# Voluntary and Involuntary Underpricing in IPOs

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**Abstract**
**Purpose:** The majority of studies have focused on IPO underpricing, but the deliberate price discount as a deliberate underpricing has not been enough studied in the financial literature.
**Design/methodology/approach:** In this paper, we used 33 Tunisian initial public offerings (IPOs) during the period from 1994 to 2012 and examined the total and the involuntary underpricing. Involuntary underpricing is defined as the difference between the closing price and the fair value estimate, divided by the fair value estimate.
**Findings:** This research reveals many findings. The firm's quality signaling through the deliberate price discount was found not to be credible for the Tunisian investors. However, voluntary and involuntary underpricing are negatively related. The investors' demand during the subscription period was also found to be an indicator of the investors' expectations of the IPO price level and an important determinant of entrepreneurial involuntary wealth loss. Tunisian investors believe that IPOs with low subscription ratio are overvalued. Therefore, they penalize these IPOs by a massive selling after listing. The share prices of the firms, with a subscription ratio lower than two, increase without reaching their fair value estimate. When studying the role of the underwriter reputation, voluntary and involuntary underpricing is found to be positively related with underwriter reputation. High reputed underwriters support their IPOs more than the low reputed underwriters. Owners who choose high reputed underwriters are found to suffer from little more entrepreneurial involuntary wealth loss than those who choose low reputed underwriters.
**Originality/value:** The first contribution of this paper to the literature is to identify involuntary underpricing as the difference between the closing price and the fair value estimate, divided by the fair value estimate. The second is the study of the relation between voluntary and involuntary underpricing.
**Research Limitations/Implications:** The biggest limitation of this study is the reduced number of IPOs in Tunisian financial market which should be larger for the empirical results. The Tunisian market can be categorized as an emerging market.

**Practical Implications:** Our study can be useful for managers and underwriters. It helps them for fixing the deliberate price discount in IPOs.

**Keywords**: Initial public offering; deliberate price discount; investors' demand; IPO returns; involuntary underpricing; underwriters reputation.

**Paper Type:** Research Paper

**Introduction**

The empirical study of positive average initial returns in IPOs has been well documented. Although many theoretical and empirical studies were interested in the underpricing phenomenon, few have examined the deliberate price discount. Benveniste and Spindt (1989) developed a hypothesis that the offer price must be set low (at a discount) in order to compensate institutional investors who reveal positive information during the bookbuilding phase. Benveniste et al (2003) integrated the Benveniste and Spindt's (1989) hypothesis in their initial return model. They expect that lower percentage discounts (the total cost of information production) on average is spread across a larger group of firms, and a relatively smooth discount distribution across grouped firms. Barry (1989), Brennan and Franks (1997) and Habib and Ljungqvist (2001) discussed the difference between underpricing and wealth losses. They found that underpricing represents a significant portion of entrepreneurial wealth losses in IPOs. To set the offer price, underwriters voluntarily discount the fair value (Roosenboom, 2012). In the Tunisian IPO prospectus, this price discount is indicated. In our sudy, we decompose total underpricing into voluntary and involuntary underpricing. We define voluntary underpricing as the deliberate price discount obtained from the prospectus. It is calculated as the difference between the subscription price and the fair value estimate as measured by the IPO firm, divided by the fair value estimate (Roosenboom, 2012). It is an entrepreneurial voluntary wealth loss in IPOs. Involuntary underpricing is defined as the difference between the closing price and the fair value estimate, divided by the fair value estimate. It is an entrepreneurial involuntary wealth loss in IPOs. It is similar to the fund's premium (Barclay et al, 1993).

Chowdhry and Sherman (1996) argue that when the offer price is set before the consummation of the offering, the IPOs will be more underpriced. They observe that in many countries, larger underpricing is associated with large levels of oversubscription. They also argue that when the offer price is set many days before the end of the subscription period, there is a possibility that much information about the aggregate investors' demand becomes public before the end of this period. Such information is crucial in determining the initial price in the secondary market. When all investors know that the offer price is too low, a large oversubscription will be observed. However, when all investors know that the offer price is too high, the issue will fail. Benveniste and Busaba (1997) suggest that fixed price mechanism is the most capable of generating demand cascades. Biais et al (2002) argue that the IPO price is highly adjusted when the aggregate demand is strong. In Tunisia, the fixed price mechanism is the most in use.

Several studies treated the relation between the underwriter reputation and the IPO returns. Baron (1982) argues that underpricing is explained by the asymmetric information between the issuer and the investment banker who is better informed than the issuer. Booth and Smith (1986) developed a theory of the underwriter's role in certifying the pricing of equity. They argue that a decrease in value followed by either positive abnormal or normal

returns from subscription price to first closing price is expected. They also argue that the more costly external certification is, the more probably the stock is to be issued at a discount. Carter and Manaster (1990) and Habib and Ljungqvist (2001) find a negative relationship between IPO returns and underwriter reputation. However, Loughran and Ritter (2004), Loureiro (2010) and Lowry et al (2010) argue that there is a positive relationship between IPO returns and underwriter reputation.

Ben slama et al (2011) and Kanoun and Taktak (2013) examine the relationship between underpricing and discount. Roosenboom (2012) and Jeribi and Jarboui (2014) examine the deliberate price discount level. In this paper, we use 33 Tunisian IPOs during the period from 1994 to 2012 and examine the total and the involuntary underpricing. We find that signaling through the deliberate price discount isn't credible for Tunisian investors. This result is inconsistent with the empirical results of Roosenboom (2012) and Kanoun and Taktak (2013), but consistant with that of Ben slama et al (2011). However, voluntary and involuntary underpricing are negatively related. On average, every 1% increase in the deliberate price discount contributes to almost 2% decrease in the involuntary underpricing. We also find that the investors' demand during the subscription period is an indicator of the investors' expectations of the IPO price level. This result is consistent with Derrien (2005), Agarwal et al (2008), Gao (2010), Low and Yong (2011) and Bubna and Prabhala (2011). It is also an important determinant of entrepreneurial involuntary wealth loss. Tunisian investors believe that IPOs with low subscription ratio are overvalued. Therefore, they penalize IPO firms with low subscription ratio by a massive selling after listing. This result is consistent with the prediction of Welch (1992). The share prices of the firms with a subscription ratio lower than 2 increase without reaching their fair value estimate. When studying the role of underwriter reputation, we find that voluntary and involuntary underpricing are positively related with underwriter reputation. High reputed underwriters support their IPO during the first four weeks more than the low reputed underwriters. This result is consistent with the underwriter price support hypothesis' (Rudd, 1993). We also find that the owners who choose high reputed underwriters suffer from little more entrepreneurial involuntary wealth loss than those who choose low reputed underwriters.

The paper is organized as follows: Section 2 discusses the related literature; Section 3 presents the data and methodology; Section 4 presents the empirical results and the discussion; Section 5 concludes.

**Literature Review**

Prior studies indicate that pre-IPO investors' demand plays a major role in affecting the post-IPO performance. Excess demand or supply is not observed until after the announcement of the subscription result. Rock (1986), Koh and Walter (1989) and Chowdhry and Sherman (1996) predict that there is a relationship between demand and performance. Rock (1986) suggests that high-demand IPOs have relatively higher returns during the first days. Koh and Walter (1989) test the empirical implications of Rock's model. They show that the first day return is positively and significantly correlated with the oversubscription level. Benveniste and Spindt (1989) develop a theory of underwriting in which the underwriter improves the economic efficiency of the IPO market. The underwriter uses the leverage of expected profit in order to increase the market efficiency by reducing underpricing. They show that underpricing is the natural consequence of the premarket auction. An IPO firm must set low its offer price in order to compensate investors for revealing positive information. The amount of compensation depends on the

expected profit of investors who hide information. They argue that underpricing is directly related with both the ex ante value of the investors' information and the level of interest in the premarket. Chowdhry and Sherman (1996) argue that when the failure is costly, the fair value is underpriced to reduce the likelihood that the issue will fail. Cornelli and Goldreich (2003) and Agarwal et al (2008) also find that the IPO oversubscription is positively correlated with the aftermarket returns. Agarwal et al (2008) examine the relation between the pre-offering demand and the IPO returns for 256 IPOs from Hong Kong between 1993 and 1997. They suggest that the IPO market in Hong Kong is very active. They observe that the subscription ratio is over 91 (means). Marisetty and Subrahmanyam (2010) examine the relationship between the initial returns and the extent of oversubscription. They show that the coefficient of the extent of subscription is positive and highly significant. Bubna and Prabhala (2011) also find a positive relationship between underpricing and oversubscription for 124 Indian IPOs listed on the Bombay Stock Exchange between November 2004 and November 2006.

Ibbotson (1975) argues that issuers undervalue their shares in order to "leave a good taste in investors' mouths". Welch (1989) and Allen and Faulhaber (1989) argue that firms can signal their type (good or bad) by underpricing and only good firms can afford to dissipate wealth by underpricing their initial issue. Cao and Shi (2006) explain the clustering of underpriced IPOs in their signaling theoretical model. They argue that a low-quality firm can benefit from the publicity of the industry less than the high-quality firm. They also argue that high-quality firms underprice their IPOs and generate publicity in order to reduce the uncertainty about the industry. Cornelli et al (2006) use prices from the grey (Europe's pre-IPO) market to proxy for small investors' valuations. They argue that small investors are irrational and exploited by the bookbuilding (institutional) investors and the underwriter. Larger (institutional) investors resell their allocated shares in the IPO to small investors when these are overoptimistic. When small investors are overoptimistic, the price that they are willing to pay exceeds the fundamental value of the IPO shares. However, when they are pessimistic, their prices are out of the market. Arthurs et al (2009) show that IPOs are typically surrounded by a significant uncertainty. High uncertainty related to the IPO firms tends to dictate a higher discount level in order to induce investors to participate. Welch (1992) develops the theory of information cascades. He argues that the pricing decisions of issuers may reflect informational cascades. Indeed, later investors ignore their own information and rely completely their purchasing decisions on those of earlier investors. Welch also argues that underwriters play an important role in the creation of cascades by finding investors in segmented markets. He shows that, if the distribution channels of the underwriter are limited, overpriced offering can succeed and underpriced offering can fail. The successful initial sales can be interpreted by an individual investor as the earlier investors have favorable information about the IPO. These channels play an important role in the IPO process. Welch (1992) also argues that the IPO demand can be so elastic when the issuers underprice in order to completely avoid failure. Benveniste and Busaba (1997) suggest that fixed price mechanism is the most capable of generating demand cascades. The model of Benveniste and Busaba (1997) closely resembles the Welch's (1992) model. Benveniste and Busaba (1997) show that the investors' demand is highly elastic. If there is an increase in the IPO price, a negative demand cascade will be created as a consequence. The level of the offer price plays an important role in affecting (negatively or positively) the investors' demand during the pre-market period because the IPO price is established without seeking the investor's information for fixed-price mechanism. Amihud et al (2003) support the theory of information cascades for 284 IPOs

listed on the Tel Aviv Stock Exchange between November 1989 and November 1993. They argue that underpricing creates a cascade of high demand which ensures the success of the offering. They show that investors with information about the level of demand can improve their wealth by joining IPOs with high demand and avoiding those with low demand.

Many theoretical and empirical studies are interested in the role of the underwriter in the IPO process. Rudd (1993) and Ritter (2003) noted that underwriters can legally support the IPO prices in the U.S market. Rudd (1993) develops the price support hypothesis. This hypothesis is consistent with the evidence of Ritter (1991) who argues that the IPO overperformance is a short-run phenomenon. Rudd (1993) finds that high initial IPO returns are explained by the underwriter price support. Underwriters use the price support in order to decrease the negative initial returns observed in the first market trading day. Chowdry and Nanda (1996) also argue that underwriters use price support to induce uninformed investors to participate and reduce the losses supported by them. The price support is a complement to underpricing. Ellis et al (2000) and Aggarwal (2000) find that underwriters use price support as a solution to stabilize the IPO shares with poor aftermarket performance. However, Derrien (2005) find that the price support generates a high cost for the underwriter. The period of the price stabilization agreement is at least two months (Aggarwal, 2000; Derrien, 2005). Baron (1982) argues that the discount is explained by asymmetric information between the investment banker and the issuer. Indeed, the investment banker has the superior information. He sets the offer price and distributes the issue. Booth and Smith (1986) developed a theory of the underwriter's role in certifying the pricing of equity. They argue that a decrease in value followed by either positive abnormal or normal returns from subscription price to first closing price is expected. They also argue that the more costly external certification is, the more probably the stock is to be issued at a discount. Megginson and Weiss (1991) support the certification hypothesis (Booth and Smith, 1986). In order to examine the role of the investment bank reputation, Carter and Manaster (1990) extend the winner's curse model (Rock, 1986). They argue that the low prestigious underwriters introduce the most risky firms. They show that the reputation level of the underwriter is negatively related to underpricing. The empirical results of Michaely and Shaw (1994) confirm those of Carter and Manaster (1990). They show that there is a negative relationship between the IPO returns and the reputation level of the underwriter. Habib and Ljungqvist (2001) extend Rock's (1986) model and develop the entrepreneurial losses model. They argue that owners can decrease underpricing and increase the fraction of uninformed investors by choosing a more prestigious underwriter. Loughran and Ritter (2004) develop the changing issuer objective function model. They predict a positive relationship between top-tier underwriters and IPO underpricing. Loughran and Ritter (2004) develop the changing issuer objective function model. They predict a positive relationship between the underwriter reputation and IPO underpricing. The firm chooses the most prestigious underwriter who has influential analysts in order to allocate shares to important decision-makers.

## Data and Methodology

The original sample consists of 58 IPOs collected from the Tunis stock exchange (TSE) from January 1994 to December 2012. The period started in 1994 because several structures and concepts were introduced by Law n° 94-117 of November 14, 1994 on the Reorganization of the Financial Market. After the elimination of the financial institutions

and the firms for which we couldn't collect some information, the sample consists of 33 firms. The data used in our study are retrieved from different sources. The subscription results and the listing prospectuses of the period (2006-2012) are extracted from the Financial Market Council (CMF) website. However, those of the period (1994-2005) are manually retrieved from the library of the CMF. In addition, some listing prospectuses and subscription results are derived from the archive of the underwriters. The share prices of the period (1998-2012) are extracted from the TSE website. However, those of the period (1994-1997) are manually retrieved from the TSE's archive.

Rock (1986) and Shiller (1990) argue that issuers sell their shares below the fair value to encourage investors to discover price and participate during the subscription period. Rock (1986) explained discount by asymmetric information among investors. Barclay et al (1993) define a fund's premium as the difference between the market price and the net asset value (estimated firm value) divided by the net asset value. During the bubble period, Houston et al (2006) argue that underwriters systematically discounted the subscription prices. They show that the subscription prices were set at discounts compared to the average price implied by the comparable firms. Roosenboom (2012) finds that underwriters deliberately discount the fair value estimate to increase the participation of investors in the auction or bookbuilding process.

Previous empirical studies indicate that the investors' demand during the subscription period plays a major role in affecting the post-IPO performance. Chahine (2007), Cheung and Liu (2007) and Ben slama et al (2011) measure the pre-IPO investors' demand by the subscription ratio which is equal to the number of shares requested by all investors in the subscription period divided by the number of offered shares. However, several studies measure the pre-IPO investors' interest level by the over-subscription ratio. This measure is used by Brennan and Franks (1997), Derrien (2005), Agarwal et al (2008), Gao (2010), Low and Yong (2011) and Bubna and Prabhala (2011). In our study, we use the subscription ratio as measure of the investors' demand. Agarwal et al (2008) and Low and Yong (2011) categorize the IPOs into groups depending on the level of investors' demand. In our study, we divide our sample into groups of low and high investors' demand during the subscription period. The first consists of IPOs of which the subscription ratio is lower than 2 and the second comprises IPOs with a subscription ratio above 2.

Several studies treated the relation between underwriter reputation and IPO returns. Carter and Manaster (1990) and Habib and Ljungqvist (2001) find a negative relationship between the IPO returns and underwriter reputation. However, Loughran and Ritter (2004), Loureiro (2010) and Lowry et al (2010) argue that there is a positive relationship between IPO returns and underwriter reputation. When the "tombstone announcements" are not used in Tunisia, we use the measure of underwriter reputation of Jeribi and Jarboui (2014). They argue that highly reputed underwriters are those whose investors request a high quantity of IPO shares during the subscription period.

Cheng et al (2005) and Low and Yong (2011) interpret the period from the IPO application to the listing date differently. Cheng et al (2005) predict that the quality of IPO and the length of the investment period are negatively associated. They find a negative relationship between the investment period and the market adjusted opening return. However, Low and Yong (2011) argue that the number of days from the subscription period to the listing day is a proxy for the opportunity cost of funds. To test these expectations, we estimate the first regression model. We examines how the IPO returns are related to the deliberate price discount, the investors' demand during the subscription period, the underwriter reputation and the number of days from the subscription period deadline to the listing day.

Barry (1989), Brennan and Franks (1997) and Habib and Ljungqvist (2001) discussed the difference between wealth losses and underpricing. They find that underpricing represents an important part of entrepreneurial wealth losses in IPOs. To set the offer price, underwriters voluntarily discount the fair value (Roosenboom, 2012). In Tunisian IPO prospectus, this price discount is indicated. After studying the IPO returns (underpricing), we decompose total underpricing into voluntary and involuntary underpricing. We define voluntary underpricing as the deliberate price discount obtained from the prospectus. It is calculated as the difference between the subscription price (offer price) and the fair value estimate as measured by the IPO firm, divided by the fair value estimate (Roosenboom, 2012). It is an entrepreneurial voluntary wealth loss in IPOs. Involuntary underpricing is defined as the difference between the closing price and the fair value estimate, divided by the fair value estimate. It is an entrepreneurial involuntary wealth loss in the IPOs. After studying the total underpricing, we examine how involuntary underpricing is related to the deliberate price discount, the investors' demand during the subscription period, the underwriter reputation and the number of days from the subscription period deadline to the listing day.

## Empirical Results and Discussion

Table 1 provides summary statistics for a full sample of 33 Tunisian IPOs and separately for the listed IPOs in the principal market (29) and the alternative market (4) between 1994 and 2012. The level of deliberate price discount has a mean value of 11% for the whole sample. This level is similar to the one found by Ibbotson (1975) and lower than the one observed by Roosenboom (2012). Derrien (2005) and Chahine (2007) find that the level of the ex ante uncertainty varies with the listed markets: The "Premier Marché" and the "Nouveau Marché".

Table 1: Descriptive Statistics of the Sample (N = 33)

| Variables | Markets | Mean | Median | Max | Min | Std.dev |
|---|---|---|---|---|---|---|
| | Total market | 0.11 | 0.12 | 0.30 | 0.00 | 0.08 |
| Discount | Principal market | 0.10 | 0.12 | 0.26 | 0.00 | 0.07 |
| | Alternative market | 0.18 | 0.18 | 0.30 | 0.05 | 0.12 |
| | Total market | 6.21 | 3.87 | 39.97 | 1.00 | 7.87 |
| SR | Principal market | 4.78 | 3.85 | 21.98 | 1.00 | 4.51 |
| | Alternative market | 16.52 | 12.36 | 39.97 | 1.40 | 17.60 |
| | Total market | 0.73 | n/a | n/a | n/a | n/a |
| UR | Principal market | 0.72 | n/a | n/a | n/a | n/a |
| | Alternative market | 0.75 | n/a | n/a | n/a | n/a |
| | Total market | 0.22 | n/a | n/a | n/a | n/a |
| LSR | Principal market | 0.21 | n/a | n/a | n/a | n/a |
| | Alternative market | 0.25 | n/a | n/a | n/a | n/a |

This table reports descriptive statistics for the whole sample of 33 Tunisian IPOs and separately for listed IPOs in the principal and alternative markets between 1994 and 2012. The data are collected from the CMF database, TSE database and IPO prospectuses. Discount: The deliberate price discount obtained from the IPO prospectus. It is calculated as the difference between the offer price and the fair value as measured by the IPO firm, divided by the fair value. SR: The subscription ratio of an IPO. It measures investors' demand for the IPO throughout the subscription period. UR: Dummy variable which takes the value of one if the underwriter is highly reputed, 0 otherwise. LSR: Dummy variable which takes the value of one if the subscription ratio's is less than two, 0 otherwise.

The latter is created on the model of NASDAQ and designed for young and high-growth companies. Lowry et al (2010) suggest that the underwriters will find it more difficult to value the firms listed on the NASDAQ. Those firms are smaller, younger and more difficult to value than those listed on the NYSE. In Tunisia, The TSE includes the principal market (marché principal) and the alternative market (marché alternatif) which was launched in December 2007 and reserved for small and medium-sized companies. We also find that the deliberate price discount practiced by IPO firms on the alternative market (18%) is significantly higher than the one practiced by the firms introduced on the principal market (10%). To reduce asymmetric information and uncertainty between the firm and the investors, alternative market firms pay an introduction cost higher than alternative market firms. All Tunisian IPOs generate enough demand. The subscription ratio (mean = 6.21) is relatively smaller than in other international markets (Brennan and Franks, 1997; Cheung and Liu, 2007; How et al, 2007; Low and Yong, 2011) and very similar to the one found by Derrien (2005). The subscription ratio differs dramatically from that of the principal market (4.78) to the alternative market (16.52). For instance, the largest subscription ratio is 39.97 times the number of shares offered for an IPO completed on the alternative market. We also find that 73% of IPO companies choose highly reputed underwriters which have an industry expertise and a high quality research department.

Table 2: IPO Returns

| | N | 1 Day | 1 Week | 2 Week | 3 Week | 4 Week | 5 Week | 6 Week | 7 Week | 8 Week |
|---|---|---|---|---|---|---|---|---|---|---|
| Total market | 33 | 25.36 | 26.32 | 27.13 | 31.46 | 33.61 | 34.65 | 36.80 | 35.73 | 37.15 |
| | | (26.87) | (26.47) | (26.51) | (29.37) | (33.49) | (35.46) | (38.35) | (38.00) | (41.88) |
| Principal market | 29 | 23.28 | 24.24 | 24.54 | 29.07 | 30.58 | 30.82 | 33.01 | 31.97 | 33.43 |
| | | (25.28) | (25.18) | (24.69) | (28.05) | (32.20) | (33.55) | (37.21) | (36.92) | (41.37) |
| Alternative market | 4 | 40.46 | 41.39 | 45.89 | 48.80 | 55.54 | 62.42 | 64.32 | 62.94 | 64.10 |
| | | (37.33) | (34.77) | (35.68) | (37.40) | (39.49) | (41.64) | (40.22) | (39.46) | (40.42) |
| High underwriter | 28 | 28.75 | 30.01 | 29.90 | 34.42 | 36.13 | 36.83 | 38.92 | 37.06 | 39.10 |
| Reputation | | (27.77) | (27.00) | (26.99) | (30.55) | (35.00) | (36.89) | (39.64) | (38.99) | (43.22) |
| Low underwriter | 5 | 6.39 | 5.66 | 11.59 | 14.89 | 19.49 | 22.42 | 24.95 | 28.24 | 26.23 |
| Reputation | | (6.48) | (7.44) | (18.65) | (13.99) | (20.32) | (25.55) | (30.87) | (34.78) | (35.31) |
| High | 25 | 31.63 | 32.91 | 33.99 | 39.97 | 42.92 | 44.55 | 46.66 | 45.11 | 47.80 |
| subscription ratio | | (27.82) | (26.44) | (26.37) | (28.18) | (32.52) | (34.32) | (37.75) | (37.37) | (41.06) |
| Low | 8 | 2.16 | 1.37 | 1.60 | 0.01 | -1.81 | -2.94 | -2.60 | -3.43 | -6.08 |
| subscription ratio | | (5.04) | (11.01) | (9.66) | (9.15) | (11.01) | (12.14) | (12.48) | (12.50) | (15.73) |

This table reports descriptive IPO returns after listing until the eighth week for the sample of 33 Tunisian IPOs between 1994 and 2012. In a first step, we calculate the initial IPO returns after listing (1 day). It is defined as (Closing−Offer) /Offer, where Closing and Offer are the first listing day closing price and the offer price, respectively. In a second step, we calculate the IPO returns until the eighth week (N week). It is defined as (Closing−Offer) /Offer, where Closing and Offer are the N listing week closing price and the offer price, respectively, and N ranges from 1 to 8. The sample is partitioned into many groups on the basis of: the listed market, the sectors (technological and non- technological), the underwriters' reputation (High reputed underwriters and low reputed underwriters) and the investors' demand during the subscription period (High-demand IPOs and Low-demand IPOs).

The IPO returns for the full sample range from 25.36% at the first listing to 37.15% at the end of the eighth week. The initial IPO return of 25.36% is higher than the one found by Ben Naceur and Ghanem (2001), and lower than what was found by Gana and El Ammari

(2008) and Ben Slama et al (2011) on the Tunisian financial market. From this table, we show that the average initial IPO returns on the principal market (23.28%) are lower than the total market ones (25.36%). However, the average of the initial IPO returns on the alternative market (40.46%) is higher than that of the total and the principal market. This can be explained by the investors' demand (subscription) ratio on the alternative market which is almost four times as high as that on the principal market. Likewise, the deliberate price discount practiced on the alternative market is significantly higher than the one practiced by which is on the principal market. Therefore, this superiority recorded on the alternative market initial returns may be due to the superiority of the investors' demand and the deliberate price discount on the alternative market.

In order to study the relationship between the IPO returns and the underwriter reputation, we classified the firms into two groups. The first includes the firms which choose high reputed underwriters. The second group includes those which choose low reputed underwriters. We show that the first group records higher returns (28.75%) on the first listing day than the second group (6.39%). These results are inconsistent with those of Carter and Manaster (1990), but consistent with Loughran and Ritter (2004). Indeed, the initial return (1day) for the first group (28.75) is higher than that of the second group (6.39). We show that the returns of the first group record a modest increase until the fifth week, then, they stagnate. The returns of the second group know a modest growth during the first three weeks. Indeed, highly reputed underwriters make a greater ad campaign and have more notoriety than the less reputed underwriters. The large degree of high average initial IPO returns can also be explained by the underwriter price support hypothesis' (Rudd, 1993). Highly reputed underwriters support their IPO during the first four weeks more than lower reputed underwriters. In our study, we also divide the sample of IPOs into groups of high and low subscription ratios. The high subscription ratio group consists of IPOs of which the subscription ratio is higher than 2. The low subscription ratio group comprises IPOs with a subscription ratio below 2. We find that the first group earns positive initial returns of 31.63%, while, the second earns positive initial returns of 2.16% which are very lower than those of the first group. However, the second group returns are slightly positive through the end of the third week of trading. The returns become negative, from the fourth week, as they reach more than - 6% at the eighth week. This result is consistent with the hypothesis of the underwriter price support (Rudd, 1993), Ritter (2003) and Ben slama et al (2011). With the agreement of the Financial Market Council (CMF), underwriters can legally support the IPO prices in the Tunisian market by signing a contract of liquidity for a determined period. The underwriter guarantees the regulation of the security price by purchasing or selling on behalf of the issuer and should communicate a copy of this contract to the CMF and the TSE. In addition, he executes the contract of liquidity to reduce the negative returns observed in the first trading days. For the first group, the returns rise to 47% at the end of the eighth week of trading.

Table 3 reports the results of the ordinary least squares (OLS). The first regression examines how the IPO returns are related to the deliberate price discount (Discount), the investors' demand (SR) and the underwriter reputation (UR). We find that the coefficients on the deliberate price discount level are not statistically significant. This result is inconsistent with the empirical implications of Baron (1982), Rock (1986), the signaling theory, the empirical results of Roosenboom (2012) and Kanoun and Taktak (2013), but consistent with those of Ben slama et al (2011). The discount level as a signal is expensive and minimizes the initial wealth of the initiators. Signaling through the deliberate price

discount isn't credible for the Tunisian investors. The coefficients on the subscription ratio are positive and highly statistically significant until the eighth week.

Table 3: IPO Returns

| Independent | Dependent variables: IPO returns | | | | | | | | n=33 |
|---|---|---|---|---|---|---|---|---|---|
| variables | 1 Day | 1 Week | 2 Week | 3 Week | 4 Week | 5 Week | 6 Week | 7 Week | 8 Week |
| Regression1 | | | | | | | | | |
| Constant | -0.0002 | 0.0178 | 0.0463 | 0.1105 | 0.1196 | 0.1408 | 0.1631 | 0.1610 | 0.1445 |
| | (-0.0022) | (0.2008) | (0.5291) | (1.0875) | (1.0036) | (1.1079) | (1.1344) | (1.1101) | (0.8961) |
| Discount | 0.0371 | -0.0249 | -0.4157 | -0.7659 | -0.8344 | -0.9435 | -0.8736 | -0.5364 | -0.7292 |
| | (0.0717) | (-0.0482) | (-0.8166) | (-1.2966) | (-1.2052) | (-1.2779) | (-1.0458) | (-0.6363) | (-0.7780) |
| SR | 0.0209*** | 0.0201*** | 0.0201*** | 0.0196*** | 0.0212*** | 0.0222*** | 0.0211** | 0.0210** | 0.0209** |
| | (4.2123) | (4.0444) | (4.1166) | (3.4530) | (3.1891) | (3.1277) | (2.6366) | (2.5910) | (2.3254) |
| UR | 0.1648* | 0.1699* | 0.1996** | 0.2276** | 0.2411* | 0.2343* | 0.2316 | 0.1708 | 0.2422 |
| | (1.7661) | (1.8243) | (2.1742) | (2.1372) | (1.9316) | (1.7601) | (1.5379) | (1.1240) | (1.4331) |
| $R^2$ | 0.4011 | 0.3851 | 0.4047 | 0.3469 | 0.3103 | 0.3000 | 0.2343 | 0.2057 | 0.1916 |
| Adj $R^2$ | 0.3391 | 0.3215 | 0.3431 | 0.2793 | 0.2389 | 0.2276 | 0.1551 | 0.1236 | 0.1080 |
| Regression 2 | | | | | | | | | |
| Constant | 0.0445 | 0.1288 | 0.1035 | 0.2207 | 0.4015** | 0.4651** | 0.5280** | 0.5226** | 0.5828** |
| | (0.2975) | (0.8934) | (0.7352) | (1.3856) | (2.1899) | (2.3926) | (2.3831) | (2.3498) | (2.4024) |
| Discount | 0.2886 | 0.2264 | -0.1125 | -0.4114 | -0.5508 | -0.6627 | -0.5692 | -0.2082 | -0.3707 |
| | (0.5543) | (0.4508) | (-0.2294) | (-0.7413) | (-0.8625) | (-0.9786) | (-0.7375) | (-0.2687) | (-0.4386) |
| SR | 0.0176*** | 0.0157*** | 0.0161*** | 0.0142** | 0.0140** | 0.0144** | 0.0125 | 0.0121 | 0.0106 |
| | (3.4313) | (3.1828) | (3.3214) | (2.5951) | (2.2277) | (2.1569) | (1.6457) | (1.5898) | (1.2776) |
| LSR | -0.1989** | -0.2391** | -0.2418** | -0.3091*** | -0.3651*** | -0.3890*** | -0.4298*** | -0.4441*** | -0.5114*** |
| | (-2.0321) | (-2.5320) | (-2.6221) | (-2.9628) | (-3.0409) | (-3.0556) | (-2.9618) | (-3.0487) | (-3.2190) |
| UR | 0.1364 | 0.1358 | 0.1650* | 0.1835* | 0.1894* | 0.1793 | 0.1708 | 0.1080 | 0.1699 |
| | (1.4982) | (1.5473) | (1.9235) | (1.8914) | (1.6964) | (1.5141) | (1.2659) | (0.7971) | (1.1497) |
| N | 0.0003 | -0.0009 | 0.0003 | -0.0004 | -0.0038 | -0.0045 | -0.0052 | -0.0050 | -0.0062 |
| | (0.1149) | (-0.3678) | (0.1219) | (-0.1618) | (-1.2307) | (-1.3954) | (-1.3910) | (-1.3421) | (-1.5328) |
| $R^2$ | 0.4822 | 0.5033 | 0.5275 | 0.5074 | 0.4984 | 0.4967 | 0.4412 | 0.4265 | 0.4383 |
| Adj $R^2$ | 0.3863 | 0.4113 | 0.4400 | 0.4161 | 0.4055 | 0.4035 | 0.3377 | 0.3203 | 0.3343 |

This table reports the results of ordinary least squares (OLS). Discount: The deliberate price discount. SR: The subscription ratio of an IPO. LSR: Dummy variable which takes the value of one if the IPO subscription ratio's is less than two, 0 otherwise. UR: Dummy variable which takes the value of one if the underwriter is highly reputed, 0 otherwise. N: The number of days from the subscription period deadline to the listing day. * Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

The investors' demand is an indicator of their expectations of the IPO price level. This result is consistent with Derrien (2005), Agarwal et al (2008), Gao (2010), Low and Yong (2011) and Bubna and Prabhala (2011). However, these coefficients are relatively low (0.02). During the subscription period, investors inflate their requested quantity of the IPO shares to obtain more favorable allocation of securities of which they anticipate the offer price set below the fair value. Likewise, Tunisian investors may request any amount while knowing that the price is fixed. This investor behavior explains the weakness of the coefficients of the investors' demand. The higher the investors' demand is; the lower the

investors' allocation will be. The relation between the investors' demand and the IPO returns is a form of partial adjustment phenomenon (Hanley, 1993; Loughran and Ritter, 2002 and Lowry and Schwert, 2004). The coefficients on the underwriter repetition are positive and significantly different from zero until the fifth week. The OLS coefficients for the underwriter repetition range from 0.1648 to 0.2422. For example, IPO firms which select highly-reputed underwriters are more underpriced with a level of 17% the first listing week than others which select low-reputed underwriters. This excess of underpricing will be increasingly important. This result is inconsistent with the one of Carter and Manaster (1990) and the predictions of the entrepreneurial losses model (Habib and Ljungqvist, 2001), but consistent with the changing objective function model (Loughran and Ritter, 2004) and the empirical results of Loureiro (2010) and Lowry et al (2010). In the second regression, we incorporate the low subscription ratio (LSR) and the number of days from the subscription period deadline to the listing day (N) as control variables in the first regression. We show that the coefficients on the subscription ratio are positive and statistically significant until the fifth week. The coefficients on the low subscription ratio are negative and increasingly statistically significant until the eighth week. These coefficients range from -0.1989 to -0.5114, with t-statistics ranging from -2.0321 to -3.2190. Indeed, the investor who purchases IPO shares which have a low subscription ratio (below 2) suffers from a decrease in his returns of -19,89 % at the end of the first day of trading, compared to another investor who purchase IPO shares whose a subscription ratio above 2. This decrease in returns achieves 51.14% at the end of the eighth week. Tunisian investors believe that IPOs with low subscription ratio are overvalued. Therefore, they penalize IPO firms with low subscription ratio by a massive selling after listing. This result is consistent with the prediction of Welch (1992) when developing the theory of information cascades. The effect of the investors' sale will be lessened because the underwriter executes the liquidity contract to minimize the reduction in prices. This result is consistent with that of Rudd (1993). The Tunisian underwriters support the IPO prices by executing the liquidity contract. This result confirms the one obtained from table 2. The coefficients on the number of days from the subscription period deadline to the listing day are statistically non-significant.

After studying the total IPO underpricing, we will study the involuntary underpricing (entrepreneurial involuntary wealth loss). From table 4, the involuntary underpricing for the full sample ranges from 11.63% at the first listing to 22.52% at the end of the eighth week. We show that the average initial involuntary underpricing on the principal market (10.74%) is lower than the principal market one (18.12%). This can be explained by the investors' demand (subscription ratio) and the deliberate price discount on the alternative market which are higher than that on the principal market.

In order to study the relationship between involuntary underpricing and underwriter reputation, we use the same classification as when studying the relationship between IPO returns and underwriter reputation. We show that the group of firms which choose highly reputed underwriters records a little higher involuntary underpricing (12.07%) on the first listing day than the group of firms which choose highly reputed underwriters (10.47%). The difference on involuntary underpricing between these two groups remains always low until the eighth week. However, the difference on IPO returns between these two groups remains always high until the eighth week. The owners who choose highly reputed underwriters suffer from little more entrepreneurial involuntary wealth loss than those who choose low reputed underwriters. However, investors who purchase IPO shares from the first group record significantly higher returns than those who purchase IPO shares from the

second group. We argue that highly-reputed underwriters exploit their superior market knowledge to set the offer price below the fair value estimate. This discount is in favor of the investors who reveal positive information. The entrepreneurial voluntary wealth loss is a compotation for underwriter's clients. This result is consistent with that of Derrien (2005), Ljungqvist et al (2006) and Cook et al (2006). From this table, we also find that the high subscription ratio group earns an initial involuntary underpricing of 18.07 %, while, the low subscription ratio group earns an initial involuntary underpricing of -12.27 % which is very lower than it is for the first group. However, the low subscription ratio group earns a total underpricing of 2.16 %. Indeed, the share prices of the low subscription ratio group increase without reaching the fair value estimate. Tunisian investors believe that IPOs with low subscription ratio are overvalued. On the other hand, owners don't suffer from entrepreneurial involuntary wealth loss.

Table 4:  Involuntary Underpricing

|  | N | 1 Day | 1 Week | 2 Week | 3 Week | 4 Week | 5 Week | 6 Week | 7 Week | 8 Week |
|---|---|---|---|---|---|---|---|---|---|---|
| Total market | 33 | 11,63 | 12,51 | 14,25 | 17,49 | 19,43 | 20,45 | 22,32 | 21,23 | 22,52 |
|  |  | (25,36) | (25,14) | (25,89) | (30,01) | (33,63) | (35,74) | (38,06) | (36,95) | (40,30) |
| Principal market | 29 | 10,74 | 11,67 | 13,09 | 16,47 | 17,92 | 18,34 | 20,31 | 19,21 | 20,60 |
|  |  | (22,18) | (22,34) | (22,86) | (28,01) | (32,03) | (34,23) | (37,32) | (36,07) | (40,13) |
| Alternative market | 4 | 18,12 | 18,65 | 22,67 | 24,82 | 30,41 | 35,71 | 36,92 | 35,84 | 36,45 |
|  |  | (46,93) | (45,05) | (46,49) | (46,91) | (48,01) | (48,36) | (46,13) | (45,83) | (44,74) |
| High underwriter | 28 | 12,07 | 13,10 | 15,29 | 18,34 | 20,39 | 20,96 | 22,96 | 20,88 | 23,66 |
| Reputation |  | (25,12) | (24,78) | (25,58) | (31,24) | (36,11) | (37,80) | (40,19) | (38,09) | (42,78) |
| Low underwriter | 5 | 10,47 | 10,95 | 11,47 | 15,19 | 16,87 | 19,07 | 20,62 | 22,15 | 19,47 |
| Reputation |  | (27,49) | (27,56) | (28,06) | (28,06) | (27,65) | (31,62) | (33,84) | (35,91) | (34,95) |
| High | 25 | 18,07 | 19,50 | 21,97 | 26,22 | 29,09 | 30,64 | 32,96 | 31,79 | 34,25 |
| subscription ratio |  | (24,58) | (23,36) | (23,44) | (27,54) | (31,05) | (33,11) | (35,63) | (34,26) | (36,96) |
| Low | 8 | -12,27 | -13,44 | -14,41 | -14,97 | -16,43 | -17,41 | -17,21 | -17,99 | -21,04 |
| subscription ratio |  | (8,18) | (10,01) | (8,27) | (9,03) | (10,49) | (11,19) | (10,97) | (10,67) | (12,63) |

This table reports involuntary underpricing until the eighth. In a first step, the initial involuntary underpricing (1 day) is calculated. It is defined as (Closing−FV) /Offer, where Closing and FV are the first listing day closing price and the fair value, respectively. In a second step, the involuntary underpricing until the eighth week (N week) is calculated. It is defined as (Closing−FV) /FV, where Closing and FV are the N listing week closing price and the fair value, respectively, and N ranges from 1 to 8. The sample is partitioned into many groups on the basis of: the listed market, the sectors (technological and non- technological), the underwriters' reputation (High reputed underwriters and low reputed underwriters) and the investors' demand during the subscription period (High-demand IPOs and Low-demand IPOs).

After studying total underpricing, we examine involuntary underpricing. Table 5 reports the results of the ordinary least squares (OLS). The first regression examines how involuntary underpricing is related to the deliberate price discount (Discount), the investors' demand (SR) and the underwriter reputation (UR). We find that the coefficients on the deliberate price discount level are negative and statistically significant until the eighth week. These coefficients range from -1.1410 for the first listing day to -2.1088 for the eighth week, with t- statistics ranging from -2.4983 to -2.5125. On average, every 1% increase in the deliberate price discount contributes to almost 2% decrease in the involuntary underpricing. However, the coefficients on the deliberate price discount level

increase up to 2.14 at the end of the fifth week of trading. Beyond the sixth week, they decrease.

Table 5: Involuntary Underpricing

| Independent | Dependent variables: Involuntary underpricing | | | | | | | | n=33 |
|---|---|---|---|---|---|---|---|---|---|
| Variables | 1 Day | 1 Week | 2 Week | 3 Week | 4 Week | 5 Week | 6 Week | 7 Week | 8 Week |
| Regression1 | | | | | | | | | |
| Constant | 0.0130 | 0.0290 | 0.0546 | 0.1238 | 0.1346 | 0.1571 | 0.1782 | 0.1745 | 0.1606 |
| | (0.1648) | (0.3717) | (0.7088) | (1.3521) | (1.2490) | (1.3679) | (1.3705) | (1.3390) | (1.1122) |
| Discount | -1.1410** | -1.2285** | -1.5399*** | -2.0465*** | -2.1377*** | -2.2866*** | -2.2509*** | -1.9052** | -2.1088** |
| | (-2.4983) | (-2.7130) | (-3.4426) | (-3.8468) | (-3.4131) | (-3.4258) | (-2.9783) | (-2.5159) | (-2.5125) |
| SR | 0.0194*** | 0.0186*** | 0.0184*** | 0.0181*** | 0.0195*** | 0.0205*** | 0.0195** | 0.0194** | 0.0192** |
| | (4.4195) | (4.2838) | (4.2769) | (3.5394) | (3.2351) | (3.1929) | (2.6894) | (2.6639) | (2.3886) |
| UR | 0.1468* | 0.1564* | 0.1937** | 0.2210** | 0.2347** | 0.2313* | 0.2308* | 0.1706 | 0.2388 |
| | (1.7832) | (1.9157) | (2.4018) | (2.3037) | (2.0784) | (1.9219) | (1.6935) | (1.2497) | (1.5782) |
| $R^2$ | 0.4764 | 0.4765 | 0.5180 | 0.4926 | 0.4401 | 0.4371 | 0.3633 | 0.3221 | 0.2998 |
| Adj $R^2$ | 0.4222 | 0.4222 | 0.5180 | 0.4925 | 0.3822 | 0.3788 | 0.2974 | 0.2519 | 0.2273 |
| Regression 2 | | | | | | | | | |
| Constant | 0.0389 | 0.1178 | 0.0961 | 0.2147 | 0.3935** | 0.4546** | 0.5156** | 0.5087** | 0.5652** |
| | (0.2924) | (0.9209) | (0.7868) | (1.4655) | (2.3311) | (2.5400) | (2.5322) | (2.5109) | (2.5708) |
| Discount | -0.9265* | -1.0170** | -1.2528*** | -1.7476*** | -1.9162*** | -2.0722*** | -2.0195*** | -1.6519** | -1.8308** |
| | (-1.9970) | (-2.2821) | (-2.9448) | (-3.4242) | (-3.2585) | (-3.3234) | (-2.8469) | (-2.3406) | (-2.3905) |
| SR | 0.0167*** | 0.0151*** | 0.0147*** | 0.0136** | 0.0133** | 0.0138** | 0.0121* | 0.0117 | 0.0103 |
| | (3.6566) | (3.4306) | (3.5078) | (2.6965) | (2.2906) | (2.2436) | (1.7266) | (1.6877) | (1.3668) |
| LSR | -0.1623* | -0.1985** | -0.2213*** | -0.2594** | -0.3087*** | -0.3274*** | -0.3633** | -0.3762*** | -0.4359*** |
| | (-1.8611) | (-2.3695) | (-2.7669) | (-2.7037) | (-2.7924) | (-2.7930) | (-2.7239) | (-2.8356) | (-3.0273) |
| UR | 0.1236 | 0.1281 | 0.1620** | 0.1839** | 0.1910* | 0.1850* | 0.1795 | 0.1175 | 0.1773 |
| | (1.5237) | (1.6445) | (2.1783) | (2.0615) | (1.8581) | (1.6975) | (1.4472) | (0.9519) | (1.3239) |
| N | 0.0005 | -0.0007 | 0.0005 | -0.0003 | -0.0036 | -0.0043 | -0.0050 | -0.0048 | -0.0060 |
| | (0.2061) | (-0.3111) | (0.2424) | (-0.1340) | (-1.2866) | (-1.4517) | (-1.4619) | (-1.4251) | (-1.6230) |
| $R^2$ | 0.5382 | 0.5667 | 0.6273 | 0.6009 | 0.5781 | 0.5802 | 0.5206 | 0.4967 | 0.5017 |
| Adj $R^2$ | 0.4527 | 0.4864 | 0.5583 | 0.5270 | 0.5000 | 0.5025 | 0.4319 | 0.4036 | 0.4094 |

This table reports the results of ordinary least squares (OLS). Discount: The deliberate price discount. SR: The subscription ratio of an IPO. LSR: Dummy variable which takes the value of one if the IPO subscription ratio's is less than two, 0 otherwise. UR: Dummy variable which takes the value of one if the underwriter is highly reputed, 0 otherwise. N: The number of days from the subscription period deadline to the listing day. * Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

The coefficients on the subscription ratio are positive and highly statistically significant until the eighth week. They have remained fairly constant and low (0.019). The higher the subscription ratio is; the higher the involuntary entrepreneurial wealth loss will be. This result is consistent with the one in table 4. The coefficients on the underwriter repetition are positive and statistically significant until the sixth week. For example, the positive coefficient indicates that owners who select highly-reputed underwriters have more entrepreneurial involuntary wealth losses with a level above 23% the third week than others who select lower-reputed underwriters.

In the second regression, we incorporate the low subscription ratio (LSR) and the number of days from the subscription period deadline to the listing day (N) as control variables in the first regression. We show that the coefficients on the deliberate price discount level are negative and statistically significant until the eighth week. They follow the same trend as in the first regression. We also show that the coefficients on the subscription ratio are positive and statistically significant until the sixth week. These coefficients range from 0.0167 to 0.0103, with t-statistics ranging from 3.6566 to 1.3668. The coefficients on the low subscription ratio are negative and increasingly statistically significant until the eighth week. These coefficients range from -0.1623 to -0.4359, with t-statistics ranging from -1.8611 to -3.0273. Indeed, the owner whose IPO has a low subscription ratio (below 2) has involuntary wealth loss of -16.23% at the end of the first day of trading, compared to other IPO whose subscription ratio is above 2. This decrease in entrepreneurial involuntary wealth loss reaches 43.59 % at the end of the eighth week. On the other hand, the coefficient on the number of days from the subscription period deadline to the listing day is statistically non-significant.

**Conclusion**

In this paper, we examine total IPO underpricing (IPO returns) and involuntary underpricing. We define involuntary underpricing as the difference between the closing price and the fair value estimate, divided by the fair value estimate. It is an entrepreneurial involuntary wealth loss in IPOs. In the first step, we examine how the IPO returns are related to the deliberate price discount as entrepreneurial voluntary wealth loss, the investors' demand, the underwriter reputation and the number of days from the subscription period deadline to the listing day. We find that signaling through the deliberate price discount isn't credible for Tunisian investors. This result is inconsistent with the empirical implications of Baron (1982), Rock (1986), the signaling theory, the empirical results of Roosenboom (2012) and Kanoun and Taktak (2013), but consistent with those of Ben Slama et al (2011). We also find that the investors' demand during the subscription period is an indicator of the investors' expectations of the IPO price level. The relation between the investors' demand and the IPO returns is a form of the partial adjustment phenomenon (Hanley, 1993; Loughran and Ritter, 2002 and Lowry and Schwert, 2004). Tunisian investors believe that IPOs with low subscription ratio are overvalued. Therefore, they penalize IPO firms with low subscription ratio by a massive selling after listing. This result is consistent with the prediction of Welch (1992). When studying the relationship between underwriter reputation and the IPO returns, we show that the former is positively related to the latter. This result is inconsistent with Carter and Manaster (1990) and the predictions of the entrepreneurial losses model (Habib and Ljungqvist, 2001), but consistent with the changing objective function model (Loughran and Ritter, 2004). The large degree of high IPO returns can also be explained by the underwriter price support hypothesis' (Rudd, 1993). Highly reputed underwriters support their IPO during the first four weeks more than low reputed underwriters. Tunisian underwriters support the IPO prices by executing the contract of liquidity.

In the second step, we examine how involuntary underpricing as entrepreneurial involuntary wealth loss is related to the deliberate price discount as entrepreneurial voluntary wealth loss, the investors' demand, the underwriter reputation and the number of days from the subsciption period deadline to the listing day. We find that voluntary and involuntary underpricing are negatively related. We also find that entrepreneurial voluntary wealth loss is a compotation for the underwriter's clients. We also find that investors'

demand during the subscription period is an important determinant of entrepreneurial involuntary wealth loss. The share prices of the firms which have a subscription ratio lower than 2 increase without reaching their fair value estimate. We also find that the owners who choose highly reputed underwriters suffer from little more entrepreneurial involuntary wealth loss than those who choose low reputed underwriters.

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