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Finance Working Paper N°. 102/2005
November 2005

Peter-Paul Angenendt

Marc Goergen
University of Sheffield and ECGI

Luc Renneboog
Tilburg University and ECGI

ECGI Working Paper Series in Finance

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Acknowledgements: The authors would like to thank Wissam Abdallah and Marie-Thérèse Camilleri-Gilson for excellent research assistance. We are grateful for valuable comments from Anne Högberg Janisch, Marianne Kaefer, Arif Khurshed, Jacob Obrecht and Paul Oranjeboom. Angenendt and Goergen acknowledge financial support from the European Commission Key Action "Improving the socio-economic knowledge base" through contract no. HPSE-CT-2002-00146. Renneboog acknowledges support from the European Commission via the 'New Modes of Governance'-project (NEWGOV) led by the European University Institute in Florence; contract nr. CIT1-CT-2004-506392 and funding from the Netherlands Organization for Scientific Research in the program of Shifts in Governance.

Abstract

This paper unveils the diversity in lock-in agreements of firms listed on the Nouveau Marché stock exchange in France. We give the main economic reasons why shareholders adopt lock-in agreements that are more stringent than legally required. We relate the abnormal returns and the abnormal volume at the expiry dates of the different types of lock-in contracts to the degree of underpricing, venture-capitalist reputation and underwriter reputation. Abnormal returns and trading volume increase at the lock-in expiry; this is especially pronounced at the expiry dates of insider lock-in contracts as insiders are legally required to be locked-in. We do not find significant abnormal returns at the expiries of VC contracts, even though trading volume increases at their lock-in expiry. There is also no evidence of a positive (negative) relation between abnormal returns (abnormal volume) and more stringent lock-in contracts. Lock-in contracts and the degree of underpricing are complementary signaling devices.

Keywords: Lock-in Agreements, Nouveau Marché, Abnormal Returns and Volumes

JEL Classifications: G30, G34, G38

Peter-Paul Angenendt
Lange Poten 21A
2511 CM The Hague
The Netherlands
phone: +31 70 4277203, fax: +31 412 648031
e-mail: ppangenendt@gmx.net

Marc Goergen
The University of Sheffield Management School
9 Mappin Street
Sheffield, S1 4DT, S1 4DT
United Kingdom
phone: +44 114 222 3488, fax:+44 114 222 3348
e-mail: m.goergen@shef.ac.uk

Luc Renneboog*
Tilburg University
Department of Finance and CentER for Economic Research
P.O. Box 90153
Warandelaan 2
5000 LE Tilburg
The Netherlands
phone: +31-13-4668210 , fax: +31-13-4662875
e-mail: Luc.Renneboog@uvt.nl

*Corresponding Author

1 Introduction.

During the late 1990s, many Western European countries saw the emergence of stock market segments attracting high-growth and high-technology firms. Their initial success was followed by a painful downfall in 2000 from which they are still to recover. Several markets were even closed down or restructured (see Goergen et al. 2002). In this paper, we focus on initial public offerings (IPOs) on the French *Nouveau Marché*. A firm that wishes to go public seeks one or more investment banks to act as its underwriter(s). The responsibilities of the underwriter are to sell the shares to the public, to take up any unwanted shares and to take care of the legalities of the deal. There is usually asymmetric information between the existing shareholders, the underwriter and the public. To reduce such asymmetric information, lock-in contracts can be used.[1] Such agreements are arrangements between the existing shareholders of the issuing firm and the lead underwriter or stock exchange, whereby the shareholders agree not to sell a certain percentage of their shares for a specified period after the IPO (Espenlaub et al. 2001: 1235). The duration of the lock-in agreement and the percentage of shares locked-in may signal the commitment of the pre-IPO shareholders who hold on to (part of) their shares at the IPO. In practice, the company and the underwriter may exempt certain shareholders (usually only the shareholders holding small stakes) from the lock-ins while enforcing more stringent lock-ins upon the other insiders and new shareholders. Further, some stock markets, such as the French *Nouveau Marché*, make the use of lock-in contracts obligatory. Conversely, the main stock market segments in the UK and US do not have any such requirements, such that all existing lock-in agreements on these markets are voluntary arrangements.

The *Nouveau Marché* was a segment of the French stock market, specializing in high-growth and high-tech companies. Since these firms are characterized by high uncertainty *La Bourse de Paris* decided to impose lock-in agreements on the firms' insiders. Until 1 December 1998, the *Nouveau Marché* required all IPO firms to lock in their insiders with 80% of their shareholdings for 3 years. The precise definition of insiders was determined on a company-by-company basis when the firm filed its IPO prospectus. Usually, the insiders were defined as the founders and the executives. With effect of 1 December 1998, *La Bourse de Paris* introduced new lock-in rules for the *Nouveau Marché* (*Instruction NM3-02*). From this date, firms planning to go public on the *Nouveau Marché* had two options. They could either lock in their insiders with 80% of their holdings for 1 year or lock in their entire holdings for 6 months. Figure 1 reproduces the lock-in agreement for *Qualiflow SA*, which went public on 10 October 2000. The first paragraph of the agreement states that the company's executives – the founder is one of them – have chosen a stricter lock-in agreement than the minimum requirement. The second paragraph of the agreement shows that the other shareholders are voluntarily locked-in.

[Figure 1 about here]

[1] In American English, they are called lock-up agreements and in French *engagements de conservation*.

New minimum lock-in requirements came into force on 15 September 2003. Since then, only the managing directors, and not all the insiders, have had to lock in their entire holding for 1 year. Additionally, shares bought by any shareholder during the year preceding the admission to a flotation also had to be locked in for 1 year. Unfortunately, the impact of this change cannot be investigated, as there were no IPOs from the day the new regulation came into force until the market's closure in February 2005.

The literature on lock-in agreements used to be restricted to studies on US IPOs, most of which document significant abnormal negative returns around the expiry of lock-ins. Recently however, studies on the expiries of lock-in agreements have been conducted for UK, German and Italian IPOs. So far, the number of French studies is limited to two. Ducros (2001) explains how French firms choose between two alternative lock-in requirements for a small sample of IPOs on the *Second Marché* and the *Nouveau Marché*. Similarly, Goergen et al. (2005) focus on the reasons explaining the differences in the lock-in characteristics across IPOs on the *Neuer Markt* and the *Nouveau Marché*. This paper is the first to conduct an event study on the population of *Nouveau Marché* IPOs. The high degree of variability in the lock-in characteristics and the fact that the *Nouveau Marché* had mandatory lock-in agreements for insiders, which changed after a few years, has created a particularly rich dataset. Further, US studies have found higher negative abnormal returns and larger increases in trading volume for venture-capital backed firms. Unlike US studies, the nature of our data makes it possible to identify specific shareholder types, including venture capitalists (VCs), and their lock-in characteristics.

Section 2 gives an overview of the market environment and institutional setting on the *Nouveau Marché* and compares it to those of other European growth markets. Section 3 reviews the existing literature on lock-in agreements and states the hypotheses. Section 4 describes the sample and the variables. The methodology is explained in Section 5, while Section 6 discusses the results and Section 7 concludes.

2 Market environment and institutional setting.

This section starts by describing the emergence of the *Nouveau Marché* and similar markets during the previous decade. It then reviews the institutional setting of the *Nouveau Marché* with a focus on lock-in requirements. Finally, venture capital financing and corporate governance in France are discussed.

2.1 European growth markets.

The access to capital for young European firms with high growth opportunities has been limited compared to their US counterparts. On 1 March 1996, the stock exchanges of Brussels and Paris formed *Euro.NM*, which stands for the *European New Market*. Its ambition was to become the pan-European stock market for growth companies, similar to what NASDAQ is in the US. Over the years, three additional stock markets (located in Amsterdam, Frankfurt and Milan) joined the *Euro.NM*.

France was the first continental European country to introduce a growth segment, the *Nouveau Marché*, which opened on 14 February 1996. The first company that obtained a listing was *Infonie SA*, which had its IPO on 20 March 1996. In total, 177 companies (166 domestic and 11 foreign companies) were listed. Even

though new regulation was introduced in September 2003 (see the Appendix), there have been no new listings since March 2002.[2] The *Nouveau Marché* became part of *Euronext Paris* in September 2000 and was dissolved in February 2005. The 128 remaining companies were transferred to the newly created *Eurolist Small Caps*, *Eurolist Mid Caps* or *Eurolist Large Caps*, according to their size. The *Nouveau Marché* index was calculated until 30 June 2005.

The *Euro.NM* markets in the Netherlands, Belgium and Italy were less successful in attracting new listings. Conversely, on Germany's *Neuer Markt* a total of 345 listings (275 domestic and 70 foreign companies) were introduced. On 1 January 2003, *Deutsche Börse* restructured its segments; the *Neuer Markt* ceased to exist and its companies were transferred to other segments.

All five *Euro.NM* markets had their own performance and price indices. On 16 January 1998, they were combined into the Euro.NM index, which was computed until 1 January 2001 when the *Euro.NM* group fell apart. The markets themselves prefer to state that the collapse was caused by the emergence of *Euronext* in September 2000. Goergen et al. (2002), however, claim that the inability to harmonize five sets of listing rules, the involvement of five different national regulators and inefficient cross-border trading led to the dissolution of the *Euro.NM* markets (see also Bottazzi and Da Rin 2002).

Most other European countries also set up growth markets, but with mixed success. The *Alternative Investment Market (AIM)*, which was introduced in the UK in June 1995, attracted the most listings. Another growth market is the electronic stock market *EASDAQ* (*European Association of Securities Dealers Automated Quotation*), which was set up in October 1996 by more than 60 European and American financial institutions, as well as NASDAQ (Manigart and De Maeseneire 2000). Based in Brussels, it was the first pan-European stock market offering international growth companies and investors seamless cross-border trading, clearing and settlement within a unified market infrastructure. In 2001, NASDAQ became its majority shareholder and EASDAQ was hence renamed *NASDAQ Europe*. However, the slump in demand for technology stocks took its toll and led to the market's closure in November 2003. The London Stock Exchange tried to convince 30 of the remaining companies to transfer to London. Nevertheless, most of the firms decided to be listed on one of the national segments of Euronext in order to offer their investors a more liquid trading platform. The downfall of NASDAQ Europe is said to be caused by lack of liquidity; the bid-ask spread was often more than 10%.

Table 1 reports the numbers of new listings on the new and the main stock markets between 1996 and 2003. It is remarkable that the number of new listings on the five *Euro.NM* markets exceeded that on the main markets. However, even combined, the number of European listings still is substantially lagging that of NASDAQ.

[Table 1 about here]

[2] The IPO of *IDM SA*, which was scheduled for 16 June 2004, was postponed indefinitely.

2.2 Lock-in requirements.

Table 2 shows the different lock-in requirements on several European and US stock markets, including the *Euro.NM* markets. The main market segments in the US, the UK and continental Europe do no require any lock-ins. However, all the growth markets impose lock-in contracts. The main reason for this is that young and high-growth firms face much larger information asymmetries (Goergen et al. 2002).

[Table 2 about here]

Empirical studies show that the vast majority of firms have lock-in agreements even in countries where they are not compulsory, such as the US (Mohan and Chen 2001) and the UK (Espenlaub et al. 2001). Further, firms which go public on stock markets with minimum lock-in requirements often choose longer periods than those required. Goergen et al. (2005) find that 57% of the lock-in contracts of 268 German firms that went public on the *Neuer Markt* between 1997 and 2000 chose lock-in periods longer than the required minimum of 6 months. Companies about to be listed on the *Nouveau Marché* have to publish their lock-in agreements in the IPO prospectus. Therefore, the dates at which the different pre-IPO shareholders are released from their lock-in agreements are known by the public prior to the IPO.

2.3 Venture capital financing.

Gompers and Lerner (1999) argue that in order to have a well-functioning stock market one needs a well-developed venture capital sector. Contrary to Europe, the US and the UK have a relatively long history of venture-capital financing. However, Megginson (2004) states that venture-capital funding has rapidly increased in most continental European and some Asian countries since 1997. Figure 2 shows that, during the stock market peak of the late 1990s the US outpaced Europe, whereas since 2002 investments by the European VC industry exceed those by its US counterpart. However, there are still marked differences in terms of the development of the venture capital sector across Europe. In 2004, the VC investments in the UK alone accounted for 26% of the total European VC investments, while France, Germany and the Netherlands accounted for 17%, 14% and 9%, respectively.[3] Goergen et al. (2005) find that a higher proportion of *Nouveau Marché* IPOs than *Neuer Markt* IPOs are venture-capital backed. VCs in France are also more frequently represented on the boards of the firms they invest in.

[Figure 2 about here]

National venture-capital associations exist in North America, Europe and certain Asian and South-American countries. There are currently 35 such associations. The French Private Equity Association (*Association*

[3] www.evca.com

Française des Investisseurs en Capital (*AFIC)*) has been active since 1984 and had 212 members at the time of writing this paper.

2.4 Corporate governance in France.

Companies aspiring a listing on the *Nouveau Marché* have to be public limited firms (*sociétés anonymes (SA)*) as defined by the 1966 French Business Law. Kremp and Sevestre (2001) state that the law gives companies a choice between a one-tier board and a two-tier board structure. The one-tier board consists of the board of directors (*Conseil d'Administration*), which is appointed by the annual general meeting of shareholders. The board of directors appoints a chairman/CEO (*président directeur général (PDG)*), who is responsible for the daily operations of the company. The two-tier board consists of a supervisory board (*conseil de surveillance*) and a management board (*directoire*). The annual general meeting appoints the members of the supervisory board, which in turn appoints the members of the management board including its chairman. The management board is responsible for the daily operations of the company. Its members have stricter reporting obligations than the chairman/CEO of the one-tier board. Kremp and Sevestre (2001) find that 75% of the French blue-chip companies forming the CAC40 index have a one-tier board. The Vienot II Report states that less than 3% of all corporate firms in France chose the two-board system.

Corporate governance in France has gone through several major changes in recent years. The Vienot I Report (1995), the Vienot II Report (1999) and the Bouton Report (2002) all give recommendations about changes in corporate governance regulation in France. After the European Commission's recommendation that all EU Member States should design a code of reference concerning corporate governance, the French Association of Private Companies (*Association Française des Entreprises Privées* (AFEP)) and the French Employers' Association (*Mouvement des Entreprises de France* (MEDEF)) published 'The Corporate Governance of Listed Corporations'[4] in October 2003. This report combines the Vienot and Bouton reports and has become the benchmark for corporate governance in France. The report allows the separation of the offices of chairman and CEO for firms that have chosen a one-tier board. In case the board of directors opts for this separation, the company's rules of operation need to define clearly the tasks of both posts. The CEO is then referred to as the *directeur général exécutif*. Other propositions from the report refer to the maximum reporting delays of company results. Semi-annual results are to be reported no later than two and a half months after the end of the first half of the financial year. Provisional annual results have to be published within a month after the close of the financial year, while the final results should be disclosed within three months after the close. Furthermore, the annual report of all listed companies has to disclose the company's compensation policies (including any stock option and stock purchase schemes), the aggregate amount of compensation for all the corporate officers and the individual attendance fees paid to the non-executive directors. Disclosure obligations for companies listed on the *Nouveau Marché* were increased along with the introduction of stricter disclosure requirements in September 2003 (see the Appendix).

[4] In French, *'Le gouvernement d'entreprise des sociétés cotées'*.

Another interesting aspect of French corporate governance is that ownership and control are not always identical (see Goergen et al. 2005). French law allows the use of a clause in a firm's articles of association such that the long-term shareholders are attributed double voting rights. The company is given discretion to decide how long the holding period ought to be before shareholders qualify to obtain double voting rights. Subsequently, the period can only be changed at the annual general meeting. Wymeersch (1994) states that these structures are set up for reasons of control leverage. The control structure and a change therein can have a substantial impact on company performance as shown by Dherment and Renneboog (2002).

3 Reasons for the price effect at the expiry of lock-in agreements.

Lock-in agreements and the effect of their expiries on stock prices have only recently been examined. Table 3 summarizes the results from such event studies. Most studies on the US, Germany and Italy report significantly negative abnormal returns and increased trading volume. In contrast, Espenlaub et al. (2001) report insignificant abnormal returns for the UK.

[Table 3 about here]

3.1 Fundamental reasons.

Leland and Pyle (1977) argue that if managers are risk averse, they will want to diversify their portfolios. Hence, it is expected that insiders sell part of their stakes as soon as they are released from the lock-in. According to Ofek and Richardson (2000), this so-called *diversification hypothesis* is the main reason for insiders to sell part of their stakes at the lock-in expiry. Gompers and Lerner (1999) add that VCs have similar incentives. Although they often use IPOs as an exit route, they frequently retain part of their holdings at the IPO and therefore have to wait until the lock-in period has expired to sell the remainder of their shares.

The diversification hypothesis in isolation does not explain all the abnormal returns around the lock-in expiry. As long as the demand curves for shares are horizontal, different levels of supply do not influence the share price. Field and Hanka (2001) suggest that, just like markets for most products, stocks have downward sloping demand curves. They call this concept the *demand curve hypothesis*. Especially those firms facing high uncertainty and asymmetric information are likely to have downward sloping demand curves for their shares. A supply shock shifts the equilibrium to a point where a higher quantity of shares are sold at a lower price. Field and Hanka (2001) also study the signalling effect of insider sales. If insiders sell more shares at the lock-in expiry than the market has anticipated, the market interprets this as a lack of insider confidence in the firm.

The combination of the above reasons explains the negative abnormal returns and increased trading volume after the lock-in expiry. In addition, there are two reasons why negative share price reactions may already occur prior to the lock-in expiry. First, the *anticipation theory* states that, if abnormal returns are likely to occur after the lock-in expiry, outside investors have an incentive to sell their shares already before the

expiry in order to pre-empt the price pressure created by insiders' sales. In the presence of downward sloping demand curves, share prices will be lower and trading volume will be higher. However, Ofek and Richardson (2000) discard this argument as being weak, as this effect should then already be incorporated on the first trading day. Their argument is based on the semi-strong form of the *efficient market hypothesis* (EMH) which states that all public information about the firm is already reflected in its share price.

Hypothesis 1: *At the lock-in expiry, there are negative abnormal returns and trading volume is higher.*

3.2 The impact of shareholder types and of the control structure.

Given that shareholders' expectations about the firm's prospects vary, we expect the trading around the lock-in expiry to depend upon the type of large shareholders.

3.2.1 Insiders.

Lock-in agreements protect outside investors from being exploited by insiders trading on private information. By the time the lock-in agreement has expired, the information asymmetry may already be less pronounced such that it will be more difficult for insiders to expropriate outside investors.

Until 15 September 2003, the *Nouveau Marché* imposed lock-ins on the shares held by all the insiders of a firm. Even though the regulator did not define the term insiders and left the definition to each individual firm, executives (top managers) and founders are virtually always considered insiders and subject to lock-in contracts. Hence, this is also the definition of insiders we adopt. The executives are most likely to have superior knowledge about the quality of the firm, as they are in charge of the firm's daily operations. If the founders are still involved in running the firm, they too are likely to have superior knowledge. Insider sales may increase agency problems, which may have a negative impact on firm value.

Hypothesis 2: *At the expiry of insider lock-ins, the abnormal returns are more negative and trading volume is higher.*

3.2.2 Venture capitalists.

Field and Hanka (2001) find that VCs sell a significantly larger percentage of their shareholdings during the first year after the IPO than other pre-IPO shareholders. Therefore, it is likely that companies with venture-capital backing show larger negative abnormal returns and larger increases in trading volume around the expiry.

Hypothesis 3: *At the expiry of VC lock-ins, the abnormal returns are more negative and trading volume is higher.*

3.3 The choice of lock-in contracts and the signalling of shareholder commitment.

The signals of shareholder commitment (and hence firm quality) that may have an impact on the price effect at the lock-in expiry are the length of the lock-in period, the percentage of shares locked-in, the degree of underpricing, the underwriter's reputation and VC certification.

3.3.1 The length of the lock-in period and the percentage of shares locked-in.

Courteau (1995) argues that insiders can signal their firm's superior quality via the duration of the lock-in period and the percentage of shares locked-in. The signal is credible as it is costly for the insiders of low-quality firms to be locked in for longer periods, as the share price may decrease to its true value when more information about the firm becomes available.[5]

Hypothesis 4a: *Abnormal returns at the lock-in expiry are less negative and trading volume is lower if the lock-in period is longer.*

Hypothesis 4b: *Abnormal returns at the lock-in expiry are less negative and trading volume is lower if a higher percentage of shares are locked-in.*

3.3.2 Underpricing.

Firms can also underprice to signal their quality. In a separating equilibrium, a high quality firm will underprice more, lock in for a longer period, or lock in a larger percentage of the shares outstanding. As such, these devices may be substitute signals. Underpricing is costly as it consists in selling the firm's shares below their real value such that underpricing constitutes a credible signal. If a firm does not want to lock in its shareholders for a longer period, it needs to underprice more to signal quality.

Hypothesis 5: *Firms with large underpricing at the flotation experience less negative abnormal returns and lower trading volume at the lock-in expiry.*

3.3.3 Underwriter reputation.

The most reputable underwriters may not risk bringing a low-quality firm to the market. Underwriters may provide price support at the expiry of the lock-in agreements of other types of shareholders and may avoid price pressure at their own expiry to avoid price declines. Therefore, firms with reputable underwriters are

[5] Our data show that there was no signalling via the length of the lock-in period prior to 1 December 1998 as all IPOs prior to that date choose not to exceed the minimum lock-in requirement of 3 years. However, in some companies, the percentages of shares locked-in exceeded the minimum requirement over the entire lock-in period.

less likely to show negative abnormal returns nor increased trading volume during the days around the expiry of the lock-in agreement.

Hypothesis 6: *Firms with reputable underwrites have less negative abnormal returns and less trading volume at the lock-in expiry.*

3.3.4 Venture-capitalist reputation.

As is the case with underwriters, VCs may also certify firm quality. They do not only provide the necessary capital but their presence also signals the firm's quality as VCs usually also monitor the firm closely and are involved in the firm's major (investment) decisions (Barry 1994, Jain and Kini 2000).

Hypothesis 7: *Firms with VC-backing experience less negative abnormal returns and less trading volume at the lock-in expiry.*

4 Data Description.

4.1 Number of IPOs and distribution across sectors.

On the *Nouveau Marché*, 177 firms went public since the stock exchange's launch on 20 March 1996 and its closure in February 2005. Thirty firms are excluded for at least one of the following reasons. Companies of foreign origin are excluded as they may be subject to different corporate regulations and different accounting standards. We also exclude seasoned equity offerings, rights issues and firms operating in the financial sector. This reduces our sample to 147 firms.

Figure 3 shows the number of IPOs in each quarter. There was a slow but steady rise in the number of new listings during the first five years. However, after the burst of the so-called Internet bubble during spring 2000, the number of new listings per quarter dropped steeply, with only two new listings since September 2001.

[Figure 3 about here]

Table 4 shows the distribution of the IPOs across SIC industrial sectors. The vast majority of the IPOs are from the service sector, followed by slightly less than a quarter from the manufacturing sector. The majority of the service-oriented firms offer software packages or other computer-related services. Nearly half of the manufacturing firms produce either electrical equipment or measurement instruments.

[Table 4 about here]

4.2 Ownership, control and issue size.

Based on the information collected from the IPO prospectuses, the shareholders of each firm are classified as insiders and outsiders. As mentioned above, we define insiders (as does the *Nouveau Marché*) as executives and founders. For the firms with a two-tier board, the distinction between executives and non-executives is straightforward. The members of the management board are executive directors, whereas those of the supervisory board are non-executive directors. For companies with a one-tier board, executive directors are members of the *Conseil d'Administration* who exert a management function in the firm. The remaining members of the board of directors are the non-executive directors. Shareholders are classified as VCs if they are a member of at least one national venture capitalist association. Banks that hold shares in the firm and are part of the underwriter syndicate of that particular firm are identified as underwriters. Others include all shareholders who do not fit in any of the above categories. This category includes primarily minority stakeholders such as business partners and employees.

Table 5 shows the percentage of ownership and control by category of shareholder before and after the IPO. Insiders hold on average 65% of the control rights and 64% of the cash flow rights immediately prior to the IPO. Immediately after the IPO, their control rights and cash flow rights are reduced to 51% and 47%, respectively. As mentioned above, ownership and control are different from each other as many firms (in fact, 75%) have a clause in their articles of association granting double votes to shareholders who hold on to their shares for a long time (which is at the discretion of the firm but is frequently 2 years and can extend to 4 years) and have registered their ownership with the firm.

More than 80% (118) of the firms in the sample have at least one shareholder who is both an executive and founder.[6] The second most important class of shareholders consists of the non-executive directors who hold shares in 67% (99) of the companies after the IPO. VCs hold on average about 16% of the equity. In total, 59% (86) of the firms in the sample were backed by 72 different VCs.

[Table 5 about here]

Table 6 shows that the firms differ in terms of the percentages of primary and secondary shares offered at the IPO. Some companies offer merely 10% of their shares for sale, whereas others double the shares outstanding by large primary issues. This suggests that some companies are mainly interested in being listed, whereas the main interest of other firms is attracting additional capital to finance investment opportunities. The mean percentage of primary shares is substantially larger than that of secondary shares.[7] This is congruent with the fact that most of the sample firms belong to a growth segment.

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[6] Just over 24% of the firms in the sample have at least one shareholder who is both a non-executive and founder (not reported in the table).

[7] Nine firms (6%) do not comply with the listing requirement that at least 50% of total shares offered in the IPO should be primary shares.

[Table 6 about here]

4.3 Over-allotment options.

Nearly 48% of the IPOs provide their underwriter with an over-allotment option, often also called a Greenshoe option. The option gives the underwriter the right to offer additional shares to the market in case of high demand. These additional shares can be primary or secondary shares, or a mix of both types. In only 46% of the cases with an over-allotment option, was this option actually exercised. These figures are rather low compared to those for the *Neuer Markt* where 89% of the IPOs had an over-allotment option, and more than 81% of these were at least partially exercised (see also Goergen et al. 2005).

4.4 Lock-in contracts.

As nearly half of the 147 firms in the sample had two or more lock-in agreements in place, the total number of lock-in contracts (252) exceeds the number of companies. Twenty-one per cent of our sample firms locked in all the old shareholders who retained shares at the IPO. Six companies even locked in some of the new shareholders. Table 7 shows the different types and frequencies of lock-in agreements for the sample. Panel A shows the contracts that lock in 100% of the shares of a specific type of shareholder (e.g. 6 months for 100%). Panel B reports the statistics for the agreements locking in only part of the shares held by a shareholder (e.g. 12 months for 80%), while Panel C concentrates on staggered agreements. These are contracts that lock in part or all of the shares of a specific shareholder type for an initial period, followed by one or more periods during which a lower percentage of his shares remains locked-in. Panel D shows some special cases.

The influence of lock-in regulation is reflected in the frequency of the type of contracts used (the legally determined minimum contracts are put in bold). Panel A shows that the most frequently chosen lock-in agreement for IPOs before 1 December 1998 is 36 months with 80% of the shares locked in, which was the minimum requirement at that time. From 1 December 1998 onwards, companies were given the choice between two legal minima: 12 months with 80% of the shares locked-in and 6 months with 100%. The two requirements together cover 61% of the lock-in contracts for insiders. Importantly, a substantial number of contracts deviates from the minimum requirements.

[Table 7 about here]

Table 8 shows the average percentage of shares locked in for each shareholder category.[8] More than 80% of the insiders' shares are locked in which reflects the stock exchange's regulation. Only two companies

[8] The means and medians for a specific shareholder category are calculated using all the firms in which that category of shareholder holds share stakes.

exempt their insiders from a lock-in as they only retain a tiny share stake. Further, non-executive directors, VCs and underwriters have voluntary locked in large percentages of their equity. Out of all the shares held by the old shareholders after the IPO, more than 77% are locked in. While this seems a high proportion, it is lower than the 95% found by Field and Hanka (2001) and the 93% found by Brau et al. (2004) for US IPO firms. Table 8 also reports that, 56% of all the shares outstanding are locked in after the IPO.

[Table 8 about here]

4.5 Timing of lock-in expiries.

For the US, Ofek and Richardson (2003) find that an unprecedented number of shares were unlocked during the months leading up to the crash on NASDAQ in March 2000. They argue that there is a causal relationship between the number of lock-in expiries around the time of the crash and the market crash itself. As the *Nouveau Marché* index has experienced an even more extreme rise and fall, it is interesting to examine whether there is a similar correlation. Figure 4 depicts the quarterly number of lock-in expiries and the evolution of the *Nouveau Marché* index.

[Figures 4 and 5 about here]

The number of lock-in expiries was highest during the last quarter of 2000 and in 2001. The peaks in the number of expiries are accompanied by a substantial drop in the *Nouveau Marché* index. Unlike Ofek and Richardson (2003) for the US, most of the lock-in expiries in France take place at least half a year after the market crash. Therefore, the increasing number of lock-in expiries has worsened the strong downward movement of the *Nouveau Marché* in 2000 and 2001 but has not caused it. Figure 5 depicts that the sudden increase in the number of lock-in expiries in 2001 is largely the result of the reduction in the duration of the minimum lock-in requirement following the regulatory change of 1 December 1998.

4.6 Pricing of IPOs.

Except for *Datatronic SA*, all French IPOs went public via the book-building method. This procedure consists of three stages. During the first stage, the underwriter approaches institutional investors in order to determine a price range. In the second stage, the actual book-building stage, investors are asked to apply for shares by stating a price within the price range and a quantity of shares. Finally, the underwriter determines a strike price using the book. Any investor who bid for shares at a price equal to or exceeding the strike price will be allocated shares.[9] Underpricing is the percentage difference between the closing price on the first day of trading and the offer price. Table 9 shows that first-day underpricing is around 21% and ranges from -27%

[9] For a detailed account of the book-building process: see Cornelli and Goldstein (2001, 2003).

to 241%. Underpricing is slightly higher (by about 25%) if the closing price at the end of the first week rather than the first of trading is used.

[Table 9 about here]

4.7 Underwriter reputation.

Underwriter reputation is based on the percentage of total market capitalization brought to the *Nouveau Marché* by each lead underwriter during the entire period 1996-2002. Underwriter reputation is given in Table 10: in terms of turnover, the most important underwriter was Crédit Lyonnais, followed by BNP Paribas, FleetBoston and Société Générale. More than two thirds of the firms (99) had more than one underwriter. On average, the 147 firms in our sample chose 2 underwriters with a maximum of 8 underwriters per firm.

[Table 10 about here]

4.8 Venture capitalist reputation and influence.

Our first measure of VC reputation hinges on the number of national venture-capital associations a VC is registered with as a member. We also distinguish between domestic VCs, i.e those recognized by AFIC only, and international VCs who are recognized by at least one foreign VC association. In addition, we distinguish between VCs who are recognized by the US or UK venture-capital associations and those who are not. As the VC industry has been established for a longer time in the UK and US, VCs from these two countries may be more experienced than VCs from other countries. Further, monitoring by a VC may be more efficient if the VC holds a seat on the firm's board of directors. We use several measures to capture VC influence: we record (i) whether or not VCs have a representative on the board of directors (dummy variable), and (ii) whether VCs have large board influence (they hold more than a quarter of the board seats) or little influence (they hold less than 25% of the seats).

4.9 Board structure.

Twelve percent of the IPOs have a two-tier board at the time of IPO. Compared to Kremp and Sevestre (2001) who find that 25% of the French blue-chip companies in the CAC40 index have a two-tier board, this percentage is low. However, the percentage is much more substantial than that reported by the Vienot II Report which states that less than 3% of all firms in France have a two-tier board.

4.10 Other variables.

Uncertainty is proxied by using the firm's age, its size, the ratio of intangibles over total fixed assets and the share price volatility. Age is calculated as the number of days between the date when the company was

formed as a private limited company, a SARL (*Société à Responsabilité Limitée*), and the date of the IPO. Age ranges from less than 1 to more than 80 years with an average of 11 years. Goergen et al. (2005) report that the average age of IPOs on the *Neuer Markt* is about 13 years.[10]

Size is measured as the market capitalization at the offer price. The mean size is € 80 million, while the median firm is worth € 46 million. We also use the first-day market capitalization as an alternative measure for size. Information on the value of intangibles and fixed assets is taken from Thomson Analytics. Due to limited data availability, the ratio of intangibles over fixed assets can only be calculated for 86 companies and averages around 49%. The mean daily share price volatility is calculated using the share prices during the 180-day period between the IPO and expiry, ending 30 days before the expiry date. The volatility on a daily basis is high (1.4%). As the NASDAQ index reached its peak at 5049 points on 10 March 2000, this date is frequently taken as the date at which the Internet bubble burst. The *Nouveau Marché* index also reached its all-time high (7481 points) on 10 March 2000. We include a dummy into the regressions which is set to one for IPOs floated after this date.

4.11 Data sources.

The data on the characteristics of the lockin contracts, ownership and control, and age are taken from the IPO prospectuses of the firms. We have set up a unique database covering the prospectuses of all the firms that have gone public on the *Nouveau Marché* since its inception. The prospectuses were obtained from the firms themselves, from Thomson One Banker, and from the French stock exchange. The database contains detailed data on the ownership and control of each shareholder immediately before and after the IPO as well as information on the lockin contract the shareholder is subject to, if any. Accounting data, share prices and SIC codes were also obtained from Thomson One Banker. The returns and daily trading volume (in value) is obtained from Datastream.

5 Methodology.

Abnormal returns are calculated for windows of different lengths. All windows lie within the period of 30 days before the day of the expiry (day 0) and 30 days after that day. To avoid contamination, expiries lying within 61 trading days following an earlier expiry are excluded, which results in a sample of 235 expiries. We use the market model to calculate the abnormal returns. We take the period of 210 to 31 trading days before the event day and the MSCI France index as the proxy for the market portfolio. The adjusted share prices and index values were obtained from Datastream.[11] In order to adjust for thin trading, we adopt the

[10] We also recorded the date when each firm changed its legal form from a private limited firm to public limited firm (*Société Anonyme*). For most firms this date was only a few months before the IPO.

[11] Where fewer than 180 daily returns are available, the estimation window can start as early as 110 days before the event day. The exception is *Prosodie SA*, whose α and β parameters were estimated using only 30

Dimson (1979) approach and correct for regression to the mean. [12] Cumulative abnormal returns (CARs) and cumulative average abnormal returns (CAAR) are calculated as follows:

$$CAAR_{t_1,t_2} = \frac{1}{N}\sum_{i=1}^{N} CAR_{i,t_1,t_2} = \frac{1}{N}\sum_{i=1}^{N}\sum_{t=t_1}^{t_2} AR_{i,t} = \frac{1}{N}\sum_{i=1}^{N}\sum_{t=t_1}^{t_2}\left(R_{i,t} - (a_i + b_i^{DB} R_{m,t})\right) \qquad (1)$$

We use the CARs for the window [-5,5] as the dependent variable in the regressions.

To test the null hypothesis that the CAARs are equal to zero for a sample of N securities, the following test statistic is calculated:

$$t_{CAAR} = \frac{\frac{1}{N}\sum_{i=1}^{N} CAR_i}{s(CAR)/\sqrt{N}} \qquad (2)$$

where the numerator is the CAAR and s(CAR) is the standard deviation of the sample's CARs. The t_{CAAR} test statistic is based on Barber and Lyon (1997). It is Student-t distributed with N-1 degrees of freedom, which approaches the normal distribution as N increases.

Daily abnormal trading volume is calculated as in Field and Hanka (2001). First, the mean daily trading volume per firm is calculated over the period of day -50 to day -6. Second, for each firm, abnormal trading volume (AV) during the event day is computed as the percentage difference between the trading volume on the event day and the mean. Daily abnormal trading volume (DAV) is based on the daily average abnormal trading volume over a window covering the lock-in expiry date. The daily average abnormal trading volume (DAAV) is the sample average abnormal trading volume:

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daily returns, as the first lock-in expiry took place 3 months after the IPO. We always excluded at least the first ten trading days after the IPO to avoid a possible bias from any IPO underpricing.

[12] Hence, we regress the firm's stock return not only on the contemporaneous market return, but also on that for the two previous and the two following days. The Dimson ß parameters are then calculated as the sum of the five ß parameters obtained from these regressions. The problem of thin trading is diminished thereby. Blume (1975a, 1975b) pointed out the problem of reversion to the mean: if the current estimate of ß is less (greater) than one, then the subsequent period's estimate of ß tends to increase (decline). This tendency to reverse to the mean can be addressed by using a large enough sample, allowing for the actual long-term mean to be determined. We multiply the actual Dimson ß parameters by two-thirds and then add a third. These Dimson-Blume ß parameters, together with the *a* parameters from the OLS regressions, are then used to calculate the abnormal returns (AR).

$$DAAV_{t_1,t_2} = \frac{1}{N}\sum_{i=1}^{N} DAV_{i,t_1,t_2} = \frac{1}{N}\sum_{i=1}^{N}\left(\frac{1}{(1+t_2-t_1)}\sum_{t=t1}^{t2} AV_{i,t}\right)$$
$$= \frac{1}{N}\sum_{i=1}^{N}\left(\frac{1}{(1+t_2-t_1)}\sum_{t=t1}^{t2}\left(\frac{V_{i,t}}{\frac{1}{45}\sum_{t=-50}^{-6} V_{i,t}} - 1\right)\right) \qquad (3)$$

The equivalent of equation (2) is also used as a test statistic to determine whether the DAAV is significantly different from zero. For the analysis on the trading volume, the sample only consists of the first expiry for each firm.

6 Results.

We first discuss the results from the event study based on the abnormal returns, followed by a multivariate analysis of the determinants of the abnormal returns at lock-in expiries. Subsequently, we report the findings related to the analysis of abnormal trading volume. We conclude this section by describing the robustness checks.

6.1 Event study.

Table 11 reports the CAARs for different windows for both the entire sample as well as the different categories of shareholders. Panel A shows that around the event date (in window [-5, 5]), there are weakly significant abnormal returns. Hence, there is only weak support for Hypothesis 1, which states that there is a negative abnormal return at the expiry.

[Table 11 about here]

Panel B distinguishes between different categories of shareholders. The CAARs for the insiders are negative and strongly statistically significant. We find support for Hypothesis 2 as the CAARs for insiders are significantly more negative than the CAARs for outsiders.

However, we reject hypothesis 3 as CAARs for VCs are not significantly different from zero whatever the window. This result is somewhat surprising in the light of the results from other country studies. Bradley et al. (2001) find that VC-backed US IPOs are associated with significantly more negative abnormal returns at the lock-in expiry. Similar results are found by Field and Hanka (2001), Brav and Gompers (2003) and Brau et al. (2004) for the US; Espenlaub et al. (2003) for the UK; Bessler and Kurth (2003) for Germany; and Bertoni et al. (2002) for Italy. We proceed by dividing the sample of expiries based on whether the firm was VC-backed, regardless of whether VCs were released at that particular expiry. We thereby test for the influence of VC-backing as the above mentioned authors do. However, we still do not find

any VC influence on abnormal returns at expiry. Panel B also shows that at the expiry of agreements locking in non-executives there is a significantly negative price reaction. The market does not react negatively at the expiries of the lock-in contracts of the underwriters or the other shareholders (business partners and employees). The reason for the former reaction may be that underwriters smooth out their sales over time and do not cluster them at the expiry date as they may want to sustain the price of the IPO they had underwritten.

Table 12 investigates whether the various signals of firm quality have an impact on the abnormal returns at the expiry. We find negative abnormal returns for firms that chose more stringent lock-in agreements for the period after 1 December 1998, while we do not for firms that chose contracts that comply exactly with the minimum requirements for the same period.[13] As the differences are not significant, we examine the 2 core elements of each contract. In France, a lock-in agreement has two dimensions: a firm can signal shareholder commitment by locking in more and by locking in for longer periods of time. When we examine these dimensions individually (although they are intertwined), we find the following: at the expiry of contracts which lock in more shares than the median firm, we find more strongly negative abnormal share price movements than for firms locking in stakes which are lower than the median. This makes intuitively sense (and is also conform the findings of Brav and Gompers (2003)), as more shares are unlocked. The expiries of lock-in contracts with a relatively short length have large abnormal returns at the expiry, while those with a relatively long length do not. This finding is in line with the fact that firms signal shareholder commitment (and hence firm quality) using lock-in length. This provides support for Hypothesis 4a.

Firms with above-median underpricing in the IPO have larger negative abnormal returns at the expiry. This goes against Hypothesis 5, which states that lock-in agreements and underpricing are substitute devices. Still, our finding is line with the fact that shareholders of heavily underpriced firms do not sell many shares in the IPO, but rather wait until the lock-in expiry (Aggarwal et al. 2002). We also find that firms hiring a high-quality underwriter have larger abnormal returns at the lock-in expiry, which does not support Hypothesis 6 (not reported in the tables).

[Table 12 about here]

We have also performed several tests on the relation between venture-capital backing/reputation and abnormal returns at lock-in expiry. We find that venture-capital reputation as such has no influence on abnormal returns at the expiry, which does not support Hypothesis 7. Likewise, the nationality of the VC (French, Anglo-American, or other) does not play any role in this context. The abnormal returns around the expiry also do not differ between firms backed by one VC or by a VC syndicate. We do find a difference though when comparing firms in which VCs have substantial influence on the board of directors (the VC

[13] We also investigate the difference in CAARs between the 2 minimum requirements: 100% of the shares locked in for 6 months or 80% of the shares locked in for 1 year. We do not find any statistical difference in the CAARs.

holds more than one quarter of the board seats) and where they have less influence (proxied by only one board seat). If VCs have little board influence, the abnormal returns are significantly more negative than those of firms in which the VCs have a stronger board representation.

6.2 Multivariate analysis.

Table 13 shows the results from the regressions explaining the determinants of the CARs around the expiry. The dependent variable is the CAR[-5,5]. The table contains 3 regressions, each of them run on a different sample. Regression (1) is run on the sample including contracts complying with the regulatory minimum contracts. Regression (2) includes all contracts since 1 December 1998. Finally, regression (3) includes only the lock-ins with more stringent terms than the regulatory minima since 1 December 1998.

As the analysis is performed on the contract level (rather than on the firm level), we include dummy variables capturing the type of contract when it is related to insiders, venture capitalists, or non-executive directors. We find that the CARs at the contract expiry (whether is an agreement is adhering to the regulatory minimum terms or is more stringent) are not different between insiders, VCs, and other outsiders and underwriters.[14] Hence, we reject Hypotheses 2 and 3.

There is no evidence that the length of the lock-in acts as a signal of firm quality and thereby reduces the negative market reaction at the expiry (Hypothesis 4a). In contrast, the percentage locked-in is significantly different from zero, but reflects that the release of a large percentage of locked-in shares creates price pressure at the expiry. The regulatory break of December 1998 does not seem to have any influence on the abnormal returns around the expiry. Still, there is evidence of significantly more price pressure when contracts expire after the market crash of the 10th of March 2000.

There is no evidence that lock-in contracts and underpricing are substitute signals of firm quality (Hypothesis 5). Further, there is little consistent evidence on the impact of VC or underwriting reputation, voting rights schemes, or the presence of over-allotment options.

[Table 13 about here]

6.3 Abnormal trading volume at lock-in expiry.

Using Field and Hanka's (2001) method, average abnormal volume (AAV) is calculated for each day during a 101-day event window around the expiry day, resulting in Figure 6. There is very high abnormal trading volume during the first ten days after the lock-in expiry. It is also clear that the increase in trading volume at lock-in expiry is substantially larger for venture-capital backed firms, as documented by Bradley et al. (2001) and Field and Hanka (2001).

[14] The only exception is non-executive directors: the CAARs at the expiry of the minimum contracts are significantly lower when the non-executive directors are restrained from selling (part of) their share stakes.

[Figure 6 about here]

Table 14 shows the average abnormal trading volume and the t-statistics after eliminating two outliers with very high volume (*European Cargo SA* and *Genset SA*). The table confirms that abnormal trading volume during the days immediately after the expiry is highly significant and that VC-backed firms show larger and more significant abnormal trading volume. During the first 13 days after the expiry, abnormal trading volume for VC-backed firms ranges from 23% to 122%. Firms without VC-backing also have increased trading volume around the expiry, but the increase is statistically significant on only two days.

[Table 14 and 15 about here]

Table 15 reports the daily average abnormal trading volume (DAAV) around the first lock-in expiry. The table is organized in a similar way as Table 11: Panel A reports the DAAVs based on the first expiry for all the firms whereas Panel B reports the DAAVs for the different categories of shareholders. Panel A shows that trading volume increases significantly starting from the day of the expiry. This suggests that substantial amounts of shares that were previously locked-in are sold soon after the lock-in expiry, which confirms Hypothesis 1. Our evidence corroborates the findings for the US by Field and Hanka (2001), and Ofek and Richardson (2003) (see also our Table 3 above). Panel B reports the DAAVs for insiders, VCs and non-executives. The DAAVs are highly significant for insiders and VCs whatever the window (which is in line with Hypotheses 2 and 3), but less though for non-executives.

Table 16 reports abnormal trading volume for different subsamples. We do not find a difference in DAAV at the expiries of lock-in contracts following a regulatory minimum and those with more stringent terms. Contrary to our expectations, we find that contracts locking in for a longer period triggers more abnormal volume. The percentage of shares locked is not found to have an effect on abnormal volume at the lock-in expiry. Hypothesis 5 is supported as firms that are only moderately underpriced show larger increases in trading volume at expiry. Expiries for firms with a relatively low quality underwriter have significantly larger increases in trading volume at expiry than firms with a high quality underwriter. Thus, we cannot reject Hypothesis 6. We also investigate the impact of venture capitalist reputation and board representation on the share trading volume at the lock-in expiry (not shown in the table). We do not find support for Hypothesis 7, as there are no significant differences in trading volume between firms who attracted highly reputable (in the sense of being internationally active and being recognized by VC associations) VCs and those who did not. Partitioning the firms based on the number of board representatives a VC has, does not yield any different results.

[Table 16 about here]

6.4 Robustness checks.

As a robustness check we recomputed all abnormal returns using (i) the France-DS Small Companies index, which only includes small cap shares listed on French markets, (ii) and the DJ Euro Stoxx Small index, which includes approximately 200 small cap shares listed on the main stock markets in the Eurozone, and (iii) the DJ Euro Stoxx All Share index. A recalculation of all the results presented above using these different indices does not change any of our conclusions.

We also test for a difference in abnormal return results for the first expiry dates by firm and by contract (on which all the results above are based). We find that VCs tend to use the first opportunity to sell a significant part of their holdings. This is in line with the statement by Gompers and Lerner (1999) that VCs use lock-in expiries to exit the firm. However, we do find that VCs that invested in firms listed on the *Nouveau Marché* keep a minority stake also after their last expiry. The annual reports of these companies show that most VCs still hold shares three to four years after the IPO. We also find that underwriters provide less price support at later expiries. Striking is the fact that all 26 expiries for underwriters were simultaneously expiries for VCs. It is likely that underwriters buy the shares that VCs sell at expiry. They thereby show their commitment to support the share price even long after the IPO.

We also tested the influence of the length of the lock-in period on the abnormal returns at expiry by including dummy variables for the different types of minimum requirements for insiders. These results were not significant. First-week underpricing is also used as robustness check for first-day underpricing, which does not give dissimilar results. In order to prevent an underpricing bias, size is measured in terms of market capitalization at the offer price and subsequent to the first trading day. When extending the share trading benchmark period before the expiry, the abnormal trading volume tends to be larger but similar in terms of significance.

7 Conclusions.

This paper unveils the variety in lock-in agreements of firms listed on the Nouveau Marché stock exchange in France. The lock-in regulation and the changes therein since the inception of the stock exchange are discussed. In addition, the main economic reasons are given why shareholders adopt lock-in agreements that are more stringent than legally required. We relate the abnormal returns and the abnormal volume at the expiry dates of the different types of lock-in contracts to the degree of underpricing, venture-capitalist reputation and underwriter reputation. We find that the abnormal returns and the trading volume increase at the lock-in expiry (see the summary in Table 17); this is especially pronounced at the expiry dates of insider lock-in contracts as insiders are legally required to be locked-in. Surprisingly, we do not find significant abnormal returns at the expiries of VC contracts, even though trading volume increases at their lock-in expiry. The fact that VCs may have a large impact on the board of directors (through representation) and or may be more reputable through international activities does not influence the results. In addition, venture-capital backing has no impact on the abnormal returns or the trading volume. There is no evidence of a

positive (negative) relation between abnormal returns (abnormal volume) and more stringent lock-in contracts. If lock-in contracts and the degree of underpricing were substitute signals of firm quality, we would find a positive relation between underpricing and the abnormal returns at expiry. However, it seems that the two signalling devices are complementary.

[Table 17 about here]

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Appendix: Listing on the *Nouveau Marché*

Listing requirements on the *Nouveau Marché* during the sample period

Except for the minimum lock-in requirements (which were changed on 1 December 1998 - *Instruction NM3-02*), the entry criteria for a listing on the *Nouveau Marché* have remained unchanged during the sample period. The following quantitative criteria are those mentioned in Article P 1.1.31 of the rules applicable to the *Nouveau Marché* and were valid between 21 March 1996 and 15 September 2003:

- *The applicant must have individual and consolidated shareholders equity of at least Euro 1.5 million (or the equivalent in another currency).*
- *On the initial trading date at the latest, a minimum of 100,000 financial instruments, representing at least Euro 5 million (or the equivalent in another currency) must be held by the public.*
- *On the initial trading date at the latest, at least half of the publicly held financial instruments must have been distributed through issuance of new financial instruments.*
- *A minimum number of financial instruments must be made available to the listing advisor/market maker(s) to facilitate market making.*
- *For equity securities, on the initial trading date at the latest, at least 20% of the company's issued capital must be held by the public.*
- *The applicant must present an income statement showing a pre-tax profit on ordinary activities for the twelve months prior to the admission decision. The statement must be prepared in accordance with generally accepted accounting principles, without restatements. It must be audited by the company's statutory auditors. Euronext Paris may waive this provision to allow for, inter alia, the sector in which the company operates.*

Changes in the listing requirements on the *Nouveau Marché* after the sample period

The listing requirements were changed on 15 September 2003. Interestingly, the requirement that the capital increase needed to be at least 50% of the issue volume was removed. This criterion had not been enforced, as not all admitted firms complied with it. In addition, the minimum lock-in requirements (*Euronext Paris Notice Nº2003-2869*) were changed and two articles were added. The first one concerns the possibility of a listed company to be put in the *compartiment spécial* or special box (*Instruction NM3-03, Article 1*). This can occur in the following cases:

a) Where the half-yearly examination of the issuer's situation reveals that during the period under review:

i. the closing price has been lower than one euro on a regular basis during the previous six months. However, registration of the financial instruments in question may be confined to

those whose market capitalization, measured during the previous six months, is less than Euro 4 million;

ii. *the issuer's market capitalization has been less than Euro 4 million on a regular basis during the previous six months;*

iii. *the issuer has failed to meet periodic disclosure requirements. In this case, the issuer has three months from service of notice by Euronext Paris in which to remedy the failure before being registered in the special box;*

b) *where the issuer has been involved in collective proceedings, within the meaning of Articles L. 620-1 et seq. of the Code of Commerce, or in an equivalent procedure in the case of an issuer incorporated outside France, the instruments are registered as soon as the judgment is brought to the attention of Euronext Paris;*

c) *where an event occurs that has a lasting impact on the operations or corporate life of the issuer.*

Apparently, this measure was necessary, as twelve companies were singled out within four months after new regulation took effect.

The second new article concerned an extension of the minimum requirements for quarterly reporting of financial information (*Instruction NM3-04*).

Listing process on the *Nouveau Marché*

The following schedule that informs potential entrants of events that take place during the listing process is given in the stock market brochure entitled 'Going Public On *Le Nouveau Marché*'.

- ***Day – 120:*** *Choice of a Sponsor / Market Maker*
  The issuer shall select a Sponsor / Market Maker who will be in charge of preparing the admission file and selecting the PR Agency.
  Preparation of the admission file
  The Sponsor / Market Maker prepares the prospectus and the notice of information which includes the 3 years business plan.
- ***Day – 90:*** *Submission file*
  The Issuer and the Sponsor / Market Maker submit the file to Le Nouveau Marché and the Securities Commission, which will examine the fill. This file can be a preliminary file.
- ***Day – 45:*** *Submission of the final prospectus to Le Nouveau Marché and Securities Commission*
- ***Day – 30:*** *Decision taken by the Admission Committee of Le Nouveau Marché*
  (meetings of the Admission Committee take place twice a month)
- ***Day – 21:*** *End of opposition time limit for the Securities Commission*
- ***Day – 19:*** *Securities Commission Visa on the preliminary operation notice*
- ***Day – 18:*** *Beginning of the communication drive*
  (RoadShow, investors meetings, "one-on-ones")
- ***Day – 10:*** *Spread price offer decision and beginning of the placement*

- ***Day – 3:*** *End of placement*

  Securities Commission visa on the final operation note

  Price set up

  Beginning of Fixed Price Offer (OPF) and placement
- ***Day – 1:*** *End of the Offer and placement*
- ***Day – 0:*** *Centralization by Le Nouveau Marché*

  Results of OPF – allocation of shares

  Issuing – Trading
- ***Day + 3:*** *Clearing & Settlement of Day – 0 trades*

Table 1: New listings on European and US stock markets (1996-2004).

New listings comprise IPOs as well as spin-offs, admissions with no public offering, dual listings and transfers from other domestic stock markets. The Euro.NM markets are put in bold.

Sources: a) www.euronext.com, b) DAI-Factbook 2003, c) Giudici (2001) for 1996 to 2001, d) www.borsaitalia.it for 2002 to 2004 e) Beursplein 5 for 1996 and 1997 f) www.londonstockexchange.com, g) Aussenegg et al. (2002) for 1996 to 2000, h)www.nasdaq.com for 2001 to 2004; others from lists sent by stock exchanges.

Country	Market	1996	1997	1998	1999	2000	2001	2002	2003	2004
Belgium	**Nieuwe Markt/ Nouveau Marché**	**-**	**2**	**6**	**6**	**3**	**0**	**0**	**4**	**0**
	Eerste Markt/ Premier Marché [a]	12	17	21	23	9	12	3	12	1
France	**Nouveau Marché**	**18**	**20**	**43**	**32**	**52**	**10**	**2**	**0**	**0**
	Premier Marché [a]	2	4	8	8	13	7	2	4	12
	Second Marché [a]	32	44	76	33	18	12	5	4	13
Germany	**Neuer Markt**	**-**	**14**	**45**	**135**	**139**	**11**	**1**	**-**	**-**
	Amtlicher Handel [b]	6	10	15	30	13	5	1	-	-
	Geregelte Markt [b]	6	4	14	10	11	7	3	-	-
Italy	**Nuovo Mercato**	**-**	**-**	**-**	**6**	**34**	**5**	**0**	**0**	**0**
	Mercato di Borsa [cd]	14	13	25	31	16	13	8	4	2
Netherlands	**Nieuwe Markt**	**-**	**5**	**8**	**2**	**2**	**0**	**0**	**0**	**2**
	Officiële Markt [ae]	7	16	13	16	6	3	2	2	0
United Kingdom	AIM [f]	145	107	75	102	277	177	160	162	355
	LSE [f]	282	178	157	134	210	127	68	39	58
United States	NASDAQ [gh]	680	494	273	485	397	66	66	63	170
	NYSE [gh]	88	87	68	49	48	40	44	42	69

Table 2: Lock-in requirements on several European and US stock markets

Source: Goergen et al. (2005) unless specified otherwise: a) Euronext Paris Notice N°2003-2869, b) www.euronext.com , c) Goergen et al. (2002), d) Espenlaub et al. (2001).

Market	Lock-in requirements
Nieuwe Markt/ Nouveau Marché (Brussels – Belgium)	All managing shareholders have to be locked in for at least 80% of their shares for at least 1 year.
Nouveau Marché (Paris – France)	Until 1 December 1998, all insiders (executives and founders) had to lock in at least 80% of their shares for at least 3 years. Between 1 December 1998 and 15 September 2003, all insiders (executives and founders) had to choose between locking in all their shares for at least 6 months and locking in at least 80% of their shares for at least 1 year. If the firm was less than two years old insiders had to be locked in with all their shares for at least 2 years. From 15 September 2003 until closure, all executives had to lock in all their shares for at least 1 year. Shares bought by any shareholder during the year preceding admission also had to be locked in for 1 year. [a]
Neuer Markt (Frankfurt – Germany)	All initial shareholders have to lock in all of their shares for at least 6 months. The company is not allowed to issue new shares during this period.
Nuovo Mercato (Milan – Italy)	All managing shareholders and founders have to lock in at least 80% of their shares for at least 1 year. At least 80% of the shares bought by other shareholders, holding at least 2% of the equity, during the twelve months preceding the IPO also have to be locked in for at least 1 year. Firms which have been exempted by the stock exchange from providing financial accounts for at least one entire year must lock in all the shares held by their initial shareholders for 1 year and 80% of those shares for another year.
Nieuwe Markt (Amsterdam – Netherlands)	Until 24 November 2000, all shareholders holding at least 5% of the shares outstanding were locked in depending on the firm's published results. They were locked in for 100% until the company had reported positive operating and net income for one year. Then 50% of their shares remained locked in until the company had at least 3 years of positive operating and net income in a 5-year period. From 24 November 2000 until closure, all founders, managers and supervisory board members had to lock in at least 80% of their shares for at least 360 days.
Euronext (pan-European)	Until 4 April 2005, there was no harmonization of listing rules. Firms applying for a listing had to comply with the requirements on the Dutch, Belgian, French or Portuguese market. Lock-in requirements did not exist on these markets, with the exception of the growth segments. Since 4 April 2005, the lock-in requirements are decided on a company-by-company basis only in case the applicant does not comply with certain other listing requirements. This applies to all participating markets. [b]
EASDAQ / NASDAQ Europe (Brussels – Belgium)	Insiders had to lock in at least 80% of their shares for at least 6 months.
AIM (London – UK)	Insiders have to lock in all their shares for at least 1 year. [c]
LSE (London – UK)	Until January 2000, mineral companies and scientific research based companies, which were less than three years old, had to lock in all incumbent shareholders for up to 2 years.

	Since January 2000, there have been no minimum lock-in requirements. However, mineral companies, scientific research based companies and innovative high-growth companies, with less than three years of trading history, must display in a prominent way in their prospectus whether they have a lock-in agreement in place, and if they do not have such an agreement, the reasons for its absence. [d]
US markets	SEC Rule 144 imposes certain restrictions on the sale of restricted securities, i.e. securities that have been directly purchased in a private placement from the issuing firm before the IPO. Sales of these shares are not allowed during the first year of ownership. After one year, during any three-month period, the sale cannot exceed 1% of the shares outstanding and the average weekly trading volume of the past 4 weeks. NASD rules also prevent venture capitalists who have a private investment in the issuing firm to sell their shares during a 90-day period and underwriters who have received shares as compensation for one year.

Table 3: Overview of literature on lock-in expiry anomalies

****, **, * and [a] denote statistical significance at the level of 1%, 5%, 10% and an undisclosed significance level, respectively.*

Author (year)	Market	Period	Sample Size	Abnormal return on expiry day	Event window for CAAR	CAAR	Increased trading volume at expiry
Ofek and Richardson (2000)	US	1996-98	1,053	-1.15%***	[-4, 0]	-2.03%***	Yes
Field and Hanka (2001)	US	1988-97	1,948	-0.90%***	[-1, 1]	-1.50%***	Yes
Bradley et al. (2001)	US	1988-97	2,529	-0.74%***	[-2, 2]	-1.61%***	Yes
Brav and Gompers (2003)	US	1988-96	2,749	-0.12%	[-1, 1]	-0.79%[a]	Yes
Ofek and Richardson (2003)	US	1998-2000	305	-1.99%***	[-4, 0]	-4.11%***	Yes
Brau et al. (2004)	US	1988-98	3,049	-0.38%[a]	[-4, 0]	-1.53%[a]	Yes
Espenlaub et al. (2001)	UK	1992-98	52	-0.71%	[0, 1]	-0.96%	-
Nowak and Gropp (2000)	GER	1997-99	142	-0.19%	[-1, 30]	-7.95%***	Yes
Bertoni et al. (2002)	ITA	1999-2001	45	-1.40%	[-5, -1]	-1.42%*	Yes

Table 4: Distribution of the French *Nouveau Marché* IPOs across industries

Source: Thomson Analytics

Primary SIC Code	Industry	No.	%
0100-0999	Agriculture, forestry, fishing, hunting and trapping	0	0.00%
1000-1499	Mining	0	0.00%
1500-1799	Construction	0	0.00%
2000-3999	Manufacturing	35	23.81%
4000-4999	Transportation, communications, electric, gas and sanitary services	7	4.76%
5000-5199	Wholesale trade	10	6.80%
5200-5999	Retail trade	7	4.76%
6000-6799	Finance, insurance and real estate	0	0.00%
7000-8999	Services	88	59.86%
9100-9999	Public administration	0	0.00%
Total	-	147	100.00%

Table 5: Ownership and control

Shareholders are classified into insiders and four non-excluding categories for outsiders. Insiders include executives and founders. Others include all shareholders who do not fit in any of the other categories and includes primarily minority stakeholders such as business partners and employees.

		Insiders	Outsiders			
			Non-executives	VCs	Underwriters	Others
Before the IPO	Ownership	64.35%	19.02%	15.84%	2.42%	12.72%
	Control	65.36%	18.77%	15.58%	2.46%	12.14%
	Number of firms with ownership held by …	147	98	84	23	143
After the IPO	Ownership	46.86%	13.86%	10.86%	1.90%	9.22%
	Control	50.93%	14.11%	10.95%	1.96%	9.11%
	Number of firms with ownership held by …	147	99	86	24	143

Table 6: Percentage of secondary and primary shares offered in the IPO

Secondary shares are shares sold by the pre-IPO shareholders. Primary shares are newly issued shares.

Variable	Mean	Median	Range	Std. Dev.
Secondary shares offered/ Total shares after IPO	5.10%	2.80%	[0.00%, 38.09%]	6.57%
Primary shares offered/ Total shares after IPO	23.16%	21.39%	[0.00%, 48.46%]	8.28%
Total shares offered/ Total shares after IPO	28.26%	27.67%	[9.87%, 53.13%]	9.01%
Primary shares offered/ Total shares offered	83.19%	87.00%	[0.00%, 100.00%]	19.22%

Table 7: Types and frequencies of lock -in contracts

The figures in bold relate to the minimum lock-in requirements during each period. These requirements are only applicable to insiders. For staggered agreements only the first period is taken into account.

	Insiders				**Outsiders**			
	IPO before 1 Dec 1998		IPO after 1 Dec 1998		IPO before 1 Dec 1998		IPO after 1 Dec 1998	
Type of lock-in agreement	No.	%	No.	%	No.	%	No.	%
Panel A: All the shares are locked in								
6 months for 100%	3	4.23%	**20**	**20.00%**	11	22.92%	21	20.19%
Between 6 and 12 months for 100%	1	1.41%	1	1.00%	4	8.33%	3	2.88%
12 months for 100%	1	1.41%	10	10.00%	8	16.67%	22	21.15%
More than 12 months for 100%	2	2.82%	2	2.00%	0	0.00%	4	3.85%
Panel B: Only part of the shares are locked in								
Less strict than 12 months for 80%	0	0.00%	1	1.00%	1	2.08%	4	3.85%
12 months for 80%	1	1.41%	**41**	**41.00%**	1	2.08%	21	20.19%
12 months for more than 80% but less than 100%	0	0.00%	5	5.00%	0	0.00%	4	3.85%
36 months for 80%	**53**	**74.65%**	2	2.00%	13	27.08%	1	0.96%
36 months for more than 80% but less than 100%	1	1.41%	0	0.00%	0	0.00%	0	0.00%
Panel C: Staggered agreements								
Less strict than 6 months for 100%; then staggered	1	1.41%	3	3.00%	1	2.08%	7	6.73%
6 months for 100%; then staggered	3	4.23%	11	11.00%	3	6.25%	13	12.50%
Stricter than 6 months for 100%; then staggered	3	4.23%	1	1.00%	1	2.08%	2	1.92%
Panel D: Other types of agreements								
Not to sell below 120% of offer price for 6 months	0	0.00%	0	0.00%	2	4.17%	0	0.00%
Others	2	2.82%	3	3.00%	3	6.25%	2	1.92%
Sum of the different types of contracts	71	100.00%	100	100.00%	48	100.00%	104	100.00%

Table 8: Average percentage of shares locked-in by category of shareholder

The percentages refer to the ratios of the shares locked-in of a particular category of shareholders over the total number of shares owned by that category immediately after the IPO. The means and medians for a specific shareholder category are calculated using all the firms in which that category of shareholder holds share stakes. If a particular shareholder fits in both the insider and outsider categories (e.g. a founder who is also a non-executive), we categorize him as an insider only. Insiders include executives and founders. Others include all shareholders who do not fit in any of the other categories. This category includes primarily minority stakeholders such as business partners and employees. It should be noted that the different outsider categories may overlap. For example, a VC who is also a non-executive will be counted in the VC category as well as the non-executive category.

Shareholder type	Number of firms	Mean	Median	Std. Dev.
Insiders (executives and founders)	147	82.31%	80.00%	16.18%
Outsiders				
Non-executive directors	82	68.37%	90.62%	41.99%
Venture capitalists	83	67.34%	100.00%	43.90%
Underwriters	23	74.25%	100.00%	41.71%
Others	143	45.59%	49.54%	43.20%
All old shareholders	147	77.21%	79.99%	18.41%
All the shares outstanding that are locked in	147	55.63%	56.23%	14.84%

Table 9: Book-building ratio and underpricing

The book-building ratio is the position of the final offer price within the range of the book. Underpricing is percentage difference between the closing price after the first day or week of trading and the offer price.
Sources: IPO prospectuses and Datastream

Variable	Sample size	Mean	Median	Minimum	Maximum	Std. Dev.
Book building ratio	146	0.54	0.95	-3.44	1.48	0.78
First day underpricing	147	21.28%	9.43%	-26.99%	240.91%	41.73%
First week underpricing	147	24.75%	9.15%	-20.95%	264.55%	47.74%

Table 10: Reputation measure of lead-underwriters active on the *Nouveau Marché*

Banque Nationale de Paris merged with Banque Paribas in 1999 and Oddo et Cie merged with Pinatton Finance in 2000.

Rank	Lead underwriter	%
1	Crédit Lyonnais	15.35%
2	BNP Paribas	9.79%
3	FleetBoston Robertson Stephens International	9.51%
4	Société Générale	9.28%
5	Credit Suisse First Boston (Europe)	8.79%
6	Oddo-Pinatton Corporate	8.40%
7	BNP Banque Nationale de Paris	5.21%
8	Crédit Agricole Indosuez/Lazard	4.69%
9	Oddo et Cie	4.66%
10	Banque Paribas	4.59%
11	CIC - Crédit Industriel et Commercial	4.18%
12	Ferri - Groupe ING-BBL	3.89%
13	Pinatton Finance	3.74%
14	ABN AMRO Rothschild	3.30%
15	Europe Finance et Industrie	2.95%
16	Crédit du Nord	2.78%
17	Merrill Lynch Capital Markets France	2.35%
18	Natexis Capital	2.14%
19	Lehman Brothers International (Europe)	2.05%
20	Meeschaert-Rousselle (Fortis Bank)	1.98%
21	Caisse Centrale des Banques Populaires	1.63%
22	Aurel-Leven	1.56%
23	CCF Charterhouse	1.47%
24	JP Morgan Securities	1.15%
25	Banque de Vizille	0.93%
26	Ernst & Young Corporate Finance	0.55%
27	Cyril Finance Gestion	0.37%
28	Hambrecht & Quist Saint Dominique	0.32%
29	KBC Securities France	0.27%
30	KBL France	0.20%
31	CDC Bourse	0.13%

Table 11: CAARs for all expiries and by shareholder type

CAARs are calculated using the market model with Dimson-Blume betas. The category of insiders includes executives and founders. ***, **, *and* * *denote significance at the level of 1%, 5%, and 10%, respectively.*

	Event window						
	[-30, -1]	**[-5, -1]**	**[-5, 5]**	**[0, 1]**	**[0, 5]**	**[0, 30]**	**Sample size**
Panel A: All expiries for all firms							
All expiries	-1.47%	-0.85%	-2.33%*	-0.72%	-1.48%	-2.91%	235
t-statistics	-0.57	-0.90	-1.72	-1.19	-1.58	-1.33	
Panel B: Expiries by shareholder category							
Insiders	-1.73%	-0.38%	-3.26%**	-1.23%**	-2.87%***	-5.56%**	179
t-statistics	-0.56	-0.33	-2.01	-1.94	-2.66	-2.23	
Outsiders	-0.83%	-2.09%	0.81%	0.73%	2.90%*	5.49%	56
t-statistics	-0.18	-1.47	0.36	0.47	1.67	1.26	
Difference in means	-0.91%	1.71%	-4.07%	-1.96%	-5.77%***	-11.05%**	-
t-statistics	-0.16	0.93	-1.46	-1.18	-2.82	-2.20	
Venture capitalists	-4.30%	-1.71%	-3.28%	-1.30%	-1.56%	-3.54%	87
t-statistics	-1.13	-1.44	-1.47	-1.13	-0.93	-0.90	
All others	-0.12%	-0.35%	-1.84%	-0.35%	-1.49%	-2.58%	148
t-statistics	-0.04	-0.26	-1.08	-0.51	-1.36	-1.00	
Difference in means	-4.18%	-1.37%	-1.44%	-0.95%	-0.07%	-0.96%	-
t-statistics	-0.82	-0.77	-0.51	-0.71	-0.04	-0.20	
Non-executives	-1.71%	-1.29%	-5.10%**	-2.54%**	-3.81%**	-5.12%	89
t-statistics	-0.43	-0.94	-2.32	-2.57	-2.44	-1.38	
All others	-1.65%	-0.66%	-0.68%	0.46%	-0.01%	-1.52%	146
t-statistics	-0.49	-0.53	-0.40	0.61	-0.01	-0.56	
Difference in means	-0.05%	-0.63%	-4.42%	-3.00%**	-3.80%*	-3.60%	-
t-statistics	-0.01	-0.34	-1.59	-2.41	-1.96	-0.79	

Table 12: CAARs by signal of firm quality

*CAARs are calculated using the market model with Dimson-Blume betas: $R_i - (a + ß^{DB} * R_m)$. The tests that include the length of the lock-in period are run on the sub-sample of post 1 December 1998 IPOs only. ***, **, and * denote significance at the level of 1%, 5%, and 10%, respectively.*

Event window	[-30, -1]	[-5, -1]	[-5, 5]	[0, 1]	[0, 5]	[0, 30]	Number of lock-ins
Minimum requirement	-9,52%	-2,95%	-4,51%	-0,97%	-1,56%	-5,63%	59
t-statistics	-1,57	-1,56	-1,54	-0,85	-0,71	-1,12	
Stricter than minimum requirement	-1,71%	0,88%	-4,37%	-2,60%*	-5,25%**	-7,39%	49
t-statistics	-0,29	0,37	-1,22	-1,90	-2,11	-1,49	
Difference in means	-7,82%	-3,83%	-0,14%	1,64%	3,69%	1,77%	-
t-statistics	0,93	1,26	0,03	-0,92	-1,11	-0,25	
Below-median lock-in length	-11.40%	-3.41%*	-7.03%**	-2.29%*	-3.62%	-9.37%	44
t-statistics	-1.66	-1.83	-2.20	-1.95	-1.59	-1.56	
Above-median lock-in length	-3.24%	-0.57%	-2.85%	-1.41%	-2.28%	-1.32%	88
t-statistics	-0.71	-0.33	-1.13	-1.22	-1.23	-0.34	
Difference in means	-8.15%	-2.83%	-4.18%	-0.88%	-1.35%	-8.04%	-
t-statistics	-0.99	-1.11	-1.03	-0.53	-0.46	-1.13	
Below-median % locked in	-0.54%	0.60%	0.33%	0.72%	-0.27%	-2.61%	117
t-statistics	-0.13	0.39	0.16	0.87	-0.21	-0.85	
Above-median % locked in	-2.40%	-2.29%**	-4.96%***	-2.15%**	-2.68%*	-3.20%	118
t-statistics	-0.75	-2.10	-2.90	-2.46	-1.96	-1.02	
Difference in means	1.86%	2.89%	5.30%*	2.87%**	2.41%	0.60%	-
t-statistics	0.36	1.54	1.97	2.39	1.29	0.14	
Below-median underpricing	-0.14%	0.87%	-0.34%	-1.08%	-1.21%	1.67%	120
t-statistics	-0.04	0.65	-0.17	-1.27	-0.84	0.52	
Above-median underpricing	-2.86%	-2.64%**	-4.40%**	-0.34%	-1.76%	-7.68%***	115
t-statistics	-0.74	-2.04	-2.40	-0.40	-1.48	-2.62	
Difference in means	2.72%	3.52%*	4.06%	-0.73%	0.55%	9.34%**	-
t-statistics	0.52	1.88	1.51	-0.60	0.29	2.16	
Top 10 underwriters	-5.07%	-2.60%*	-5.41%**	-0.72%	-2.81%*	-5.52%	111
t-statistics	-1.22	-1.80	-2.50	-0.76	-1.85	-1.58	
Other underwriters	1.75%	0.73%	0.44%	-0.72%	-0.29%	-0.57%	124
t-statistics	0.55	0.60	0.27	-0.93	-0.26	-0.21	
Difference in means	-6.82%	-3.33%*	-5.85%**	-0.01%	-2.52%	-4.95%	-
t-statistics	-1.30	-1.76	-2.16	-0.01	-1.33	-1.12	

Table 13: Results multiple linear regressions

*The dependent variable is CAR[-5,5]. The length of the lock-in period is the number of days between the IPO and the expiry. Age is calculated as the firm age in number of days from the date of the creation of the SARL to the date of the IPO. Underpricing is measured in relation to the end of the first trading day. Underwriter reputation is measured as the percentage of total market capitalization brought to the market by the underwriter. VC reputation is measured as the number of recognitions of venture capital shareholders at national VC associations. Regression (1) includes all expiries before 1 December 1998 and those thereafter that locked-in insiders for exactly the minimum requirement. Regression (2) includes all expiries after 1 December 1998. Regression (3) includes all expiries after 1 December 1998 of firms that chose stricter lock-in agreements for insiders than the minimum requirement. ***, **, and * denote significance at the level of 1%, 5%, and 10%, respectively.*

Variable	(1) Minimum contracts	(2) All contracts since change in regulation (1 Dec. 1998)	(3) All contracts more strict than legal minimum since change in regulation (1 Dec. 1998)
(Constant)	0.055	0.360**	-0.071
Insider contract (dummy)	0.019	-0.053	-
Venture capitalist contract (dummy)	0.009	-0.007	0.041
Non-executive contract (dummy)	-0.081***	-0.027	-0.044
Length of lock-in period	0.000	0.000	0.000
Percentage of shares locked-in	-0.167	-0.411***	0.128
IPO took place after 1 Dec. 1998	-0.169	---	---
Expiry after market crash (10 March 2000)	-0.157*	-0.218*	-0.169
Underpricing	0.000	0.000	0.000
Underwriter reputation	-0.877***	-0.710	-0.836
Venture capitalist reputation	0.003	0.002	-0.017
Venture capitalist board influence	0.001	0.003	-0.001
Voting right scheme	0.054	0.064	0.231
Over-allotment option	0.005	-0.059	-0.008
Age	0.006**	0.002	0.000
F-test	2.753*	2.294**	0.480
Adj. R2	0.192	0.160	0.210

Table 14: AAV at lock-in expiry

*The sample is the first lock-in expiry for 141 French IPOs on the Nouveau Marché with lock-in expiries from 1996 to 2003. Volume is measured relative to each firm's mean trading volume over days -50 to -6. European Cargo SA and Genset SA have been excluded from the initial sample of 143 firms. Both firms are VC-backed. ***, **, and * denote significance at the level of 1%, 5%, and 10%, respectively.*

Day from expiry day	All the firms	t-statistic	VC-backed firms only	t-statistic	Firms without VC-backing only	t-statistic
-5	10%	0.63	-27%	-2.65**	33%	1.38
-4	43%	0.92	85%	0.73	16%	1.05
-3	19%	1.26	6%	0.35	27%	1.23
-2	9%	0.65	-25%	-2.61**	31%	1.46
-1	17%	1.25	5%	0.20	25%	1.50
0	96%	2.67***	122%	2.36**	80%	1.63
1	36%	1.48	38%	1.87*	34%	0.91
2	38%	2.39**	35%	1.38	39%	1.94*
3	66%	2.11**	60%	1.91*	69%	1.47
4	16%	1.08	40%	1.29	1%	0.06
5	14%	1.10	23%	1.08	9%	0.53
6	43%	1.32	120%	1.49	-6%	-0.43
7	25%	1.63	31%	1.42	22%	1.02
8	38%	1.96*	88%	2.23**	6%	0.31
9	78%	2.96***	91%	1.96*	70%	2.21**
10	30%	1.74*	69%	1.86*	5%	0.32
11	33%	1.57	47%	1.74*	24%	0.80
12	8%	0.66	36%	1.33	-9%	-0.88
13	29%	1.90*	55%	2.10**	12%	0.66
14	7%	0.54	3%	0.23	10%	0.49
15	22%	0.71	63%	0.83	-4%	-0.26

Table 15: DAAV for first expiries and by shareholder type

*The sample consists of the first lock-in expiry of 141 French IPOs on the Nouveau Marché with lock-in expiries from 1996 to 2003. Volume is measured relative to each firm's mean trading volume over days -50 to -6. Desk SA was delisted 14 days after its first and only lock-in expiry: therefore, the samples for the window [20, 50] does not include this observation. ***, **, and * denote significance at the level of 1%, 5%, and 10%, respectively.*

Event window	**[-5, -1]**	**[-5, 5]**	**[0, 1]**	**[0, 5]**	**[0, 30]**	**[20, 50]**	**Number of lock-ins**
Panel A: First expiries for all firms							
All expiries	19%	33%***	66%**	44%***	28%***	30%***	141
t-statistics	1.48	2.77	2.35	2.73	3.26	3.14	
Panel B: First expiry per shareholder category							
Insiders	17%*	36%***	69%**	52%**	30%***	37%***	108
t-statistics	1.73	2.66	1.99	2.56	3.02	3.14	
Outsiders	28%	22%	56%	18%	22%	9%	33
t-statistics	0.60	0.91	1.41	0.99	1.25	0.62	
Difference in means	-12%	14%	13%	35%	9%	28%	-
t-statistics	-0.24	0.49	0.25	1.28	0.44	1.48	
Venture capitalists	11%	35%**	81%***	55%***	49%***	25%*	54
t-statistics	0.37	2.00	2.71	2.90	2.89	1.75	
All others	25%**	32%**	57%	38%	16%*	33%**	87
t-statistics	2.09	1.98	1.36	1.60	1.69	2.60	
Difference in means	-14%	3%	24%	17%	33%*	-8%	-
t-statistics	-0.46	0.13	0.47	0.57	1.74	-0.42	
Non-executives	17%	30%	67%	41%	36%**	31%**	58
t-statistics	0.63	1.44	1.15	1.49	2.27	2.16	
All others	21%*	35%**	65%***	46%**	23%**	30%**	83
t-statistics	1.77	2.48	2.64	2.34	2.35	2.29	
Difference in means	-4%	-5%	3%	-5%	13%	0%	-
t-statistics	-0.13	-0.19	0.04	-0.16	0.72	0.02	

Table 16: DAAV by signal of firm quality

*Trading volume is measured relative to each firm's mean trading volume over days -50 to -6. The tests that include the length of the lock-in period are run on the sub-sample of post 1 December 1998 IPOs only. The division criterion of the sample for length, percentage of shares locked-in and level of underpricing is the median. ***, **, and * denote significance at the level of 1%, 5%, and 10%, respectively.*

Event window	[-5, -1]	[-5, 5]	[0, 1]	[0, 5]	[0, 30]	[20, 50]	n
Minimum requirement	19%	52%*	116%	79%*	30%**	29%*	48
t-statistics	1.25	1.89	1.54	1.89	2.07	1.87	
Stricter than minimum requirement	3%	26%	24%	46%	41%	47%	22
t-statistics	0.15	1.37	0.88	1.58	1.42	1.58	
Difference in means	17%	26%	91%	33%	-11%	-17%	-
t-statistics	-0.74	-0.77	-1.14	-0.66	0.35	0.52	
Below-median lock-in length	21%	11%	3%	2%	13%	0%	39
t-statistics	0.54	0.51	0.17	0.11	0.96	-0.04	
Above-median lock-in length	34%*	72%**	128%	103%**	48%**	62%***	44
t-statistics	1.97	2.42	1.58	2.27	2.47	2.93	
Difference in means	-13%	-61%*	-125%	-102%**	-35%	-63%***	-
t-statistics	-0.30	-1.68	-1.50	-2.11	-1.46	-2.63	
Below-median percentage locked in	17%	23%**	35%*	29%**	18%**	33%**	70
t-statistics	1.32	2.06	1.86	2.19	1.98	2.29	
Above-median percentage locked in	22%	42%**	96%*	59%**	39%***	28%**	71
t-statistics	0.96	2.03	1.83	2.01	2.62	2.14	
Difference in means	-6%	-19%	-61%	-30%	-21%	4%	-
t-statistics	-0.22	-0.80	-1.09	-0.93	-1.20	0.22	
Below-median underpricing	32%	54%**	104%*	73%**	43%***	47%***	72
t-statistics	1.36	2.53	1.96	2.43	3.36	3.28	
Above-median underpricing	6%	11%	26%*	14%	13%	13%	69
t-statistics	0.58	1.20	1.77	1.42	1.15	1.03	
Difference in means	26%	44%*	77%	58%*	29%*	34%*	-
t-statistics	1.00	1.88	1.41	1.85	1.69	1.80	
Top 10 underwriters	-5%	8%	35%	18%	14%	15%	64
t-statistics	-0.40	0.67	1.65	1.28	1.38	1.33	
Other underwriters	39%*	54%***	92%*	66%**	40%***	43%***	77
t-statistics	1.79	2.79	1.90	2.44	3.00	2.90	
Difference in means	-44%*	-46%**	-57%	-48%	-26%	-28%	-
t-statistics	-1.77	-2.05	-1.08	-1.58	-1.57	-1.50	

Table 17: Conclusion

		Returns		Volume	
Hypothesis	Variable	Expected relation	Observed relation	Expected relation	Observed relation
1	All expiries	Negative	Weakly negative	Positive	Strongly positive
2	Expiries for insiders	Negative	Strongly negative	Positive	Not significant
3	Expiries for venture capitalists	Negative	Not significant	Positive	Weakly positive
4	Stricter lock-in contracts	Positive	Not significant	Negative	Not significant
5	Heavily underpriced	Positive	Negative	Negative	Weakly negative
6	Reputable underwriters	Positive	Negative	Negative	Negative
7	Venture-capital reputation	Positive	Not significant	Negative	Not significant

Figure 1: Example of a lock-in agreement

Source: Offer prospectus of Qualiflow SA

Commitment to retain securities

Pursuant to the operating rules of the Nouveau Marché, shareholding executives have made a commitment to retain 100% of the stake they hold in th e capital of the Company on the date of the initial listing for a period of one year after the Company's shares are listed for trading on the Nouveau Marché.

In addition, the other shareholders have undertaken to retain 80% of the shares of the Company in their possession after the offering for a period of 8 months from the date on which the shares of the Company are listed for trading on the Nouveau Marché.

Figure 2 : Development of a venture capital culture

The figures for the US were translated into Euro using end of year exchange rates. The amounts for the years prior to 1999 are in ECU. All amounts are nominal as published annually by AFIC, EVCA and NVCA. Sources: www.afic.asso.fr, www.evca.com, www.nvca.org and Datastream.

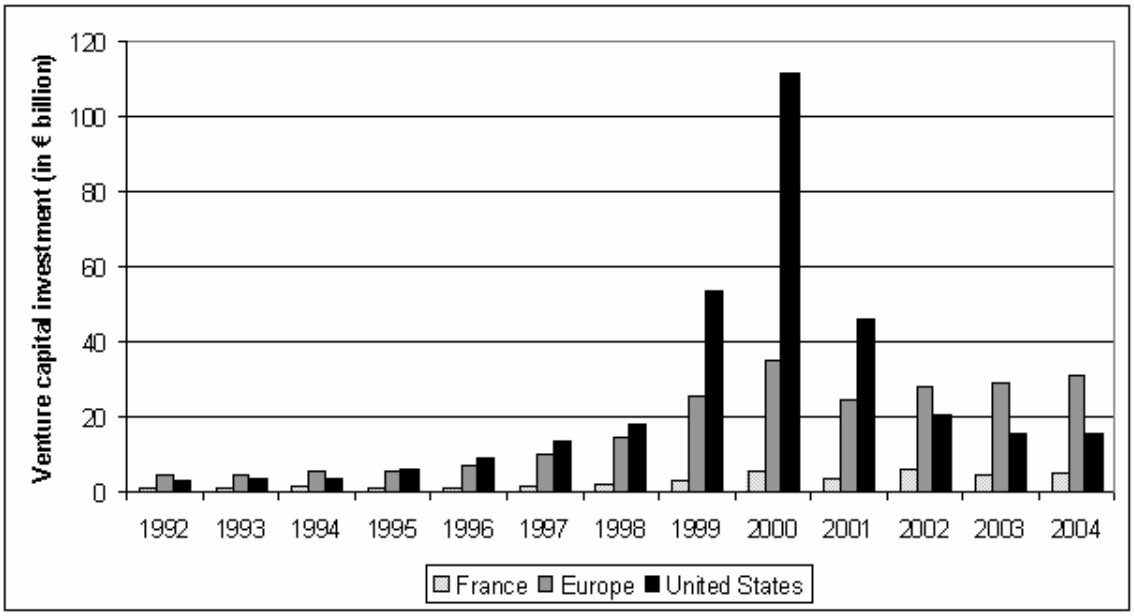


Figure 3: Number of IPOs by quarter.

We exclude firms of foreign origin, seasoned equity offerings, rights issues and firms operating in the financial sector. Source: www.euronext.com.

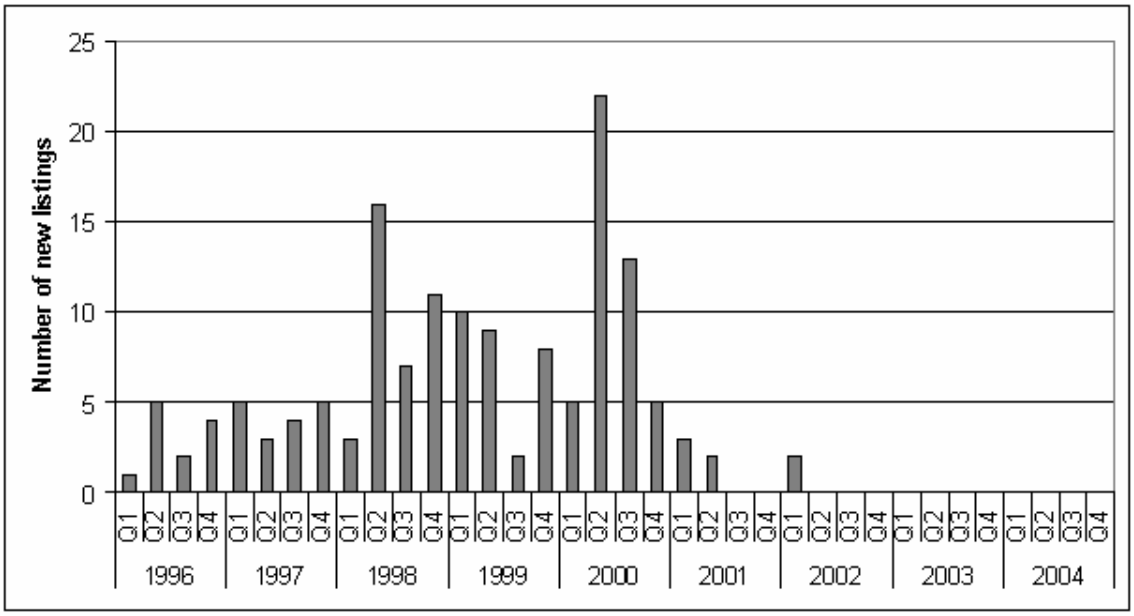


Figure 4: Number of expiries per quarter plotted against the *Nouveau Marché* index

The bars represent the quarterly number of lock-in expiries. In total, there were 251 different expiry dates planned. Still, as 7 expiries did not occur due to delistings before the expiry, only 244 are shown.

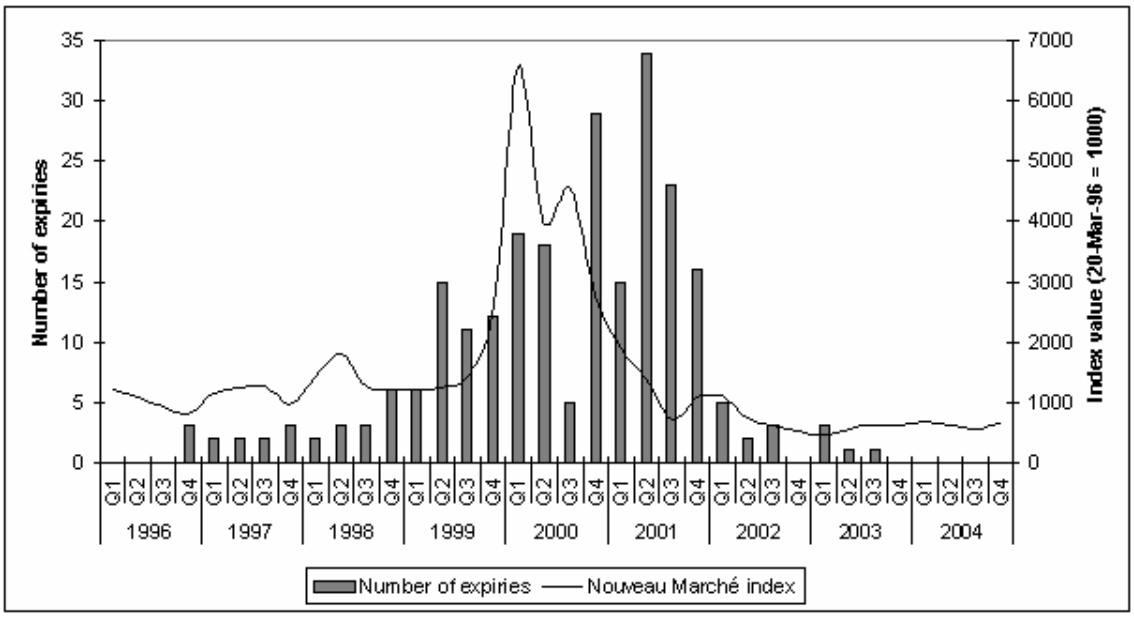


Figure 5: Time of lock-in expiry and the change in lock-in regulation

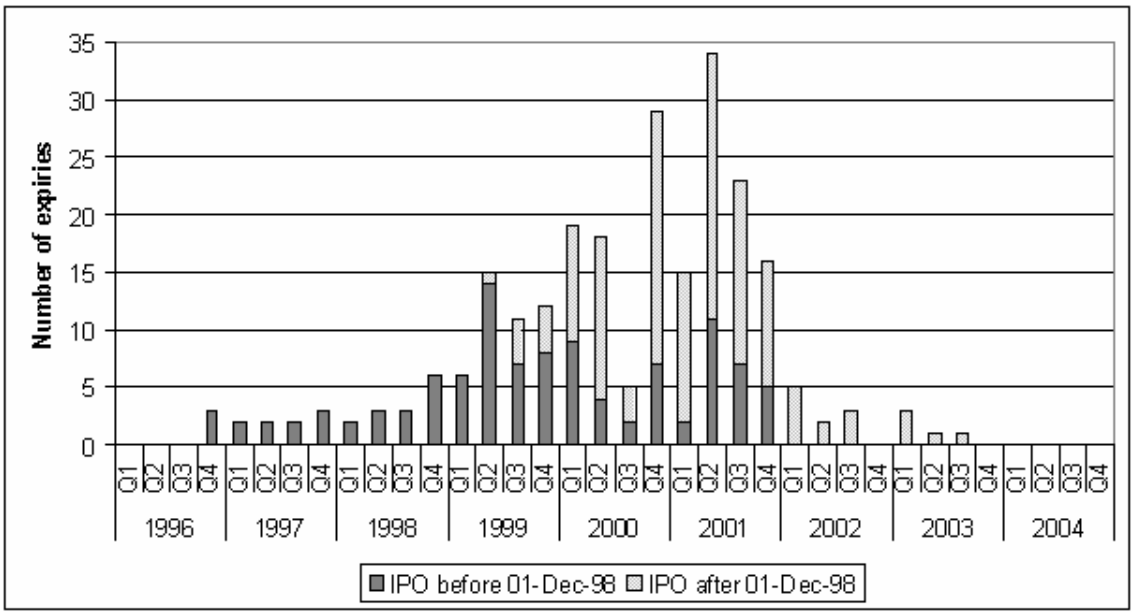
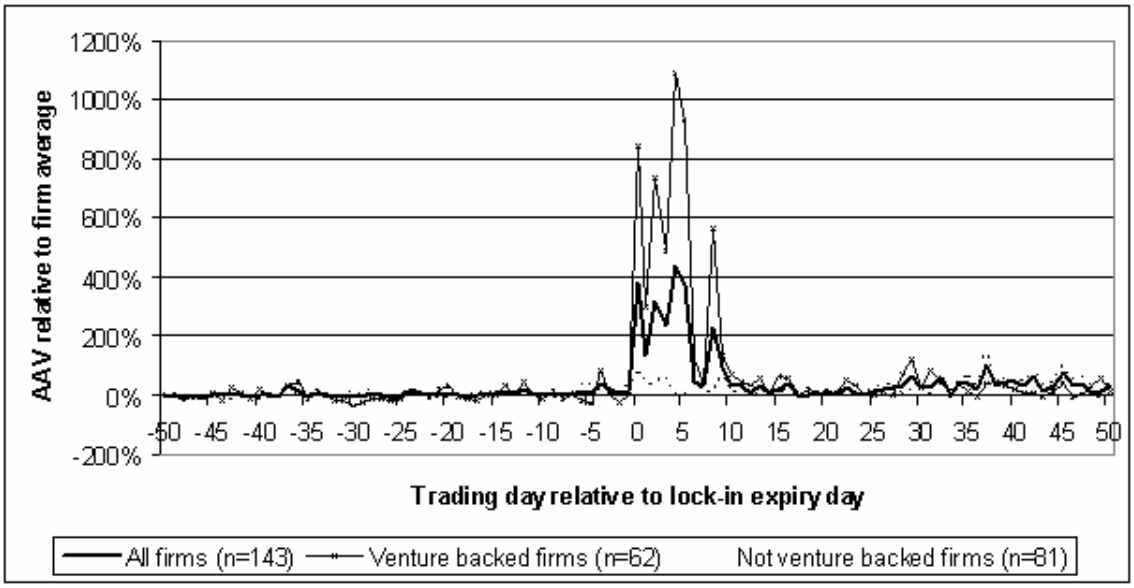


Figure 6: Average Abnormal Volume at lock-in expiry

The sample is the first lock-in expiry for 143 French IPOs on the Nouveau Marché with lock-in expiries from 1996 to 2003. Volume is measured relative to each firm's mean trading volume over days -50 to -6. Firms are only considered to be venture-capital backed if the first expiry relates to the VCs.



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