for placement risk : IPOs with more price uncertainty and High-Tech IPOs hire more co-managers.

The idea that there is an effective choice of the number of banks in an IPO syndicate rests on an empirical observation. In our sample of 1605 IPOs carried out on German, Great-Britain and French markets, we observe that issuing firms call upon more than one bank (3.79, 1.44 and 2.26 banks respectively). If resorting to an additional bank was very expensive for the firm, we might observe the absence of operations with many banks. Conversely, if the cost of an additional bank use was free for the issuing firm, we would have an IPO market where all banks would take part in all operations. This concept of number of banks determined by incentives and constraints comes from studies by Detragiache *et al.* (2000). They show the existence of transaction costs related to the number of banks to be included in a pool of banking debt, in relation with credit the rationing risk. In the same manner, the syndicate size responds to two opposite effects : the increase in the number of banks is likely to reduce the non subscription equity risk. However, it creates transaction costs borne by the firm through banking contacts and information transfer carried out on these operations.

In this study, we attempt to understand the constitution and choice of syndicate size in relation with IPO placement risk and underwriter reputation. On the basis of 1605 IPOs realized on German, French and British market during the 1995-2005 period, we find significative relation between syndicate size and our placement risk variables. We also observe a significant relation between syndicate size and our underwriter reputation variables. Taking into account the structural differences between these three stock markets making up our sample, we carried out empirical tests per country; the results obtained provide very interesting conclusions.

The following section presents a review of the literature on underwriting syndicate constitution during an IPO process and our two hypotheses to be tested. The third section specifies the statistical methodology employed and the variables selected. The fourth section presents our sample and descriptive statistics. The fifth section is devoted to the regression models used. The last section concludes this research by setting out the main results.

2. Review of the literature and hypotheses

We organised this review of the literature in three topics. Firstly, we give details of the underwriting syndicate constitution. Secondly, we analyse the relation between placement risk and IPO syndicate size. Finally, we present a research on the topic of the underwriter's reputation and its relation to IPO syndicate size.

2.1. Initial Public Offerings and underwriting syndicate

The underwriting syndicate plays an important part in the IPO process. It is not a permanent entity, but is formed especially to handle a deal that might be too difficult or too risky for a single underwriter to bear.

An underwriting syndicate intervenes at all the steps of an IPO process : from the prospectus realization to the follow-up of price stabilization. Among the members of an IPO syndicate, we can distinguish between investment banks concentrated on financial market activity and large listed companies and commercial banks which have large branch network and work with individual investors. When the issuing firm has a considerable foreign activity, we note that the syndicate includes international banks in order to reach investors in these countries.

The task of syndicate constitution falls to the issuer and the lead manager selected. The latter is also responsible for the IPO structure and the due diligence process. We distinguish several levels of participation in an IPO syndicate : bookrunner(s) or lead manager(s), co-lead managers, co-managers and the selling group. The lead-manager bears the greatest responsibility for the offering. The investment banks in the selling group simply ask for stock in response to demand from their clients, they bear no financial responsibility for the stock to be sold. They take part in the placement and the security of the issuing operation. The large syndicates are built in a pyramidal way : there are few banks at the top of the pyramid (lead managers and co-lead managers), a large number of banks in intermediate roles (co-managers)¹ and many banks at the bottom of the pyramid. The lead manager is responsible for the preparation of the IPO, the marketing operation (road-show and warm-up). It controls all the aspects of the offering, including how many shares of stock co-managers get to sell, the

¹ For an underwriting syndicate presentation, the reader can refer to page 527 of the work Damodaran (2002) which presents the first page of the AT&T IPO information note in April 2000. The pyramidal structure of the underwriting syndicate appears clearly in this presentation. It shows that the most important position goes to the bank mentioned on the top left of the prospectus.

timing of the road-show and the ultimate pricing of the deal. An intense competition takes place between banks for the lead manager position. In the financial market jargon, banks fight for being on the top left of the prospectus.

Cooney *et al.* (2004) show that banks compete ardently to be selected by the issuer and/or the lead manager. Competitions for the lead manager position can be fierce for the largest and most desirable IPOs, as underwriters vie for the best positions in syndicate rankings. If several underwriters participate in the “bake sale” to be the lead manager, the issuer is likely to select some banks for co-manager positions. Co-managers may be chosen because of their ability to provide analysis coverage or market making, or because their distribution system complements that of the lead manager. Lead managers may, on occasion, advise issuers to choose co-managers to be included in the syndicate. The lead manager may also tend to limit the number of co-managers to avoid competition during the IPO process. Both the issuer and the lead manager will choose non-managing syndicate members. These underwriters do less work than co-managers. They may be included in the syndicate because they have loaned money to the issuer and because of their relationships with the issuer clients.

There are several factors which positively influence the syndicate size : amount of proceeds, operation nature (IPO or SEO), investor type (institutional, individual), number of different parts dedicated to specific investors, economic and financial market conditions, the issue risk and requirements (banking relations, historical operations).

Corwin and Schultz (2005) show that syndicate size increases with issue size, that national banks are more requested than regional ones and that banks which have the same investor type as the lead manager are likely weakly represented in the syndicate. Narayanan *et al.* (2004) in their discussion on the role of syndicate structure in bank underwriting note that it is in the best interest of commercial banks to co-manage an IPO with an investment bank. Thus, commercial banks obtain greater certification for the issue by using an independent lead manager. This enables them to attenuate the consequences of bad offer price fixing due to the perception of a conflict of interest.

2.2. Underwriting syndicate and placement risk

We define IPO placement risk as the issuer’s incapability to place equities at the offer price to potential investors. This placement risk may be endogenous to the issuer (IPO and issuing

firm risk) or exogenous (financial market conditions). Thus, to protect itself from placement risk, the issuer will constitute a syndicate and transfer this risk to syndicate members. Performance bonds or “bought deal” are often present in IPO contracts. They are used as a strong commitment by the syndicate’s members to buy shares from issuers and to re-sell them to investors.

However, during the bookbuilding procedure, if the shares offered by the issuer are not sufficiently attractive to the investors, the IPO is deferred to a later date. This allows members of the syndicate to be protected against “bought deal” effects in terms of cost of acquisition of unsubscribed shares and loss of reputation.

Beatty and Ritter (1986) report that placement risk impacts initial returns and that the small IPOs are more speculative than the large ones. The main difficulty of placement risk valuation is the *ex ante* measures used. Many authors have used approximate variables of this placement risk; we distinguish price uncertainty (standard deviation of the IPO after-market stock returns) according to Johnson and Miller (1988), underwriter reputation (Carter and Manaster (1990), Carter *et al.* (1992), firm age and the extreme value method² used by Parkinson (1980). The results obtained form a consensus. These various studies show that the greater the IPO information asymmetry between the corporate executives and investors, the higher is the IPO placement risk.

Consequently, the constitution of a large syndicate makes it possible to share risk and is a signal to investors as to the IPO quality and its probability of a success. A large syndicate including commercial and investment banks make it possible to ensure a large coverage of share placement and the targeting of several investor types. Corwin and Schultz (2005), Narayanan *et al.* (2004), Cooney *et al.* (2004) show that issuing firms prefer to constitute an underwriting syndicate in order to have a sales force making it possible to reach a maximum of investor types in all geographical areas. In their empirical studies, Davidson *et al.* (2006) show that co-managers mainly affect IPO aftermarket activities. They find that the number of co-managers is positively associated with the placement risk proxies. IPOs with greater price uncertainty and high-tech IPOs hire more co-managers. They also find large IPOs, recent IPOs and IPOs with more reputable lead managers hire more co-managers.

² The extreme value method developed by Parkinson (1980) corresponds to the natural logarithm of the ratio between the highest and the lowest value at the first day of trading. According to this author, this measure constitutes a true measurement variable of the standard deviations of initial returns

A larger syndicate allows better promotion of the IPO quality at the pre-marketing stage. This proximity reduces information asymmetry between issuer and investors. Naturally, the irrevocable commitment between syndicate members enables a natural sharing of equities inside the syndicate when one of the banks has several placement difficulties. Thus, the larger the syndicate, the lower is the probability of non placement.

However, the constitution of a large syndicate tends to disperse the various fees. There are three fees types : management fees, underwriting fees and selling concessions. Management fees are shared between lead manager(s) and co-manager(s), where lead manager(s) receive a larger share. Underwriting fees, less any underwriting and stabilization expenses are shared among all the syndicate members according to the number of shares underwritten. Finally, the selling concession, which usually represents 60% of the gross spread, is divided among the syndicate members based on the number of shares each is credited with selling. The lead managers are tempted to limit the syndicate size in order to monopolize the whole fees (Chen and Ritter (2000) and Corwin and Schultz (2005)).

There are two opposite incentives. The opportunity of collecting all the fees encourages the lead manager to reduce syndicate size. However, in the presence of a higher placement risk, the marginal profit of higher fees may largely be compensated by the costs of placement risk and the loss of lead manager reputation (Chemmanur and Fulghieri (1994)). The negotiation between the issuing firm and the lead manager leads to the constitution of large syndicate when the IPO's placement risk is higher. This leads to our first hypothesis.

Hypothesis 1 : Underwriting syndicate size increases with IPO placement risk

2.3. Underwriting syndicate and lead manager reputation

The lead manager role in an IPO is fundamental because it makes its expertise in financial engineering available to the issuing firm. The lead manager has the function of a coordinator between the syndicate members. In this case, it can be assisted by one or more co-lead managers selected by the issuer. When a syndicate member is not selected to be part of the managing group, its role is limited to the placement and the security of the IPO transaction. The lead manager is the "troop leader" during the IPO process and may recommend the issuer to include new members according to various criteria. In order to reduce the perception of intra-syndicate conflicts, the lead manager may wish to work with historically linked banks in

other operations. The lead manager may also recommend to issuer banks different investors types in order to widen demand positions.

The lead manager also has a certification role as investors can not have confidence in an offer price fixed by the issuer. Indeed, firm managers have a strong incentive to consider a maximal value for their firm. On the other hand, the lead manager seeks to develop its activity and it is likely to lose reputation if it frequently overprices shares. The main difficulty is to find a well-adjusted valuation of shares, because underpricing leads to a loss of potential issuers and overpricing makes placement difficult and also leads to putting aside potential investors. Theoretically, the underwriter's reputation acts as a signal making it possible to prevent too substantial deviations.

Booth and Smith (1986), Beatty and Ritter (1986), Titman and Trueman (1986) note that underwriter reputation reduces the adverse selection and moral hazard problems. In their empirical studies, Johnson and Miller (1988), Carter and Manaster (1990), Chemmanur and Fulghieri (1994) and Carter *et al.* (1998) report that the reputable lead managers reduce information asymmetry on financial markets, significantly attenuate underpricing and only accept IPOs contracts from less risky firms compared to less reputable underwriters. These authors also underline that the syndicate size is larger when the lead manager is more reputable. Carter and Manaster (1990) justified the relation between underpricing and underwriter reputation through the concept of risk between issuing firms and banks : the less risky firms join the most reputable underwriters, while more risky firms join the least reputable underwriters. This type of separating contract explains the relation between underpricing level and underwriter reputation.

Pichler and Wilhelm (2001), in their syndicate model, show that the problem of moral hazard takes on importance if a potential team member can maintain the pretence of a high-quality production capacity at minimal effort. A bank that has been successful in the past might be tempted to rest on its laurels of past success and maintain the perception of high-quality relationships with minimal efforts. It's important for the authors not only to promote the costly effort necessary to develop and maintain high-quality relationships, but also to discourage syndicate members from engaging in less costly, unproductive activities designed to mislead the issuers. These authors demonstrate how the syndicate organisational structure can alleviate this problem.

If the issuing firm chooses a reputable underwriter to select syndicate members, he can face a lead manager who wishes to carry out the entire operation without the contest of another bank. When underwriter quality is credible, its monopoly power may influence the issuing firm. In this case, the addition of another member becomes delicate. The existing literature shows that underwriter reputation effect is a confident signal to investors and issuers. This leads to our second hypothesis.

Hypothesis 2 : IPO syndicate size is reduced with lead manager reputation.

3. Methodology and variables

3.1. Applied methodology

To test our two hypotheses, we estimate a negative binomial model³ with the number of banks making up the syndicate as the dependant variable (NBANK). The model estimates the probability of hiring various numbers of underwriters. We use a negative binomial model because the dependant variable takes only non integer count values and its expectation is an exponential linear function of the independent variables.

The choice of this economic modelling hinges on the observation of strongly positive and significant overdispersion tests. Thus, we reject Poisson model⁴ because the variance of the dependant variable is larger than the mean one. The model estimated is presented in the equation below. The independent variables include proxies for IPO placement risk, underwriter reputation, and also control variables.

$$\begin{aligned} \text{NBANK} = & \beta_0 + \beta_1 * \text{RISK90} + \beta_2 * \text{PAPER} + \beta_3 * \text{UPB} + \beta_4 * \text{REPP} + \beta_5 * \text{REPN} \\ & + \beta_6 * \text{PROCEEDS} + \beta_7 * \text{TIME} + \beta_8 * \text{PARTS} + \beta_9 * \text{YEAR} + \beta_{10} * \text{TECH} + \beta_{11} * \text{REGL} \\ & + \beta_{12} * \text{SECTOR} + \beta_{13} * \text{PRIMARY} + \beta_{14} * \text{PROCRISK} + \beta_{15} * \text{PROCRP} + \beta_{16} * \text{PROCUPB} \\ & + \beta_{17} * \text{FR} + \beta_{18} * \text{UK} \end{aligned}$$

³ In their work, Davidson *et al.* (2006) used an ordered probit model. This econometric choice leads to the dependant variable taking decimal values. That appears incorrect to us when you study a number of banks in an underwriting syndicate.

⁴ Initially, we studied the possibility of using a Poisson model. This possibility requires the variance of the dependent variable to be higher than its average. As our dependent variable did not present this characteristic, we chose to use a negative binomial model. The Poisson model makes the assumption that there is no heterogeneity in the sample. However, the variance of the dependent variable is frequently higher than its average. The surdispersion tests realized according to the Poisson model are strongly positive and significant.

3.2. Model variables

We present the independent variables according to their relations to our hypotheses or to control the relevance of our hypotheses.

- Placement risk variables

RISK 90 variable defines ex post placement risk. Price uncertainty is measured as the standard deviation of the IPO aftermarket stock return over a 90 trading-day window (0-90). Price uncertainty reflects the dispersion of investor valuations. High price uncertainty is associated to a larger dispersion of returns. However, this variable is non-observable at the pre-IPO level; the syndicate members may only anticipate it, according to the firm's characteristic, and the quality of orders at the bookbuilding process. In accordance with our first hypothesis, we expect a positive relation between syndicate size and price uncertainty. This relation conforms to Davidson *et al's.* (2006) results.

PAPER measures the “paper return” or the equity perception in stock market. It is the ratio between the share volume over the 10 trading-day period (0-10) and the amount of gross proceeds. We consider a high return of paper in the first days as a signal of a bad placement. The massive reselling of shares in first IPO days expresses flipping activity (the practice of buying IPOs at the offer price and the reselling them once trading has begun, usually for a substantial profit). We suppose that the syndicate size has a positive impact on the quality of IPO placement, because large syndicates increase the placement area and the diversity of potential investors. This variable is an ex post measure and we expect a positive relation between PAPER and syndicate size.

The IPOs placement risk can also be revealed by the success of recent IPOs carried out in the same sector. The UPB variable measures the average underpricing⁵ of the last three IPOs in the same sector⁶ and country. In order to limit the underpricing phenomenon, issuing firms may choose large syndicates to better estimate the offer price. We suppose that the syndicate size increases when previous IPOs experienced substantial underpricing.

⁵ Underpricing is measured as the return of the offer price over the closing price for the tenth day of trading.

⁶ The issuing firm economic sector is defined by SIC codes of Datastream database.

- Variables of lead manager reputation

The lead manager reputation is measured by two variables. REPP is the lead manager market share (lead manager gross proceeds compared to total gross proceeds raised in each market during 1995-2005 period). This first variable is similar to the Megginson and Weiss (1991) measure. The REPN variable depends on the same logic, but it makes a relation between the number of IPOs underwritten by the lead manager and the total IPOs of our sample in each market.

This distinction between the gross proceeds raised and the number of IPOs carried out is important because it reflects the segmentation of IPO markets. An attentive observation shows the existence of banks specialized in the support of small firms, and firms in a period of strong growth. For example, during the 1995-2005 period, Natexis Banques Populaires carried out 47 IPOs on the French market for cumulated gross proceeds of 420 M\$⁷. Conversely to this market segment, there are banks which look for large IPOs. These operations are very rare, but generate substantial market share. BNP Paribas is a good illustration of this market segment, because this bank carried out 17 IPOs during our period for cumulated gross proceeds of 9,438 M\$. An exclusive measure based on REPP would result in considering Natexis Banques Populaires as a less reputable bank whereas 47 issuing firms solicited it. We note that this segmentation also exists in Germany with Deutsche Genossenschafts (45 IPOs for 2,453 M\$) compared to Dresdner Bank AG (7 IPOs for 12,956 M\$). The British market presents this dissociation with Seymour Pierce (56 IPOs for 600 M\$) and Goldman Sachs and Co (12 IPOs for 7,018 M\$⁸).

According to our second hypothesis, we expect a negative relation between underwriter reputation and syndicate size. Indeed, the more reputable lead managers have the capacity to insure share placement and the IPO success. For a large syndicate with several lead managers, we take into consideration the name of the bank appearing at the top left of the prospectus.

⁷ We use the dollar as our monetary frame of reference because Thomson SDC database mainly presents financial information in dollars. Using euro would have constrained us to convert British IPOs into euros.

⁸ Not to remain at this basic level, we calculate a Spearman correlation coefficient between REPP and REPN. We note a value of 0.129 indicating a weak positive correlation.

- Control variables

In our regression model we added control variables, in order to bring to light other results than those related to our two hypotheses. The first variable PROCEEDS represents the natural log of gross proceeds (including the over-allotment option⁹). We suppose that large issues need a large syndicate size.

The IPO may contain several parts. Share placement may be local or international; it can also be distinguished according to investor type (individual or institutional investors). The PARTS variable is the number of IPOs part. The more the issue contains parts, the larger the syndicate size must be, because commercial banks target individual investors, while investment banks would rather be associated to institutional investors.

TIME is the difference between the IPO date and 1995. This variable tends to stress the syndicate composition tendency. We expect a negative relation between the TIME variable and the syndicate size following the emergence of new stock markets and the occurrence of small IPOs underwritten by one bank.

YEAR variable is a dummy variable that equals one, if the IPO occurred in the dotcom period (1999-2000). We wish to take into account this specific period in our sample. TECH and REGL variables are two dummy variables that equal one if a firm is in high-tech or regulated industry¹⁰. We expect a positive/negative coefficient between the syndicate size and TECH/REGL variables.

It is also necessary to take into account IPO competition in the same sector. When two IPOs occurred in the same market, same sector and at the same time, they can share investors demand. There is probably the existence of incentives to realize IPOs at another date. This idea of a stock market directed by traditional offer and demand comes from Scholes' work (1972). If the IPO is addressed to investors presenting a limited share demand, a large syndicate may facilitate the placement in "hot periods". The SECTOR variable is the natural

⁹ A greenshoe is an option granted by the seller/issuer to the bank to buy at the offer price a number of supplementary shares over and above the number offered to investors. A greenshoe, also known by its legal title as an "over-allotment option" can vary in size up to 15% of the original number of shares offered. The greenshoe option is popular because it is the permitted means for an underwriter to stabilize the price of a new issue post-pricing. Issuers will sometimes not permit a greenshoe on a transaction when they have a very specific objective for the offering, and do not want the possibility of raising more money than planned.

¹⁰ The high-tech sector includes SIC codes of these activities: biotech : 2833-2836, 8731-8734, computers : 3570-3577, 7370-7374, electronics : 3600-3674, 3812, 3823, 3825-3827, 3829, medical instruments : 3841, 3845, telephone equipment : 4812-4813 and communications service : 4899. Regulated sector includes utilities : 4900-4999 and financial institutions : 6000-6999.

log of gross proceeds raised in the same market, the same sector and quarter for each IPO. We expect a positive relation between SECTOR and NBANK.

The issuing firms present two share types : secondary shares refer to the existing shares of common stock sold to new investors. The cash generated from the sale of these shares goes to the selling shareholders. Primary shares refer to newly-issued shares. The cash proceeds generated from the sale of gross proceeds net of the gross spread are transferred to the company, in order to finance new investment projects. When the proportion of primary shares is high, information asymmetry on the issuer quality is more pronounced, because the firm value comprises an asset appraised on past performances and a new investment project which is hard to estimate, in regard to the multiplication of IPO information. If we associate this approach to Myers and Majluf's (1984) results on information asymmetry and the negative impact of SEOs on stock price, we can suppose that an IPO with a high level of primary shares necessitates a large syndicate. However, this assumption should be relativized because small firms go public to raise funds. If this case is frequent, the PRIMARY and NBANK relation should be weak and negative because an underwriter would obtain the exclusiveness of the IPO operation, in regard to the firm's small size.

In order to collect the potential links between issue size and IPO risk, we also introduced cross variables PROCRISK, PROCRP and PROCUPB which correspond to an evaluation of the IPO risk in relation to issue size.

4. Sample and Descriptive statistics

4.1. IPO Sample

We carried out our study on a European IPO population. We obtained 1897 German, French and British IPOs between January 1995 and December 2005, available from Thomson SDC database. After the withdrawal of IPOs without an offer price, information about syndicate members and any data from Datastream, we obtain a sample of 1605 IPOs with at least one part. This sample includes 403 German IPOs, 759 British IPOs and 443 French IPOs.

Insert table 1

Table 1 presents the sample distribution in the period from 1995 to 2005. We can clearly note the intense dotcom period. On average, the 1999-2000 period was characterized by a high number of issues which represents 38.4% of the total sample. We also show that the IPOs in this period present a greater price uncertainty. We observed that 256 German IPOs occurred during the 1999-2000 period, which represents more than 63% of our sub-sample. The British IPOs are more present during the period of 2003-2005, whereas French IPOs experienced a particular concentration during 1997-1998. It seems that the IPO markets of these three European countries witnessed different intensity periods. We also note that the average syndicate size per year was very variable and there was a real diversity for these data in our total sample.

4.2. Descriptive statistics

Table 2 presents descriptive statistics of our total sample. On average, 28.9% of issuing firms operate in high-tech industries and 13.3% in regulated industries. We note that these firms raised 131.22 M\$ gross proceeds and hired 2.26 underwriters. The IPOs in our total sample made an average initial return of 26.3% in the first ten trading days. 86.2% of total issued shares were primary shares.

Insert table 2

In the German market, 37.7% of issuers operated in high-tech industry and 12.7% in regulated industries. The German firms raised 173.45 M\$ gross proceeds and hired 3.79 underwriters. The average underpricing represented 46.4% and the proportion of “paper return” during 0-10 period represented 91.7% of total shares. These operations were more volatile in terms of underpricing because the standard deviation of the UP10 variable was almost twice as high as that of the two other markets. The RISK variable was also higher than that of French and British markets.

For the British market, 25.5% of issuing firms operated in high-tech industries and 18.1% in regulated industries. The average amount of gross proceeds represented 100.93 M\$. The syndicate size comprised 1.44 banks and the average underpricing level was about 19%. The “paper return” level was the lowest of the three markets with 38.1% of issued shares. Great-Britain seems to be a small market attracting small IPOs and small syndicate size.

In terms of syndicate size, volume of gross proceeds and underpricing level, the French market represented an intermediate market compared to other countries. 27.3% of French issuing firms operated in high-tech and 5.9% in regulated industries. The average amount of gross proceeds represented 144.74 M\$, and the French firms hire 2.26 underwriters. The average underpricing level was about 20.8% and the “paper return” level represented 91.9% of total issued shares.

Our sub-samples show the particular characteristics of these IPO European markets. Table 3 presents the first relations between syndicate constitution, IPO placement risk and lead manager reputation. This table sets out the number of underwriters composing the syndicate together with gross proceeds, incertitude and reputation variables.

Insert table 3

In our total sample, clearly appear the existence of a positive relation between issue size and syndicate size. The 80 IPOs with more than five syndicate members raised 1,125.03 M\$, whereas the 845 IPOs underwritten by a single bank raised 31.22 M\$. More than half the IPOs of our total sample were carried out with only one bank. The large syndicate logic is rather marginal and reserved to large issues. We noted that large syndicates (more than five banks) incorporated highly reputable lead managers (REPP). By contrast, underwriter reputation in terms of number of issues (REPN) was not related to the syndicate size. We find the principles of IPO market segmentation where large issues were undertaken by few banks concentrating on a high level of gross proceeds, whereas the small issues were selected by another type of bank, which concentrated on a high level of IPO volume.

However, each IPO market seems to be particular. The German market presented the greatest IPO volume (126 operations) with an average syndicate size of 3 banks. We noted the existence of a strong positive relation between syndicate size and issue size. The relation between IPO placement risk and syndicate size was not direct. The British market presented a positive relation between syndicate size and issue size. The main characteristic of this market was the strong concentration of IPOs underwritten by a single bank (79%). For IPOs done with more than one bank, we observed that the lead manager’s reputation (in terms of market share REPP) seems more important. Again, the French market presented an intermediate situation where the syndicate size was composed of 1 or 2 banks (78% of our sub-sample).

The relation between syndicate size, IPO placement risk and underwriter reputation did not appear directly.

On the basis of these first results, it seems difficult to draw up a global pattern for all IPO markets in these three countries. It was thus necessary to carry out multiple regressions, which will be presented in the next part.

5. Regression model outputs

We used a negative binomial model to test the positive relation between syndicate size and IPO placement risk and also the negative relation between syndicate size and underwriter reputation. Our dependant variable, NBANK, is the number of banks making up a syndicate. IPO uncertainty measured by standard deviation of stock market returns, the part of “paper return” and the underpricing of previous IPOs are our risk variables. The underwriter market share in terms of gross proceeds raised and number of IPOs underwritten constitute the means to measure reputation. We also include control variables such as the amount of proceeds, the business sector, the time index, the percentage of primary shares, the number of parts for the issue etc.

Insert table 4

Table 4 presents the negative binomial regressions over our total sample of 1605 IPOs. Our risk and reputation variables will each be subjected to a specific regression. A sixth regression takes into account the influences of all the variables used.

In accordance with Davidson *et al*'s. (2006) work, we noted that our two ex-post measures of placement risk were positive and significant. The first result of regressions 1 and 2 confirms the hypothesis of the constitution of a large syndicate when IPO return was volatile and “paper return” was more pronounced. The underwriter reputation coefficients were positive and significant in regressions 4 and 5, but their signs are contrary to our second hypothesis. In spite of high reputation, whatever measures used, a reputable underwriter tends to share the IPO with other banks.

We also noted a significant relation between issue size and syndicate size. The large issues were carried out by large syndicates. However, our cross-variables, PROCRIK, PROCRP;

were negative and significant. This can be associated with interference between risk and size as illustrated in Fama and French (1993). These authors take into account a risk premium related to the companies' size in their calculation of the cost of capital.

We observed through the TIME variable, the tendency to a reduction in syndicate size during the 1995-2005 period. Contrary to our reflexion on the impact of variables, percentage of primary shares and IPOs competition in the same sector presented negative coefficients. This contrasts to Myers and Majluf (1984) and Scholes (1972) approaches. These results may be related to the presence of small IPOs which concentrated on raising new funds, but not so much on satisfying investor demand.

Knowing that our sample is composed of three countries presenting specific syndicate size, we integrated dummy variables FR and UK that equal 1 if the IPO took place in French or British markets. We found our previous results. In comparison with the German results, we noted that the British syndicate were largely weaker (-0.38 coefficient). Syndicate size in the French market was also lower (-0.14 coefficient). That leads us to specific regressions for each country.

Insert table 5

Table 5 presents the German market results. We validated our first hypothesis : ex-post risk variable and ex-ante UPB were positive and significant. German IPOs were riskier than all other IPOs in our total sample. 37.7% of German issuing firms operating in the technological sector, recorded the highest volatilities of initial returns and the highest underpricing level. In this market, the choice of a large syndicate was related to IPO risk. On the other hand, the lead manager reputation had no effect on syndicate size. For German IPOs, the more reputable lead manager had no exclusiveness in the underwriting of IPOs. Sharing IPOs with a large syndicate was very common. We think that the existence of eight stock markets in Germany (Frankfurt presents the best turnover in Germany) is likely to create regional reputations or specific underwriter reputation by "lander", which is not measured by our variables.

According to other variables, we found the same results as in the regression outputs on our total sample. The level of gross proceeds increased with syndicate size. The PROCRISK cross-variable was negative; it showed the role of issue size in controlling IPO risk. The

TIME index variable was negative and significant. The SECTOR variable representing the IPO competition in the same sector was negative. This may be explained by an alternative hypothesis to demand pressure as put forward by Scholes (1972). A high coefficient of the SECTOR variable means a strong concentration of IPOs in the same quarter, the same sector and country. In this case, underwriters had difficulties in carrying out two concurrent IPOs at the same time, without facing some conflicts. The restricted number of banks on the IPO market, the existence of tacit prohibition of belonging to a competitor's issue must have led to a generalized restriction of syndicate size in a period of strong IPO concentration in the same sector. The German case took into account these characteristics, because many issues by technological firms took place on this market during 1999-2000.

Insert table 6

The British results are presented in table 6. Concerning our two hypotheses, they are diametrically opposed to those of the German market. The ex ante and ex post risk factors had no impact on syndicate size. In so far as the IPO risk was the best controlled on the British market, this result is not surprising. British IPOs were very small, but their size always positively and significantly influenced syndicate composition. There was no positive and significant relation between PROCRIK and NBANK. The most interesting results relate to the effective segmentation of British market, according to underwriter reputations. The REPP coefficient was positive and significant. It showed that lead managers carrying out the largest IPOs associated with a great number of banks. Just the opposite, the most reputable lead managers (in terms of number of IPOs carried out) tended to constitute small syndicates. We found the idea of a specific segmentation on IPO market. Banks that are leading large but also rare IPOs constituted large syndicates whereas underwriters leading small IPOs carried it out alone in most cases. It appears important to distinguish the two types of syndication, because underwriter reputation is not formed in the same way according to issue size.

The control variables presented different results to those of our total sample. Only the PARTS variable was positive and significant. The presence of multiple types of investors in the British market tended to increase syndicate size.

Insert table 7

The French IPOs results are set out in table 7. In terms of IPO risk and syndicate constitution, we found an intermediate position compared to German and British markets. We noted a positive coefficient for RISK90 and PAPER variables. However, the coefficient values were less-pronounced than those presented on the German market. Even if IPO risk seemed better controlled in France, syndicate size tended to increase when the issue was riskier. We also found a positive relation between issue size and syndicate size. The cross-variable PROCRIK was negative and significant. It emphasized the control of risk for large issues.

Syndicate size and underwriter reputation relations are opposed to those existing on the British market. The REPP coefficients were negative and significant, whereas those of REPN were positive and significant. The segmentation of French IPOs seems basically different from that of British market. The more reputable lead managers, in terms of IPO market share in amount, tended to constitute small-sized syndicates. That corresponds very well to our second hypothesis. In this case, the more reputable the lead manager, the more it enabled him to ensure share placement without the necessity of constituting a syndicate. On the other hand, the reputation variable in terms of number of IPOs had the opposite effect. Managing a large number of IPOs led to sharing IPOs with a large syndicate. This may be explained by the scarcity of large IPOs in the French market. In particular, the privatization operations generated a considerable amount of shares for the underwriters but were less often shared. Conversely, the majority of small IPOs did not raise high proceeds but were subject to more open underwriting syndicates.

We noted that three control variables presented significant coefficients. The TIME variable noted the reduction in the syndicate size over our period of study. The negative coefficient of SECTOR variable showed that IPO competition was not likely to increase the syndicate size. The idea of large syndicates for IPOs presenting a high level of primary shares was not validated because the PRIMARY coefficient was negative and significant.

6. Conclusion

In this study, we try to understand the constitution of an IPO syndicate in accordance to risk placement and underwriter reputation. Our main objective is to understand the structure of a syndicate in Europe in relation to these two dimensions. On the basis of a sample of 1605 IPOs underwritten on the three European market places during 1995-2005, we estimate the influences of these variables.

The first fundamental result is the existence of various forms of syndication in German, British and French markets. German issues are characterized by large syndicates where the lead manager is joined by other banks. Conversely, British issues are strongly concentrated on syndicates with single bank. French IPOs present an intermediate situation with syndicate size composed of more than two banks.

Considering these differences which make a comparison very difficult between these three countries, we obtained similar results to those of Corwin and Schultz (2005) who noted that syndicate size increases with issue size (gross proceeds raised). We also showed that the syndicate size tends to be restricted in France and Germany in our study period.

Our second result shows that the hypothesis of an increase in syndicate size, in the presence of great uncertainty seems well-founded on German and French markets. We noted that these two markets were on average more risky for share placement and that the mechanisms of the syndicate size increase worked to diversify the risk for syndicate members. On the other hand, the British market did not respond to the influences of risk variables. It is a market where initial return volatility, proportion of “paper return” and underpricing of previous IPOs were the lowest and the best controlled by banks.

The third result relates to lead manager reputation. We noted that reputation building is founded on two different dimensions. The first is represented in terms of market share as regards IPO gross proceeds, the second as regards number of issues. That represents a certain form of IPO market segmentation, in which certain banks concentrated on large IPOs bringing a large amount of proceeds and other banks which tried to obtain a high number of small IPO contracts. This different approach of reputation gives opposing results on the French and British markets. The British IPOs underwritten by the more reputable lead managers, in terms of gross proceeds, were shared between several banks, whereas the IPOs underwritten by banks with a great reputation in terms of number of issues are rather assumed by only one bank. These relations are the opposite on the French market. The latter point indicates that it is not possible to have a single vision of lead manager reputation as a factor of IPO concentration.

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Table 1 : Sample distribution on the 1995-2005 period

The sample is composed of 1605 initial public offerings during the 1995-2005 period carried out in three countries : France, Germany and Great-Britain. The number of issues represents the number of IPOs carried out on the three stock markets. The gross proceeds correspond to IPOs proceeds raised with the exercise of an over-allotment option. The syndicate size measures the number of banks constituting an underwriting syndicate. Reputation in term of gross proceeds measures the lead manager market share per country during the 1995-2005 period. Reputation in terms of number of issues measures the lead manager market share per country during the 1995-2005 period. The volatility of initial returns corresponds to the standard deviation of initial returns over 90 days trading after the IPO. The % of IPOs represents the proportion of issues carried out on each market.

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
Number of issues	64	143	108	179	239	378	102	46	40	153	153	1605
Average amount of gross proceeds (M\$)	142.63	150.16	187.41	84.68	117.77	122.22	122.78	131.95	105.00	94.23	216.06	131.22
Average syndicate size	3.88	1.78	2.45	2.50	3.00	2.22	2.10	2.13	1.28	1.46	1.73	2.26
Average reputation in terms of gross proceeds market share	0.049	0.015	0.028	0.033	0.040	0.023	0.016	0.023	0.016	0.021	0.027	0.027
Average reputation in terms of number of IPO market share	0.025	0.018	0.030	0.031	0.054	0.045	0.068	0.066	0.046	0.025	0.020	0.038
Average volatility of initial returns (90 days)	0.019	0.022	0.030	0.038	0.048	0.048	0.041	0.033	0.028	0.030	0.023	0.037
% of German IPOs	25.0%	3.5%	17.6%	36.9%	55.6%	32.5%	20.6%	6.5%	2.5%	2.6%	7.8%	25.1%
% of –British IPOs	59.4%	73.4%	29.6%	19.6%	13.4%	41.3%	41.2%	56.5%	85.0%	88.2%	81.0%	47.3%
% of French IPOs	15.6%	23.1%	52.8%	43.6%	31.0%	26.2%	38.2%	37.0%	12.5%	9.2%	11.1%	27.6%

Table 2 : Descriptive statistics

The sample is composed of 1605 initial public offerings during the 1995-2005 period carried out in three countries : France, Germany and Great-Britain. The TECH Variable is a dummy variable equal to 1 if the firm is in a high-tech sector or industry. The REGL Variable is a dummy variable equal to 1 if the firm is in regulated industries. PARTS corresponds to the number different parts dedicated to different investor and market types. PRIMARY represents the percentage of primary shares compared to the total shares. PROCEEDS is the natural logarithm of the gross proceeds expressed in dollars (over-allotment included). NBANK is the number of banks composing an underwriting syndicate in the IPO sample. RISK90 is the standard deviation of initial returns over 90 days trading after the IPO. RP is the “paper return”, it corresponds to the ratio between the volume of stock sold on the market in the ten first trading days over the number of shares placed. UPB measures the average underpricing ((market price at the tenth trading day minus offer price)/offer price)) of the three last IPOs underwritten in the same sector and market. SECTOR measures the proceeds raised in a quarter by issuers in the same sector and market. REPP measures the lead manager reputation by the gross proceeds market share per country during the 1995-2005 period. REPN measures the lead manager reputation by the number of issues share market per country during the 1995-2005 period.

PANEL A	All sample (N=1605)				
	Mean	Standard deviation	Median	Q1	Q3
TECH	0.289	0.453	0.000	0.000	1.000
REGL	0.133	0.340	0.000	0.000	0.000
PARTS	2.153	0.407	2.000	2.000	2.000
PRIMARY	0.862	0.279	1.000	0.905	1.000
PROCEEDS	131.22	575.05	20.36	6.90	56.42
NBANK	2.259	2.440	1.000	1.000	3.000
RISK90	0.037	0.025	0.032	0.020	0.047
RP	0.665	1.152	0.272	0.070	0.793
UPB	0.278	0.435	0.146	0.037	0.356
UP10	0.263	0.576	0.102	-0.017	0.322
REPP	0.027	0.054	0.005	0.001	0.026
REPN	0.038	0.052	0.023	0.009	0.037
SECTOR	4.320	2.538	4.732	2.994	6.187

Table 2 (b) : Descriptive statistics

PANEL B	Germany (N=403)					Great Britain (N=759)					France (N=443)				
	Mean	Standard deviation	Median	Q1	Q3	Mean	Standard deviation	Median	Q1	Q3	Mean	Standard deviation	Median	Q1	Q3
TECH	0.377	0.485	0.000	0.000	1.000	0.252	0.434	0.000	0.000	1.000	0.273	0.446	0.000	0.000	1.000
REGL	0.127	0.333	0.000	0.000	0.000	0.181	0.385	0.000	0.000	0.000	0.059	0.235	0.000	0.000	0.000
PARTS	2.313	0.548	2.000	2.000	3.000	2.042	0.253	2.000	2.000	2.000	2.196	0.414	2.000	2.000	2.000
PRIMARY	0.839	0.266	1.000	0.764	1.000	0.898	0.245	1.000	1.000	1.000	0.822	0.334	1.000	0.791	1.000
PROCEEDS	173.45	776.89	41.79	22.75	84.60	100.93	312.99	18.74	6.86	59.36	144.71	692.60	8.26	2.74	26.26
NBANK	3.789	3.133	3.000	2.000	4.000	1.443	1.187	1.000	1.000	1.000	2.264	2.643	2.000	1.000	2.000
RISK90	0.047	0.021	0.045	0.033	0.057	0.031	0.028	0.024	0.014	0.036	0.038	0.020	0.034	0.023	0.047
RP	0.917	1.480	0.367	0.105	1.150	0.381	0.802	0.140	0.037	0.404	0.921	1.208	0.537	0.186	1.179
UPB	0.501	0.630	0.311	0.055	0.861	0.203	0.314	0.130	0.041	0.275	0.204	0.310	0.111	0.023	0.297
UP10	0.464	0.834	0.150	-0.063	0.756	0.190	0.438	0.104	0.003	0.255	0.205	0.436	0.088	-0.022	0.297
REPP	0.052	0.085	0.015	0.003	0.038	0.018	0.029	0.005	0.001	0.020	0.021	0.040	0.004	0.001	0.017
REPN	0.043	0.035	0.028	0.014	0.066	0.019	0.016	0.014	0.006	0.025	0.066	0.083	0.029	0.010	0.068
SECTOR	4.913	2.815	5.459	3.956	6.859	4.486	2.259	4.866	3.737	6.089	3.497	2.523	3.657	0.727	5.538

Table 3 : Syndicate size distribution

The sample is composed of 1605 initial public offerings during the 1995-2005 period carried out in three countries : France, Germany and Great-Britain. The dependant variable NBANK is the number of banks composing an underwriting syndicate in the IPO sample. PROCEEDS is the natural logarithm of the gross proceeds expressed in dollars (over allotment included). RISK90 is the standard deviation of initial returns over 90 days trading after the IPO. REPP measures the lead manager reputation by the gross proceeds market share per country during the 1995-2005 period. REPN measures the lead manager reputation by the number of issues market share per country during the 1995-2005 period.

All sample (N=1605)							Germany (N=403)						
NBANK	N	%	PROCEEDS	RISK90	REPP	REPN	NBANK	N	%	PROCEEDS	RISK90	REPP	REPN
1	845	52.6%	31.22	0.034	0.011	0.035	1	45	11.2%	39.31	0.045	0.017	0.029
2	302	18.8%	79.46	0.038	0.023	0.049	2	65	16.1%	44.61	0.051	0.035	0.046
3	200	12.5%	88.15	0.044	0.044	0.039	3	126	31.3%	68.19	0.051	0.040	0.046
4	122	7.6%	202.54	0.044	0.058	0.036	4	87	21.6%	77.50	0.049	0.053	0.041
5	56	3.5%	255.21	0.039	0.061	0.027	5	35	8.7%	103.76	0.046	0.064	0.035
6 et +	80	5.0%	1295.03	0.029	0.104	0.038	6 et +	45	11.2%	1028.08	0.029	0.130	0.053

Great Britain (N=759)							France (N=443)						
NBANK	N	%	PROCEEDS	RISK90	REPP	REPN	NBANK	N	%	PROCEEDS	RISK90	REPP	REPN
1	601	79.2%	35.30	0.032	0.010	0.021	1	199	44.9%	17.07	0.038	0.012	0.080
2	87	11.5%	122.30	0.022	0.020	0.012	2	150	33.9%	69.72	0.041	0.019	0.071
3	24	3.2%	224.50	0.026	0.075	0.015	3	50	11.3%	73.00	0.034	0.037	0.034
4	22	2.9%	561.54	0.031	0.088	0.012	4	13	2.9%	431.80	0.035	0.040	0.041
5	12	1.6%	740.97	0.029	0.077	0.016	5	9	2.0%	196.52	0.026	0.029	0.011
6 et +	13	1.7%	1393.69	0.028	0.077	0.012	6 et +	22	5.0%	1782.75	0.029	0.068	0.023

Table 4 : Negative binomial regression on the total sample

The sample is composed of 1605 initial public offerings during the 1995-2005 period carried out in three countries : France, Germany, Great-Britain. The dependant variable NBANK is the number of banks composing an underwriting syndicate in the IPO sample. RISK90 is the standard deviation of initial returns over 90 days trading after the IPO. RP is the “paper return”, it corresponds to the ratio between the volume of stock sold in the ten first trading days over the number of shares placed. UPB measures the average underpricing ((market price at the tenth trading day minus offer price)/offer price)) of the three last IPOs underwritten in the same sector and market. REPP measures the lead manager reputation by the gross proceeds market share per country during the 1995-2005 period. REPN measures the lead manager reputation by the number of issues market share per country during the 1995-2005 period. PROCRISK, PROCRP, PROCUPB are cross variables between the PROCEED variable and the placement risk variables. PROCEEDS is the natural logarithm of the gross proceeds expressed in dollars (over-allotment included). TIME corresponds to the difference in years between the issue date and the year 1995. PARTS corresponds to the number of parts dedicated to different investor and market types. YEAR is a dummy variable equal to 1 if the IPO carried out during 1999-2000. The TECH variable is a dummy variable equal to 1 if the firm is in a high-tech industry. The REGL variable is a dummy variable equal to 1 if the firm is in a regulated industry. SECTOR measures the proceeds raised in a quarter by issuers in the same sector and market. PRIMARY represents the percentage of primary shares compared to the total shares issued. FR is a dummy variable equal to 1 if the IPO takes place in France. The U.K. is a dummy variable equal to 1 if the IPO takes place in Great-Britain. *, **, *** mean that the coefficients are significant at 10%, 5% and 1% levels.

	(1)	(2)	(3)	(4)	(5)	(6)
C	0.455 (4.081)***	0.567 (5.462)***	0.632 (5.981)***	0.716 (3.939)***	0.631 (6.261)***	0.447 (3.910)***
RISK90	4.623 (3.358)***					3.974 (2.701)***
PAPER		0.075 (2.550)**				0.051 (1.625)
UPB			0.032 (0.3034)			-0.036 (-0.332)
REPP	0.736 (2.539)**	0.777 (2.686)***	0.884 (3.054)***	1.243 (2.350)**		0.706 (2.425)**
REPN	0.941 (2.231)**	0.980 (2.317)**	1.112 (2.665)***		1.368 (3.536)***	0.867 (2.035)**
PROCRISK	-1.208 (-2.887)***	0.015 (0.061)	-0.019 (-0.074)	-0.070 (-0.276)	-0.047 (-0.187)	-1.015 (-2.301)**
PROCRP	-0.012 (-2.231)**	-0.032 (-3.375)***	-0.012 (-2.306)**	-0.012 (-2.239)**	-0.012 (-2.349)**	-0.025 (-2.562)***
PROCUPB	-0.016 (-1.633)	-0.016 (-1.706)*	-0.025 (-0.944)	-0.016 (-1.595)	-0.018 (-1.927)	-0.007 (-0.255)
PROCEEDS	0.243 (13.546)***	0.211 (14.664)***	0.194 (13.317)***	0.179 (2.224)**	0.205 (16.398)***	0.244 (13.296)***
TIME	-0.023 (-3.698)***	-0.020 (-3.171)***	-0.020 (-3.109)***	-0.018 (-1.205)	-0.020 (-3.217)***	-0.023 (-3.559)***
PARTS	0.017 (0.594)	0.021 (0.709)	0.020 (0.666)	0.014 (0.455)	0.029 (0.996)	0.018 (0.623)
YEAR	-0.049 (-1.190)	-0.043 (-1.054)	-0.042 (-1.017)	-0.025 (-0.606)	-0.050 (-1.235)	-0.049 (-1.188)
TECH	0.028 (0.741)	0.033 (0.865)	0.029 (0.756)	0.030 (-0.664)	0.030 (0.789)	0.030 (0.793)
REGL	-0.053 (-1.011)	-0.038 (-0.735)	-0.031 (-0.591)	-0.032 (-0.602)	-0.028 (-0.547)	-0.054 (-1.039)
SECTOR	-0.017 (-2.505)**	-0.019 (-2.806)***	-0.018 (-2.607)***	-0.018 (-2.108)**	-0.018 (-2.667)***	-0.018 (-2.572)***
PRIMARY	-0.143 (-2.474)**	-0.153 (-2.634)***	-0.160 (-2.749)***	-0.160 (-2.721)***	-0.167 (-2.888)***	-0.142 (-2.446)**
FR	-0.142 (-2.975)***	-0.140 (-2.913)***	-0.135 (-2.787)***	-0.125 (-2.582)***	-0.152 (-3.203)***	-0.145 (-3.018)***
UK	-0.389 (-8.165)***	-0.374 (-7.825)***	-0.371 (-7.677)***	-0.394 (-2.754)***	-0.386 (-8.182)***	-0.385 (-8.011)***
ALPHA	0.004 (0.000)	0.007 (0.000)	0.019 (0.000)	0.022 (-0.057)	0.008 (0.000)	0.009 (0.000)
Adj R²	0.619	0.611	0.598	0.585	0.614	0.622
N	1605	1605	1605	1605	1605	1605

Tableau 5 : Negative binomial model on the German market

Sample of 403 IPOs carried out on the German stock market during the 1995- 2005 period. For an explanation of these variables, see the above mentioned table 4

	(1)	(2)	(3)	(4)	(5)	(6)
C	-0.189 (-0.800)	0.611 (3.273)***	0.525 (2.791)***	0.722 (4.031)***	0.732 (4.074)***	-0.376 (-1.539)
RISK90	21.850 (5.117)***					21.094 (4.595)***
PAPER		0.155 (1.791)*				0.070 (0.732)
UPB			0.399 (2.656)***			0.389 (2.704)***
REPP	0.242 (0.663)	0.381 (1.043)	0.310 (0.845)	0.080 0.273192		0.165 (0.439)
REPN	-1.141 (-1.198)	-1.455 (-1.528)	-1.284 (-1.348)		-0.827 -1.08286	-1.275 (-1.302)
PROCRISK	-5.811 (-5.468)***	-0.478 (-1.251)	-0.540 (-1.409)	-0.554 -1.45903	-0.561 -1.47309	-5.636 (-5.002)***
PROCRP	-0.006 (-1.003)	-0.049 (-1.927)*	-0.005 (-0.855)	-0.006 -0.960956	-0.005 -0.886452	-0.025 (-0.899)
PROCUPB	-0.020 (-2.001)**	-0.020 (-1.893)*	-0.122 (-3.337)***	-0.023 (-2.279)**	-0.024 (-2.306)**	-0.120 (-3.518)***
PROCEEDS	0.515 (12.477)***	0.318 (12.491)***	0.343 (13.326)***	0.303 (11.959)***	0.308 (12.764)***	0.567 (13.378)***
TIME	-0.081 (-6.210)***	-0.069 (-5.183)***	-0.073 (-5.537)***	-0.072 (-5.431)***	-0.073 (-5.525)***	-0.084 (-6.336)***
PARTS	-0.028 (-0.749)	-0.025 (-0.663)	-0.020 (-0.533)	-0.039 (-1.050)	-0.033 (-0.880)	-0.010 (-0.274)
YEAR	0.025 (0.384)	0.034 (0.513)	0.037 (0.548)	0.006 (0.094)	0.007 (0.101)	0.060 (0.861)
TECH	0.100 (1.837)*	0.098 (1.782)*	0.097 (1.758)*	0.097 (1.770)*	0.100 (1.820)*	0.109 (1.940)*
REGL	-0.048 (-0.594)	-0.023 (-0.281)	-0.014 (-0.175)	-0.002 (-0.024)	-0.010 (-0.128)	-0.048 (-0.583)
SECTOR	-0.017 (-1.661)*	-0.020 (-1.983)**	-0.021 (-2.066)**	-0.021 (-2.017)**	-0.020 (-1.946)*	-0.024 (-2.272)**
PRIMARY	0.007 (0.078)	0.016 (0.169)	0.010 (0.105)	-0.006 (-0.062)	-0.008 (-0.084)	0.009 (0.091)
ALPHA	0.002 (0.010)	0.000 (0.001)	0.001 (0.004)	0.001 (0.004)	0.002 (0.009)	0.110 (0.000)
Adj R²	0.714	0.682	0.667	0.679	0.682	0.689
N	403	403	403	403	403	403

Tableau 6 : Negative binomial model on the British market

Sample of 759 IPOs carried out on the British stock market during the 1995- 2005 period. For an explanation of these variables, see the above mentioned table 4

	(1)	(2)	(3)	(4)	(5)	(6)
C	-0.476 (-2.337)**	-0.417 (-2.192)**	-0.417 (-2.193)**	-0.578 (-3.151)***	-0.725 (-3.950)***	-0.486 (-2.381)***
RISK90	2.265 (1.007)					1.724 (0.712)
PAPER		0.046 (0.753)				0.030 (0.444)
UPB			0.152 (0.603)			0.135 (0.532)
REPP	9.075 (9.784)***	9.097 (9.790)***	9.220 (9.868)***	7.035 (7.348)***		9.114 (9.743)***
REPN	-6.887 (-3.188)***	-6.900 (-3.191)***	-6.917 (-3.201)***		-2.765 (-1.315)	-6.930 (-3.206)***
PROCRISK	-0.392 (-0.570)	0.272 (0.733)	0.267 (0.719)	0.323 (0.866)	0.139 (0.357)	-0.244 (-0.338)
PROCRP	0.011 (1.132)	0.001 (0.091)	0.011 (1.084)	0.014 (1.430)	0.015 (1.667)*	0.005 (0.275)
PROCUPB	-0.025 (-0.980)	-0.025 (-1.022)	-0.064 (-1.011)	-0.022 (-0.856)	-0.018 (-0.705)	-0.060 (-0.941)
PROCEEDS	0.113 (3.516)***	0.099 (3.604)***	0.097 (3.576)***	0.109 (4.248)***	0.155 (6.588)***	0.118 (3.592)***
TIME	-0.007 (-0.677)	-0.006 (-0.655)	-0.006 (-0.609)	-0.011 (-1.123)	-0.004 (-0.433)	-0.007 (-0.692)
PARTS	0.242 (3.586)***	0.237 (3.504)***	0.242 (3.591)***	0.272 (4.016)***	0.405 (6.278)***	0.240 (3.562)***
YEAR	-0.094 (-1.224)	-0.094 (-1.230)	-0.093 (-1.214)	-0.111 (-1.423)	-0.086 (-1.088)	-0.094 (-1.223)
TECH	-0.063 (-0.851)	-0.065 (-0.872)	-0.062 (-0.831)	-0.059 (-0.793)	-0.058 (-0.756)	-0.063 (-0.851)
REGL	-0.033 (-0.407)	-0.026 (-0.328)	-0.024 (-0.292)	-0.021 (-0.262)	-0.047 (-0.562)	-0.031 (-0.381)
SECTOR	-0.004 (-0.297)	-0.005 (-0.363)	-0.005 (-0.359)	-0.004 (-0.327)	-0.004 (-0.296)	-0.005 (-0.379)
PRIMARY	0.173 (1.420)	0.173 (1.422)	0.168 (1.372)	0.186 (1.511)	0.168 (1.335)	0.170 (1.386)
ALPHA	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)
Adj R²	0.505	0.506	0.504	0.522	0.528	0.506
N	759	759	759	759	759	759

Table 7 : Negative binomial model on the French market

Sample of 443 IPOs carried out on the French stock market during the 1995- 2005 period. For an explanation of these variables, see the above mentioned table 4

	(1)	(2)	(3)	(4)	(5)	(6)
C	0.228 (1.433)	0.332 (2.226)**	0.448 (3.028)***	0.759 (5.901)***	0.456 (3.192)***	0.210 (1.301)
RISK90	5.998 (2.753)***					5.651 (2.497)**
PAPER		0.090 (2.197)**				0.084 (1.959)**
UPB			-0.115 (-0.665)			-0.293 (-1.628)
REPP	-2.074 (-2.759)***	-1.952 (-2.573)***	-1.808 (-2.366)**	-0.406 (-0.561)		-2.155 (-2.891)***
REPN	3.235 (6.113)***	3.291 (6.334)***	3.448 (6.714)***		3.208 (6.262)***	3.266 (6.155)***
PROCRISK	-3.076 (-4.520)***	-1.589 (-2.601)***	-1.967 (-3.213)***	-2.694 (-4.204)***	-1.660 (-2.797)***	-3.006 (-4.312)***
PROCRP	-0.004 (-0.261)	-0.034 (-1.608)	0.004 (0.263)	0.005 (0.290)	-0.002 (-0.102)	-0.032 (-1.582)
PROCUPB	0.034 (1.478)	0.036 (1.531)	0.067 (1.822)*	0.069 (3.061)***	0.037 (1.607)	0.128 (3.385)***
PROCEEDS	0.466 (16.843)***	0.426 (17.151)***	0.398 (16.249)***	0.335 (14.497)***	0.376 (17.432)***	0.478 (17.188)***
TIME	-0.062 (-4.999)***	-0.052 (-4.151)***	-0.058 (-4.569)***	-0.023 (-1.894)*	-0.056 (-4.441)***	-0.057 (-4.666)***
PARTS	-0.029 (-0.518)	-0.015 (-0.272)	-0.024 (-0.422)	-0.066 (-1.196)	-0.039 (-0.693)	-0.030 (-0.533)
YEAR	0.099 (1.371)	0.103 (1.415)	0.133 (1.827)*	0.223 (3.095)***	0.144 (1.998)**	0.078 (1.074)
TECH	0.019 (0.289)	0.049 (0.731)	0.042 (0.633)	0.084 (1.253)	0.027 (0.409)	0.034 (0.522)
REGL	-0.190 (-1.685)*	-0.198 (-1.726)*	-0.129 (-1.130)	-0.132 (-1.168)	-0.142 (-1.249)	-0.244 (-2.165)**
SECTOR	-0.030 (-2.679)***	-0.032 (-2.779)***	-0.026 (-2.209)**	-0.032 (-2.807)***	-0.026 (-2.302)**	-0.031 (-2.785)***
PRIMARY	-0.404 (-4.896)***	-0.412 (-4.947)***	-0.415 (-4.972)***	-0.436 (-5.279)***	-0.400 (-4.777)***	-0.421 (-5.162)***
ALPHA	0.002 (0.000)	0.001 (0.000)	0.002 (0.000)	0.010 (0.000)	0.004 (0.000)	0.003 (0.000)
Adj R²	0.765	0.763	0.751	0.637	0.756	0.756
N	443	443	443	443	443	443