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January 2010

Online at <https://mpra.ub.uni-muenchen.de/20273/>

MPRA Paper No. 20273, posted 27 Jan 2010 16:32 UTC

Underpricing and distance: an empirical analysis

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January, 2010

Abstract

This paper test the hypothesis that distance of firms from the main financial centre affects underpricing positively. Higher is the distance higher is the uncertainty about the true value of the listing firm and lower the issue price. Econometric results show that, in the Italian case, there is a positive effect of distance from the financial centre on the underpricing. This finding holds in France but not in Germany.

Key words: Underpricing, IPO, Distance

JEL Cassification :G24, O16, O18

1. Introduction

Financial markets are not perfect and the presence of asymmetric information, costly information and uncertainty are relevant. In a spatially centralized system with a single financial centre the market imperfections may be a function of the physical distance between firms seeking finance and institutions providing finance (Klagge and Martin, 2005). Financial literature maintains that there is a positive correlation between the ex-ante uncertainty on the Initial Public Offering (IPO) and the expected underpricing (Beatty and Ritter, 1986). If the ex-ante uncertainty increases with the market imperfections then distant firms may be more underpriced. Some authors have shown that the cost of information acquisition is positively related to the geographic proximity (Coval and Moskowitz, 2001). Malloy (2005) gave evidence that geographically proximate analysts are more accurate than other analysts. An implication of these findings is that there is an inverse relation between accuracy of information and distance and therefore a positive correlation between distance and underpricing. In this paper we test the above hypothesis for the Italian case. The Italian financial centre is identified with the city of Milano where are located the only one stock exchange, the headquarters of most important banks and almost all financial operators. Furthermore we test the “Certification Hypothesis” introduced by Booth and Smith (1986) and never tested in Italian case. Probably positive relationship found in Italy between Underpricing and Distance is due to the centralized structure of financial system. Then we check if this result is still true in France and Germany. France has a centralized financial system, similar to Italy, while Germany has a decentralized financial system. Estimates show that positive effect of Distance on Underpricing holds in France but not in Germany.

2. Underpricing and firms localization.

From 1994 almost all Italian IPOs join the market with the bookbuilding procedure. In this process are involved three players: Investment Bankers (IB)ⁱ, Investors that can participate in the IPO or not, and the issuing Firms. The key function of the IB is to evaluate the correct value of the firms and to certify that the selling price of the stocks reflect correctly the value of the firms and the potentially adverse inside information (“Certification Hypothesis”). The IB, in order to reduce the moral hazard problem and the asymmetric information between firms and investors, must gather information on the issuing firms and certify the emission price of the stocks. For the IB is more costly to collect information on firms that are located far away. Therefore the evaluation of a distant issuing firm is more difficult for the IB and the uncertainty about the price of the firm’s stocks increases. However, if IBs wish to be successful in the future and take other firms to the stock market, they must retain a good reputation in IPO market (Chemmanur and Fulghieri, 1999). Therefore they will provide truthful reports, and will be careful to propose an issue price of the IPO lower than what they believe is the true value. Higher the distance higher the uncertainty and lower the value of the firm that the IBs believe true and lower the IPO issue price. The higher the uncertainty, the more careful the IB will be in setting the IPO issue price level, and the greater the difference will be between this price and that believed true by IBs. Hence, higher uncertainty caused by the firm’s greater distance from the financial centre will result in a higher level of underpricing.

3. Data, model and results.

In our analysis we have considered IPOs that took place the Italian Stock Exchange on the period 1999-2009. During this period nearly all the companies have been floated using the bookbuilding procedure. We have considered in our sample only firms listing on the equity market for the first timeⁱⁱ. A total of 134 IPOs were considered.

The underpricing, our dependent variable, is calculated as

$$R_i = \frac{(P_i - S_i)}{S_i} * 100$$

Where P_i is the closing price on the first day of trading and S_i is the subscription priceⁱⁱⁱ. Data to calculate underpricing are those published by Borsa Italia SPA. Financial and other information about firms are those included in the IPO prospectus. The exogenous variables are:

Variables related to distance

Distance is the distance in kilometres between the legal headquarter of the firm and the city of Milano. Also we have calculate the distance in term of time necessary to cover the physical distance^{iv}.

Variables related to the characteristics of the issue

Revision is the revision of the issue price relative to the average value of the range price. It measures the amount of information that the IB has gathered in the roadshow. Cornelli and Goldreich (2003) and Ljungqvist and Wilhelm (2002) has used such variable. If there was great interest for the IPO the issue prices will be in top part of the range. In Italy the IPO price never was higher than the top of the range and six times the price was below the bottom of the range.

Reputation is a dummy variable equal to one if the IB has a good reputation on capital markets and zero otherwise. There is a large body of literature that has examined the effects of IB reputation on the initial performance of the IPO. A testable implication of the “Certification Hypothesis” is that better is the reputation of the IB the lower is the ex-ante uncertainty and consequently the underpricing. There are several proxies for IB reputation. We use a dummy variable based on Carter and Manaster (1998) indicator.

Range Institutional investors are required to express their interest based on the price range given at the beginning of the roadshow. This variable is a proxy of the uncertainty in the begin of the IPO process.

Oversubscription is the ratio between the number of institutional investors that have requested the share and the number of institutional investors that get the share. If the demand for the share is large many investors will try to buy the shares in the aftermarket and this will affect positively the level of underpricing.

Greenshoe In order to support the share price during the first days of trading the IB of Italian IPOs use the *overallotment option* (greenshoe). The overallotment option refers to the practice of allocating a greater number of shares than the advertised deal size. Therefore the greenshoe reduces the risk of the issue and the expected Underpricing (Benveniste and Spindt, 1989).

Variables related to characteristic of the firm

Firm size and *Age* have frequently been used to proxy investors’ ex ante uncertainty. Larger and oldest the firm lower is the uncertainty about its true value. Both variables have been computed as the natural logarithm.

Variables related to Business environment

The dynamic of the market has been computed as the percentage change in the stock index in the twenty working days before the listing (*Index Return*). If the market is bullish investors are induced to upgrade their estimated on the value of a firm. Therefore we expect that underpricing will increase. Volatility of the market increases the systematic risk and investor will be more careful in the evaluation of the IPO. Therefore an higher volatility increase uncertainty and the level of underpricing. Volatility has been computed as the standard deviation of the market index in the 60 working days before the listing (*Return Volatility*). In Italy we use the Mib30 index.

These two variables has been considered by Cassia et al. (2003) and authors found a positive coefficient for the dynamic of MIB 30 and a negative sign for the volatility of such index.

The estimates of the factors that has determined underpricing in the period 1999-2009 are reported in Table 1. The regression has been estimated with OLS with an heteroscedasticity consistent variance and covariance matrix. Column 1 show that all variables have the expected sign, with the exception of the variable *range*. This variables is a proxy for uncertainty and we expect a positive correlation with underpricing. The coefficient is negative but not statistically significant. This results is similar to what found in other estimates. A reason could be that the range is decided six months before the day of the listing and in this period the IB could receive enough information to change its initial evaluation. All other coefficients are significant and Distance is significant at 1% level. The dummy for the IB reputation is significant with a negative sign as suggested by the “Certification Hypothesis”.

Table 1: Multivariate regression analysis on the determinants of underpricing in Italy, France and Germany.

	1	2	3	4	5
Intercept	14.11 (9.78)	1.62 (9.56)	32.38 ^b (0.01)	-4.17 (4.73)	32.20 ^b (17.21)
Distance	0.019 ^a (0.006)	0.021 ^a (0.006)	0.023 ^b (0.01)	0.003 ^b (0.001)	0.011 (0.02)
Revision	6.75 ^a (2.42)	6.93 ^a (2.54)	-	-	-
Size	-0.83 ^b (0.34)	-0.52 (0.37)	-3.22 ^b (1.38)	0.44 ^b (0.23)	-1.52 (1.03)
Age	-3.52 ^b (1.47)	-2.44 ^c (1.39)	-1.99 (2.05)	-0.23 (0.46)	-4.27 ^b (1.99)
Index Return	0.92 ^b (0.40)	1.04 ^b (0.45)	1.37 ^b (0.65)	0.18 ^b (0.08)	0.18 (0.48)
Index Volatility	0.009 ^c (0.005)	0.01 ^c (0.005)	0.009 ^c (0.005)	0.019 ^a (0.007)	0.118 ^a (0.024)
Reputation	-6.63 ^b (2.59)	-6.11 ^b (2.67)	-	-	-
Greenshoe	-0.72 ^b (0.33)	-0.65 ^b (0.31)	-	-	-
Oversubscription	9.95 ^c (5.99)	10.85 ^c (5.85)	-	-	-
Range	-0.34 (0.04)	-0.038 (0.045)	-	-	-
Services Sector		5.07 ^c (2.90)	4.11 (3.93)	-3.22 ^a (0.94)	6.53 (5.62)
Financial Sector		6.89 ^b (2.80)	14.16 ^b (2.51)	1.23 (1.83)	-8.86 ^c (4.79)
Fees		2.32 ^c (1.31)	-	-	-
R ²	0.4656	0.5014	0.3189	0.0951	0.1685
F statistic	12.36	12.56	2.52	4.22	6.79
Observations	134	124	134	302	286

Figures in parentheses are standard errors

(a,b,c,) Significantly different from 0 at the 1,5 and 10% level

We also control our results introducing in the model sectorial dummy variables and the fees paid by the issuing firms to the IB. We use the Borsa Italia sectorial classification. Results are shown in column 2. The coefficient of dummy variables are significant with positive sign, meaning that the industrial firms

are less underpriced than financial and service firms. The variable fees, that is the direct cost of going public, have a positive correlation with Underpricing, excluding that high Underpricing could be compensate from lower fees. The results on variables Distance and Reputation are robust to this checks^v. At last, for international comparison, we estimate a restricted model for Germany and France. In other countries, like Germany and France, the IPO process is partially different from the Italian case and many variables are not computable^{vi}. French financial centre is Paris and German is Frankfurt^{vii}. Market Index are Cac40 for France and Dax30 for Germany. In order to compare the results we estimate the restricted model also for Italy (column 3). Econometric results not change and the impact of Distance remains the same. The positive relationship between Underpricing and Distance is still true in France (column 4) but not in Germany (column 5). This finding may be due to the geographically centralized structure of Italian and French financial system.

4. Conclusions

Our empirical analysis shows that in Italy the Underpricing is greater for the firms localized far away from the financial centre. Since in literature Underpricing is considered the main indirect flotation cost, the “localization hypothesis” means that the cost of equity is greater for the distant firms. In Italy we also found empirical evidence of the “Certification Hypothesis”. This finding corroborate the theory that explain the Underpricing in the context of asymmetric information and ex-ante uncertainty. International comparison shows that positive relationship between Underpricing and Distance holds in France but not in Germany. This suggests that probably the result is due to the centralized structure of the Italian and French financial centre. Clearly further studies would be needed to corroborate ours results.

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ⁱ In USA it is called Underwriter and in Italy Coordinatore. We use the generic term “Investment Bank”.

ⁱⁱ Privatizations (PIPOs) and Equity Curve Outs (ECOs) are excluded from the sample because they are less risky than independent IPOs. Pagano, Panetta and Zingales (1998) identify a significant difference between the factors underlying the decision to go public taken by PIPOs, ECOs and independent firms.

ⁱⁱⁱ We also have computed market adjusted return as difference between underpricing and the change of the market index during the first day of listing. Estimated with market adjusted underpricing were very similar and they have not been reported in the paper.

^{iv} The variable shows a high positive correlation with the distance then we use only the last one. We have also introducing Regional Dummies in the model but their coefficient are not significant and we omit the results.

^v A further check is to estimate a model in which regional variables (gdp, R&D expenditure, coefficients of sectorial specialization, etc.) are included as regressors. The results are not statistically significant.

^{vi} While in Italy all IPOs are conducted with the bookbuilding procedure in Germany and France many IPOs have been floated using different methodologies (minimum price, fixed price. etc).

^{vii} Taking into account that in Germany there are many regional equity markets we calculate the variable Distance in two different way: both from the main equity market (Frankfurt) and from the closer equity market to the listing firm. Econometric results not change regardless of what method we use.