The Rise and Fall of the European New Markets

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THE RISE AND FALL OF THE EUROPEAN NEW MARKETS: On the short and long-run performance of high-tech initial public offerings

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1. Introduction

As recently as a decade ago, primary equity markets in continental Europe provided investors with low levels of transparency and corporate governance standards (La Porta et al. 1997). This contrasts sharply with common law jurisdictions, where investors have long enjoyed significantly higher levels of investor protection. Certainly, continental European countries have law regimes that differ from Anglo American jurisdictions, particularly in terms of disclosure. New comparative research on securities markets has shown that some legal systems give investors more protection against fraud and expropriation than others and has suggested that the control of information asymmetry is an essential precondition for the establishment of a strong capital market. As a minimum, increasing the level and scope of disclosure is likely to be significant. Higher quality disclosure, which gives the investors a higher level of protection, increases the accuracy of asset pricing, which is likely to have an impact on investor confidence (Fox 2000).

The corporate governance regimes of most continental European countries place emphasis on rules and regulations protecting stakeholders, such as creditors and employees, in sharp contrast with the common law countries' reliance on judicially-enforced legal rules to protect investors. At a first glance, the weakness of the rules protecting minority investors from asymmetric information and opportunism makes it harder for capital markets in continental Europe to raise the external funds to support a higher rate of initial public offerings (IPOs) for high-growth, start-up businesses. Given the limits on the ability of firms to raise funds, reform-minded policymakers possess a number of alternatives that can generate rapid changes tailored to meet the regulatory needs of issuers and investors.

Previous research has shown that one way to increase investor protection in continental Europe would be for individual country regulators to generate a range of investor protections within the context of a mandatory disclosure regime and supply a more effective set of enforcement mechanisms (Bratton and McCahery 2001). Even though it would be important to improve the disclosure requirements in company law and provide more effective enforcement mechanisms to protect investors and creditors at the national level, it is quite obvious that such a distinctive shift in the legal system is a lengthy process. Despite the efficiency benefits that greater investor protection would bring to equity markets, regulators will not, because they lack sufficient incentives, commit themselves to revise regulations that could lead to a distinctive shift in the legal system (Coffee 2001). Further, even if EU

regulators have the incentives and resources to devise harmonized legal protections that benefit investors, the revisions will not necessarily make expropriation more difficult (Bebchuk and Roe 1999; Hopt 2002).

Harmonization of corporate law in the EU, of course, is not the only way that investor protection can be improved. Given the practical difficulties of enhancing transparency and disclosure practices, corporate governance deficiencies may be addressed alternatively by establishing ex ante stock markets that guarantee better levels of shareholder protection and high levels of disclosure (Pagano 1998). Indeed, this is precisely the route taken by Europe's 'new stock markets', i.e. the *Nieuwe Markt* in Amsterdam, Euro.NM Brussels, the *Neuer Markt* in Frankfurt, the *Nuovo Mercato* in Milan, and the *Nouveau Marché* in Paris, the latter being the first of the European New Markets (Euro.NMs). Although this is not a solution for the official markets, which are obliged to comply with the mandatory terms of the EU issuer disclosure regime (Moloney 2002), the Euro.NMs alliance imposed additional restrictive disclosure measures on new issuers in order to promote investor protection and investor confidence.

Triggered to a large extent by the impressive emergence of high-tech businesses in the US, the Euro.NMs sought to emulate the Nasdaq, a highly liquid exchange that has high disclosure and transparency standards (Röell 1998). Thus, as with the Nasdaq, the combination of stricter disclosure rules and less stringent entry requirements (regarding age, size, and minimum profitability requirements) than companies face on first-tier markets led to the development of a very active initial public offering market in Europe. In Germany, for example, the *Neuer Markt*, which created the most stringent disclosure regime, accounted for the largest share of capital raised in IPOs compared to Europe's other new markets (Bottazzi and Da Rin 2002). It is noteworthy, however, that not all new market segments have pursued a high disclosure listings strategy (Jenkinson and Ljungqvist 2001). An alternative, embraced by the United Kingdom, is to eliminate exchange-based listings rules and transfer authority to the stock exchange regulator, which establishes the minimum rules governing admissions (Macey and O'Hara 2002). For example, this regulatory arrangement gives the London Stock Exchange some discretion over which applicants, subject to their satisfying the minimum requirements, are admitted to trade on the Alternative Investment Market (AIM). As can be seen in table 2, the AIM imposes less stringent disclosure requirements on the issuer.

In general, despite the higher transaction costs generated by the higher disclosure and reporting requirements of the new markets, there is ample evidence that issuing firms benefit from higher disclosure standards in the form of lower costs of capital (Romano 2001). Moreover, the evidence suggests that some firms floating on the Euro.NMs in the late 1990s were able to diversify their shareholdings rapidly after setting up their company (Jenkinson and Ljungqvist 2001). Diversification is particularly important since the models developed by Kahn and Winton (1996) and Bolton and von Thadden (1998) predict that firms with high-growth rates and volatile cash flows will go public early in their life cycle and thus allow the founders to diversify their investments.

This chapter focuses on the initial offerings in the European New Markets which are largely under-researched markets. We study the short-run and long-run performance of Euro.NM IPOs. Ex ante it is difficult to formulate a hypothesis about whether or not initial underpricing in the Euro.NMs is higher or lower than underpricing in the regular markets. On the one hand, stronger disclosure requirements on the Euro.NMs reduce the degree of asymmetric information between insider and outsider shareholders such that credible offer prices are more likely to be set and underpricing tends to be lower than on the regular markets. On the other hand, the entry requirements are less stringent for the Euro.NMs than for the regular markets where some of the smaller firms and those with short trading histories would not be admitted. This implies that more uncertainty about the correct offer price (maybe resulting in more severe underpricing) is to be expected for the Euro.NMs. Which of the two effects applies is an empirical matter which we investigate in this chapter. We document that the average underpricing measured on the first day ranges from as low as 4 per cent in France to a staggering 86 per cent in the Netherlands. We argue that the large differences in underpricing across the Euro.NMs can be explained in terms of differences in industry distributions. Our results confirm the findings that sectors with a high degree of information asymmetry will be significantly underpriced (Ljungqvist, Jenkinson and Wilhelm 2001). We also examine the long-run performance of IPOs on the Euro.NMs over the period of 1996-2000. Whether or not the long-term price correction for the Euro.NMs is stronger or weaker than that for the regular markets may depend on the degree of initial price reaction (underpricing). We also investigate the effect of the bursting of the ‘internet bubble’ in 2000. Although, there are numerous studies on the long-run performance of IPOs on Europe’s main equity markets, this is the first study that explores the long-run performance of the Euro.NM IPOs.

This chapter is organized as follows. Section 2 outlines the history and performance of the Euro.NMs. Section 3 analyses the listing and disclosure standards of these markets. In our discussion, we emphasize that the few discernable differences between the set of listing and disclosure requirements among the new markets are unlikely to serve as the basis for an institutional explanation for the higher underpricing during the bull market of 1996-2000. In section 4, we provide data on the short-run underpricing and consider alternative theories for the high short-run underpricing on the Euro.NMs. We also document the long-run underperformance of the Euro.NM IPOs and discuss a number of explanations for this phenomenon. Section 5 concludes.

2. Rise and fall of the European New Markets

Sub-section 2.1 focuses on the competition between stock exchanges that has led to the increasing irrelevance of national boundaries. Increased competition has led to the creation of new market segments which have new listing and disclosure rules that facilitate the capital raising process for high-growth, start-up companies. In sub-section 2.2, we describe the creation of the European New Markets in Belgium, France, Germany, Italy, and the Netherlands. We discuss the common regulatory features of the alliance of European New Markets, showing that the adoption of lower entry requirements and more stringent disclosure rules played an important step in the development of these exchanges. We argue that there are a number of reasons why the listing and disclosure rules played little or no role for the high underpricing of IPOs on the Euro.NMs.

2.1 Competition between exchanges

In the past, exchanges were natural monopolies and there was little competition for listings (Mahoney 1997). Within this framework, the relationship between stock exchanges and firms applying for a listing was viewed as giving rise to a long-term contract in which stock exchanges supplied liquidity, corporate governance rules, clearing and monitoring services and a signalling function to investors in exchange for listing fees (Macey and O'Hara 1999). However, the globalisation of securities markets has recently led to a growing number of companies seeking to raise capital across borders and financial markets becoming more integrated. At the most general level, the forces shaping the competition between exchanges

are a direct result of technological innovation, elimination of cross-border capital controls, and the introduction of new trading systems. An immediate consequence of the changes that have taken place is the diminished role of exchanges as the dominant supplier of high quality corporate governance rules, and monitoring, signalling and clearance services. It is important to underline the obvious fact that because there are alternatives to products and services supplied by exchanges, it is reasonable to assume that exchanges will face increasing competition from automated trading systems, where it is possible to trade securities generally listed on exchanges (Steil 1996; DiNoia 1998).

While in the US there has been strong competition between equity markets for a long time, competition among exchanges in much of continental Europe goes back to the mid-to-late 1980s only (Macey 2001). Some have noted that the competition between European exchanges has led to significant reductions in trading fees – which have benefited investors – and a proliferation of trading mechanisms which increase market liquidity (Pagano 1998). In the context of competitive capital markets, exchanges present issuers with a choice of listing requirements, trading systems, and trading and listing fees (Santos and Scheinkman 2000). These are offered by profit-maximizing exchanges in order to maintain their competitive advantage (Biasis and Faugeron-Crouzet 2002; Foucault and Parlour 1999).

Unfortunately, there are significant differences in the level and quality of competition between the main and secondary markets in Europe. For the most part, the effective absence of competition within countries between first and second-tier exchanges was a primary cause (along with inadequate investor demand) of the undercapitalised state of European small and medium-sized enterprises (SMEs) (Röell 1998). Moreover, it should be pointed out that the focus of Europe's first-tier exchanges on large, blue-chip firms reduced the attractiveness of the second-tier exchanges, which made it difficult for these exchanges to attract listings from firms that would be eligible to list on a first-tier exchange. Naturally, the most obvious way for the second-tier markets to compete with the rival first-tier exchanges was to become an independent exchange, like Nasdaq, which could provide a home for high-tech firms in Europe that would normally apply for a US listing. To a large extent, the emergence of the Euro.NMs, along with Nasdaq Europe (Easdaq) and AIM is best seen as an attempt to pursue such a strategy.

2.2 Euro.NMs

In 1996/97, the European New Markets were launched in order to facilitate the financing of innovative companies with a high-growth potential, which were the type of companies that continental European listing rules would have excluded earlier. The Euro.NMs were developed to provide European equity issuers with an alternative to the – at the time – shining example of Nasdaq. Consequently, the Euro.NMs established admissions, listings and disclosure regulation, trading procedures and operational standards as a means to achieve an efficient decentralized market which reduced the barriers to flotation for small and medium-sized companies and provided start-up ventures with the best possible access to risk capital (Avgerinos 2000). The Euro.NMs also adopted a dual trading system consisting of a mix of a quote-driven and order-driven system, to ensure adequate market liquidity. By creating greater liquidity for the shares of SMEs and setting high listing and disclosure standards, the New Markets also aimed at attracting institutional investors.

The French New Market (*Nouveau Marché*) was the first to be created and commenced operating on 14 February 1996 as an alternative, independent investment market governed by its own organizational and operating rules while trading and clearing is done by SBF-Paris (*Société des Bourses Françaises).* At the end of 2001, the total market capitalization of the 164 companies listed on the *Nouveau Marché* was € 15 billion. Only 7 per cent of these firms came from foreign jurisdictions. Table 1 shows the growth in the IPO activity on the Euro.NMs from the start until 2000. The table reports only true IPOs and hence excludes (i) transfers from the OTC, (ii) firms already listed on Easdaq, (iii) introductions (admissions to the listing without any sale of shares), (iv) rights issues, and (v) firms with missing share prices. However, the table includes foreign listings[1] and dual listings with Nasdaq and other non-European markets. In its first two years of trading, the *Nouveau Marché* attracted 14 and 17 IPOs, respectively. IPO activity picked up in 1998 when 39 firms applied for a listing and the trend continued until 2000 when 50 firms were granted a listing. Venture capital activity, moreover, increased during the 1990s as a result of the opening of the *Nouveau Marché*.

[insert table 1 here]

As a consequence of the increasing demand for equity investment in Germany, the *Deutsche Börse* established the *Neuer Markt* on 10 March 1997 to meet the financing needs of young

[1] A foreign listing is for example an Israeli firm, not listed in Israel, going public on the *Neuer Markt*.

companies which were not catered for by the existing markets, i.e. the Official Market (*Amtlicher Markt*) and the Regulated Market (*Geregelter Markt*). The *Neuer Markt* is legally part of the Regulated Market, which was created in 1986. However, technically, the *Neuer Markt* is not a market organised by public authorities, but is privately organised and benefits therefore from a greater flexibility in terms of tailoring its regulation to improve investor protection. This approach yielded positive results as the *Neuer Markt* soon proved successful in attracting new issues (Jenkinson and Ljungqvist 2001). The number of firms seeking a *Neuer Markt* listing took off with 11 flotations and rose spectacularly to 143 in 2000. By the end of 2000 (see table 1), 325 companies were listed and the market capitalization was in excess of € 50 billion. Becker and Hellmann (2000) have documented how the *Neuer Markt* undoubtedly contributed to the deepening of the venture capital market, which has matured in recent years.

On 25 March 1997, the Amsterdam Exchanges created a new market segment (the New Market of Amsterdam Exchanges (NMAX)), which developed its own rules for listing eligibility. This initiative was soon followed by the Brussels Exchange, which created Euro.NM Brussels on 11 April 1997. In comparison to their French and German counterparts, the Euro.NMs of Amsterdam and Brussels have only known a modest success. The total number of IPOs on the Dutch and Belgium markets was 16 and 14, respectively. Also, by contrast with the *Nouveau Marché* and *Neuer Markt*, the firms listed on the Dutch and Belgium new markets had little if any venture capital support. Bottazzi and Da Rin (2002) suggest that the absence of venture capital-supported IPOs in the Dutch market is explained by the long recognized tradition of Dutch firms listing on the Nasdaq.

The youngest Euro.NM is the Milanese *Nuovo Mercato* that was created by Opengate SpA, an Italian IT services group on 17 June 1999 and is operated by *Borsa Italiana*. Whilst the *Nuovo Mercato* has only 27 listed companies, it includes Tiscali, one of Europe's largest internet service provider in 2000.

It is worth pointing out that Easdaq, which was established in June 1996 to provide a market for a broad range of high-tech growth companies, was unable to compete successfully in terms of size, liquidity and performance against the Euro.NMs and was taken over by Nasdaq in 2001. Moreover, the two high-growth markets in the UK (the Alternative Investment

Market (AIM) created in June 1995, and the techMark[2] started in November 1999) have been unable to match the performance of the Euro.NMs.

Indeed, the early success of the Euro.NMs has been remarkable: at the end of May 2000, 438 companies from 13 countries were listed across all the Euro.NMs, the total amount of new capital raised exceeded € 23.5 billion, and the total market capitalization was around € 234 billion. Of the 438 firms, 27 were dually listed on Nasdaq and on 7 other markets. The market performance has also been very impressive with the official Euro.NM All-share Index rising by 561 per cent since the start of 1998 until March 2000 (Grant Thornton 2002), just prior to the market crash.

At the end of March 2000, the Belgian, Dutch and French Euro.NMs announced that they were merging to form EuroNext. The inability to harmonize five sets of listing rules, the involvement of five different national regulators and inefficient cross-border trading led to the breakup of the Euro.NMs in December 2000. Consequently, the five Euro.NMs were reduced to three: the German *Neuer Markt*, the Italian *Nuovo Mercato* and EuroNext.[3]

Since the dissolution of the Euro.NMs, the new markets have suffered particularly badly from the decline in technology stocks with losses on some markets exceeding 80 per cent. In 2001, there were virtually no new issues with fewer than 20 IPOs down from more than 200 in 2000. In 2001, the Nuovo Mercato had a liquidity of 11 per cent (measured by turnover of shares as a percentage of total market capitalization), *Neuer Markt* 6 per cent, the *Nouveau Marché* 4 per cent, AIM 3 per cent, and Nasdaq Europe 1 per cent (Grant Thornton 2002). Clearly the growth rate of the New Markets has slowed down. Unsurprisingly, *Deutsche Börse AG* announced on 27 September 2002 that the *Neuer Markt*, which has seen its market capitalization decline by more than 95 per cent of its value in the last 2.5 years and has suffered from a series of insider trading and manipulation scandals[4], would be closed for trading in 2003. The Independent Newspaper quoted on 27 September 2002 Alastair Duffy (Aegon Asset Management) saying that 'high-growth companies that needed a lot of finance would look for a listing on *Neuer Markt* – it was a high-profile index. But companies listed on

[2] TechMark is not an independent exchange but is a segment of the Official List of the London Stock Exchange.
[3] At the beginning of 2002, the Borsa de Valores de Lisboa e Porto merged with EuroNext. Furthermore, the Bourse de Luxembourg has an agreement about cross membership and cross access with EuroNext.
[4] For example, the top executives of EM.TV & Merchandising face trial on charges that they manipulated the share price (New York Times 27/9/2002). The boss of Comroad, Bodo Schnable, was also charged with share manipulation as almost all the sales reported in the firm's 2001 annual report were fictitious (Financial Times 27/9/2002).

it have had issues with fraud, directors being jailed, and some of the business models have been very suspect. It became the last place you would want to list a business because of the negative associations.' One of the problems of the *Neuer Markt* was that the regulator could not enforce shareholders to comply with the mandatory lock-in period. Still, lock-in periods were considered as important mechanisms to reduce asymmetric information between old and new shareholders: forcing the incumbents to keep their holdings over a certain time after the IPO makes it more likely that any private information becomes public (Brav and Gompers 2000). The need for compulsory lock-ins is particularly important for firms subject to higher asymmetric information such as the young and high-tech firms of the Euro.NMs.

The decision to discontinue the Neuer Markt is part of a wide shake-up of the way German companies are listed. Companies will have to comply with a set of vigorous reporting standards. Technology stocks will be brought to the main exchange, where companies will be listed on different segments according to their size. A segment for small to mid-cap companies will sit underneath the blue chip constituents of the DAX.

Probably, further consolidation is inevitable given the failure of the New Markets to attract foreign companies.[5] There can be little doubt that consolidation will most likely be a natural consequence of the introduction of the European Commission's new disclosure regime, which is designed to transform the Listing Particulars Directive and Public Offers Directive. The new regime is based on the introduction of enhanced, uniform disclosure standards for public offers of securities, the introduction of a shelf-registration document, and the adoption of a multilateral admissions system. Ultimately, even though the new proposed disclosure regime is designed to benefit companies that raise capital on Europe's national exchanges, the evidence suggests that the proposed removal of the distinction between the official and second-tier markets and the requirement for the approval of prospectuses will have a costly impact on small and medium-sized firms and the performance of the new markets (Moloney 2002).

[5] Nasdaq Europe suffers even more from low liquidity. Innogenetics (listed on Nasdaq Europe) claimed that its share price suffered from the low liquidity of Nasdaq Europe and applied for a listing on EuroNext Brussels. The announcement of the listing triggered a positive announcement reaction of 19.2% which can be attributed to the higher liquidity provided by that market. An earlier transfer (for liquidity reasons) by Melexis from Nasdaq Europe to EuroNext had a similar price reaction.

3. Listing and Disclosure Requirements

In this section, we briefly discuss the economics of listing rules and then describe the main features of the listing and disclosure requirements for the European New Markets. As noted earlier, one of the main reasons for the success of the Euro.NMs in developing a more active IPO market is the enhanced listing and disclosure requirements imposed on issuer firms (see table 2). Although, in this section, we find some differences in regulation between the markets, we argue that these differences are minor and cannot be the main reason for the substantial differences in the short-run and long-run performance of IPOs.

From the outset, it is important to note that exchanges provide an important service consisting of a screening of the information provided by the firm applying for a listing. The quality of this information is important, as analysts and investors will use it to evaluate the performance and prospects of the firm. In establishing listing requirements, stock exchanges aim to safeguard the interests of investors by requiring the disclosure of sufficient information about the applicant for a listing. Typically, exchanges will establish minimum quantitative standards – minimum number of shares outstanding, average trading volume, market value of outstanding shares, and public shares outstanding – financial criteria, and disclosure requirements. It is generally acknowledged, however, that stock exchanges do not, for many reasons, provide a financial assessment of the filings of the applicant firms. Even though stock exchanges will only evaluate applicant firms on a going concern basis, the issuer's choice of exchange, nevertheless, will signal important information to investors about the firm. In this analysis, it is assumed that the branding of listing rules will have a direct effect on the level of competition between exchanges for listings (Macey and O'Hara 2002). The proliferation of exchanges will offer firms applying for a listing a greater variety of choice of listing rules (Santos and Scheinkman 2000; Foucault and Parlour 2001). The most direct effect of the competition of exchanges in the design of listing rules is that high-disclosure exchanges will attract more firms than low-disclosure exchanges (Huddart, Hughes and Brunnermeir 1999). This argument rests on the assumption that liquidity traders will choose to trade in firms listed on high-disclosure exchanges. In turn, corporate insiders, who control the listing decision, will follow the flow of liquidity to the exchanges where the trading costs are lowest. In a closely related paper, Boot and Thakor (2001) show that, since high-quality firms will benefit from a better disclosure of certain types of information, exchanges will have to revise their disclosure regimes upwards, to be able to attract sufficient numbers of high-

quality listing firms. There is another argument in favour of improved disclosure standards: the benefit of higher standards for issuing firms is that the listing reduces the firms' cost of capital (Fox 2001).

Despite the ongoing competition between the Euro.NMs and the other second-tier exchanges (e.g. Nasdaq Europe and, AIM and the techMark), there has recently been substantial convergence in terms of new listing regulations. The rules, among other things, require the filing of quarterly reports, the provision of continually updated information, and the submission of financial statements that must be reported in US GAAP, IAS or a national version of GAAP. Detailed economic research of firms listed on the *Neuer Markt* has revealed that the differences in the bid-ask spread and share turnover across IAS and US GAAP are statistically insignificant (Leuz 2002). The implication is that US GAAP and IAS are equivalent in terms of quality. Interestingly, nearly every new market in Europe allows listed firms to adopt either IAS or GAAP. From the perspective of an issuer, the Euro.NMs' admission and listing obligations are rigorous and quite extensive. For example, the rules are also reasonably stringent with respect to lock-in periods, the issuing prospectus, and disclosure of transactions by managers. Yet, in other respects, the admissions rules are not very stringent: the issuer size requirements, minimum proceeds and trading history rule allow young, small firms (like e.g. innovative high-growth companies) to seek a listing.

In the remainder of this section, we focus on the listing and disclosure criteria for the two largest exchanges in the Euro.NMs alliance, the *Neuer Markt* and *Nouveau Marché*. We noted earlier that the Euro.NMs have substantially converged in terms of their disclosure and transparency requirements and operational standards so as to make their markets attractive to investors. In particular, the enhanced level of transparency that the *Neuer Markt* and *Nouveau Marché* demand of issuing firms can be seen as an advantage, particularly if listing firms expect to attract the support of institutional investors.

Table 2 states the criteria that issuers must satisfy in order to list on the *Neuer Markt* and *Nouveau Marché*. In terms of prerequisites for admission, the rules on the two markets are very similar. First, the issuer must have at least € 1.5m of equity capital. Second, the minimum number of shares issued must be at least 100,000 and the minimum market capitalization must be at least € 5m. Third, there must be a minimum free float of 20 per cent. Firms are required to have a market maker to provide liquidity support. Fourth, at least half of the shares offered in the IPO must be primary shares, i.e. shares that increase the firm's

equity. In contrast to the *Neuer Markt* which has a six-month lock-in period for all shares, the *Nouveau Marché* subjects insiders to a lock-in of 80 per cent of their shares for a period of 12 months or 100 per cent of their shares for 6 months. The listing prospectus of firms applying to either market has to contain information about: (1) the issuer, its share capital, and business; (2) the assets, financial position, and profits and loss statements; (3) associated companies and affiliates of the issuer; (4) board(s) of directors; and (5) recent developments, business prospects and risk factors. In terms of continuing obligations for issuers, both markets have established strict disclosure regimes.[6]

[insert table 2 here]

The early success of the *Neuer Markt* and *Nouveau Marché* depended on several factors. One of the most important factors is the stringent disclosure regime aimed at protecting minority investors. The listing rules for both exchanges are more extensive than those applicable to listed securities on the Official Exchanges. There is evidence that having a good reputation for high corporate governance and minority shareholder protection correlates with increased size, performance and liquidity of a securities market. In turn, the state of the market, its size and liquidity, also contribute to the expansion of the market for IPO.

4. Pricing anomalies of Euro.NMs IPOs

This section (sub-section 4.1) starts with a general description of the characteristics of IPOs listed on the Euro.NMs. It then investigates the traditional pricing anomalies: short-run underpricing (sub-section 4.2) and long-run underperformance (sub-section 4.3) of the companies floated on the Euro.NMs. We explore the various theoretical explanations for short-run underpricing and long-run underperformance which rely upon issue method and the institutional environment. Still, our analysis shows that none of these analyses provide a sufficient explanation. We argue that a framework that focuses on determinants such as

[6] *Neuer Markt* firms must issue a quarterly report within two months after each quarter, disclose annual financial statements within three months after the end of the business year according to IAS or US GAAP. Issuers listed on the *Nouveau Marché* are required to publish quarterly reports (and semi-annual accounts) and an audited annual financial statement, according to IAS or US GAAP, where a reconciliation table is provided. Both markets also require that firms provide investors with information about share transactions by managers, the company, and the directors. Issuers are also asked to disclose management reports, summons for annual general meetings, the announcement of distributions and payment of dividends and the issuing of new shares as well as the exercise of conversion, subscription, and rights. Finally, issuing companies must also honour the Take-over Code.

industry characteristics, age and size of the firm and behavioural accounts serve to predict both initial and long-run underpricing of IPOs on the Euro.NMs.

4.1 Sample description, data sources and Euro.NM IPO characteristics

In this study, we include the whole population of the IPOs from all five Euro.NMs starting from the first date of trading until the end of 2000. Firm-specific information, such as the firms' names, the date of the initial trading, the offer price and other listing particulars were obtained directly from the Euro.NMs exchanges. For the German market we completed the data using the annual volumes of the *Hoppenstedt Aktienführer* and data from *Deutsche Bank AG*. The first-day share prices, weekly share prices as well as information on industrial sectors were obtained from Datastream. Information on the age of the firms was collected from the IPO prospectuses and *Hoppenstedt* for Germany.

Table 3 reveals that the IPOs on the Euro.NMs are significantly younger than IPOs on the first and second-tier markets. For example, the average IPO on the *Neuer Markt* is less than 8 years old whereas the average age of German IPOs on the Official and Regulated Markets amounts to more than 49 years (Goergen and Renneboog 2003). Across all the New Markets, those floated on the Brussels market are the oldest with an average age of 13 years. The average size varies substantially across markets: the market capitalization of the average (median) French firm is 4.6 (2.5) times smaller than the average (median) German IPO.

Book-building was used as the pricing method for all the IPOs, except for about 78 per cent of the Dutch IPOs which used the fixed price method. The book-building ratio in table 3 is calculated as the ratio of the difference between the offer price and the book-building low to the difference between the book-building high and the book-building low. The book-building ratio ranges from 0 to 1 if the price was set within the book-building range. A ratio of 0 means that the offer price was set to the lower bound of the book-building range and a ratio of 1 means that it was set equal to the upper bound. In a few cases, the initial book-building range was different from the final book-building range, and as a result the offer price was outside the initial range. For these cases, the ratio will either be negative (if the final range was lower) or higher than 1 (if the final range was higher).[7] The median ratio for each market was exactly

[7] We found the following negative (higher than one) book-building ratios: 2 (3) IPOs on the *Nouveau Marché*, 1 (11) IPOs on the *Neuer Markt*, 0 (2) IPOs on the *Nuovo Mercato* and 0 (0) IPOs on the Amsterdam market. Information on the book building arrangements was not available for the Brussels market.

1, except for the Italian market which had a median ratio equal to its mean of 0.5. The fact that for most IPOs the offer price was set at the top end of the book-building range may reflect the overoptimism of investors in the new economy IPOs. Aussenegg, Pichler and Stomper (2002) analyse IPOs on the Nasdaq and the *Neuer Markt*. They find that contrary to underwriters on the Nasdaq, underwriters on the *Neuer Markt* do not set the offer price above the price range and do therefore not use the information collected during the book-building process.[8]

[insert table 3 about here]

The industry distribution of the Euro.NMs IPOs is reported in table 4. Except for the small Brussels market, most of the IPOs are in the new economy sectors of telecommunications, internet and software, and other high-tech sectors such as electronic equipment, or pharmaceutical and medical appliances. In the French and German markets, more than 90 per cent of the listed firms can be classified as high-tech and almost a third of the IPOs are software firms. In contrast, the majority of German IPOs on the Main and Regulated Markets during the 1980s came from relatively mature industries such as electricals, mechanical engineering, packaging and paper, and motor components (Goergen 1998).

[insert table 4 about here]

4.2 Short-run underpricing of Euro.NMs IPOs

One of the most widely documented pricing anomalies is short-run IPO underpricing, i.e. the phenomenon that the price at the end of the first trading day is substantially above the offer price. This observation, namely that firms fail to capture a substantial amount of external funds by setting too low an offer price, has been made in almost all markets worldwide for the 1970s and 1980s (for an international overview, see Loughran, Ritter and Rydqvist 1994). This phenomenon continued through the 1990s with Rajan and Servaes (1997), amongst others, providing evidence that average initial returns of up to 16 per cent were a regular feature of the US new issue market. One of the main reasons why the average degree of underpricing varies across countries is the existence of different pricing methods. For the

[8] In contrast, we find about 11 cases where the offer price is outside the initial price range. This difference in results may be due to the fact that Aussenegg et al. (2002) base themselves on the final book-building range whereas we consider the initial range.

French firms that went public in 1992-98, underpricing averaged 13 per cent (Derrien and Womack 1999) whereas for German IPOs introduced over the period of 1970-93 this number amounted to 9 per cent (Ljungqvist 1994). Dutch IPOs floated in 1985-98 were underpriced by 17 per cent (Van Frederikslust and Van der Geest 2001) whereas Rogiers et al. (1993) reported underpricing by about 10 per cent for a sample of 28 IPOs on the Brussels stock exchange. Cherubini and Ratti (1992) reported that the 75 Italian IPOs introduced over the period 1985-91 were underpriced by a formidable 27 per cent.

A small number of mostly unpublished papers have looked at the short-run performance of IPOs on the Euro.NMs. Manigart and De Maeseneire (2000) analysed all the IPOs floated on Euro.NMs and Easdaq (now Nasdaq Europe) prior to the end of 1999 and found that the average initial underpricing was 36 per cent. Another study limited to internet IPOs on the Euro.NMs found that the underpricing was about 70-85 per cent for the German and French IPOs (Arosio, Giudici and Paleari 2000). The *Nuovo Mercato* IPOs were underpriced by about 24 per cent on their first day of trading (Arosio, Bertoni and Giudici 2001). Aussenegg, Pichler and Stomper (2002) tested the informational role of book-building as advanced by the model by Benveniste and Spindt (1989) on a sample of internet, software, and computer IPOs floated between January 1999 and December 2000 on Nasdaq and the *Neuer Markt*. They found evidence of rents being earned by those investors providing information during the book-building process on Nasdaq, whereas no such rents were earned on the *Neuer Markt*.

Table 5 reports the degree of underpricing for the 5 markets. Underpricing is calculated as the difference between the share price at the end of the first day (first week) of trading and the offer price divided by the offer price. At first sight, the numbers in panel A seem puzzling, as average underpricing measured on the first day ranges from a low 4 per cent in France to a staggering 86 per cent in the Netherlands. The range narrows down to between 5 and 65 per cent, if one measures underpricing at the end of the first week of listing. When IPOs on the Brussels market, which has attracted older firms and firms from more mature industries, are excluded, first-week underpricing is within the range of 25 to 65 per cent. This suggests that a higher degree of underpricing (in comparison to the main markets) is typical for high-tech firms for which value uncertainty and asymmetric information between management and external investors are high.

[insert table 5 about here]

The higher first-day (first-week) average underpricing of 31.2 per cent (44.2 per cent) as compared to the first-tier continental European markets is entirely due to the *Neuer Markt* and NMAX, as levels of underpricing on the *Nouveau Marché* and the Italian and Belgian Euro.NMs are similar to those reported for the main markets. Panel B of table 5 reports that, from the perspective of the median firm, there is hardly any first-day underpricing in Belgium, France and Italy, with modest underpricing for the *Neuer Markt*. However, median first-week underpricing is significant apart from for Belgium and Italy.

The distributions of first-day and first-week initial returns of the (high-tech) Euro.NMs firms (see the histograms for the French and German markets in figures 1 to 4) differ substantially from those of the main markets and differ across the Euro.NMs exchanges. The distribution for the *Nouveau Marché* shows that a large proportion of IPOs, namely about 60 per cent, are over- rather than underpriced. The proportion of IPOs with negative initial returns is about 40 and 60 per cent at the end of the first day for the *Neuer Markt* and the *Nouveau Marché*, respectively, and about 25 and 35 per cent at the end of the first week. This is very different from what studies on the main markets have found. For example, Ritter (1997) reports that for the US only one out of eleven IPOs had negative first-day initial returns.

[insert figures 1-4 about here]

Why is underpricing of German and Dutch Euro.NM high-tech firms 4 to 5 times larger than that of firms on their main markets and why are there large differences across the Euro.NMs? We need to ask whether differences in listing and disclosure rules between the main markets and between the Euro.NMs can account for the differences in the initial performance. As hypothesized in section 1, stronger disclosure rules on the Euro.NMs than on the main markets and the resulting reduction in asymmetric information are expected to lead to less underpricing on the Euro.NMs. We have documented that this is not the case. Thus it seems that the listing requirements, which are more lenient for the new markets than for the main markets, can be responsible for a more cautious setting of the offer price resulting in higher underpricing on the Euro.NMs. Still, listing rules cannot explain the differences in short-run underpricing across the Euro.NMs. First, since the listing rules for both markets are virtually identical, they cannot account, to any significant extent, for the wide divergence in performance between the Euro.NMs. Second, we are skeptical that other legal/institutional explanations, such as differences in rules concerning litigation risk and the probability of litigation in the countries concerned, shed light on the pattern of underpricing on the Nouveau

Marché or Neuer Markt. Unlike the United States, the legal liability of underwriters is not economically significant in continental Europe (Jenkinson and Ljungqvist 2001).

Apart from listing rules – largely equivalent to IPO characteristics like age, size, trading and profit history – differences in industry distribution also explain differences in initial underpricing between Euro.NMs and the main markets, on the one hand, and between the Euro.NMs, on the other hand. Table 6 documents that the degree of underpricing varies substantially across industries. For example, information technology and cyclical services were significantly underpriced by 34.5 per cent and 40.5 per cent, respectively, whereas underpricing in the non-cyclical service industry and cyclical consumer goods were only 14.22 per cent and 11.7 per cent (not significantly different from zero). Underpricing is exceptionally high for the Dutch new market (NMAX) compared to the other Euro.NMs (table 5). This difference can be partially explained by the different flotation method. Whereas all the other Euro.NMs use the book-building method, the Dutch uses mainly the fixed-price method. As the fixed-price method does not allow the firm (and its underwriter) to collect more information about how potential investors value its shares, more substantial underpricing can be expected in the Dutch new market.

[insert table 6 about here]

4.3 Long-run Performance of Euro.NMs' IPOs

To-date, there is no study investigating the long-run performance of IPOs on the Euro.NMs. The many papers investigating long-run returns for the main markets in Europe report usually significantly negative market-adjusted returns (for a review see Jenkinson and Ljungqvist 2001). Van de Hoeijen and Van der Sar (1999) find that IPOs on the Amsterdam Exchanges underperform the market benchmark over the five years after their listing by 17.9 per cent. For Germany, Ljungqvist (1997) reports that over the three years after their listing IPOs underperform the market by about 12 per cent. A sample of IPOs introduced on the French market during 1996-98 generates three-year returns of 10 per cent below the market (Chahine 2001). For the US, the picture is similar: Ritter (1991), Rajan and Servaes (1997), Carter et al. (1998), among others, have all shown that US IPOs underperform the market benchmarks by between 17 and 49 per cent in the long run.

We calculate long-run returns for periods of between 1 and 5 years using data from Datastream. To avoid the impact of the initial underpricing and that of price support by the underwriter, the first 4 weeks of trading were excluded. We opted for weekly returns rather than the traditionally used monthly returns as some of the Euro.NM IPOs have less than 3 years of share prices. We use two different methodologies and two different benchmarks as a robustness check on our results. First, we use the market-adjusted cumulative abnormal returns (CARs), which are defined as follows for the case of the 3-year period:

$$CAR = \sum_{t=5}^{t=156} \frac{1}{N} \sum_{i}^{N} AR_{i,t}$$

where $AR_{i,t} = R_{i,t} - R_{m,t}$ is the abnormal return for firm *i* in month *t* and *N* is the number of firms in the sample. $R_{i,t}$ stands for the actual return of firm *i* and $R_{m,t}$ is the market return. To assess the statistical significance of the CARs, we use *t*-statistics based on Brown and Warner's (1980) Crude Dependence Adjustment Test in order to correct for cross-sectional dependence:

$$t - stat = \frac{CAR_t}{\sqrt{t \cdot \left(\sum_{t=1}^{T} \left(\overline{AR_t} - \frac{CAR_{152}}{152} \right)^2 \right) / 151}}$$

where CAR_t is the cumulative abnormal return until month *t*, CAR_{152} is the cumulative abnormal return for the 152 weeks after the IPO and $\overline{AR_t}$ is the average abnormal return in month *t*.

Second, we use Buy-and-Hold returns (BHRs) as in Ritter (1991). For the case of the three-year period (152 weeks), holding returns are computed as:

$$BHR_i = \prod_{t=5}^{t=156} (1 + R_{i,t}) - 1$$

where $R_{i,t}$ is the raw return on firm *i* over the event week *t*. This measures the total return from a buy-and-hold strategy where the IPO is purchased four weeks after the listing and is held until the earlier of either its third-year listing anniversary or its date of delisting. We also adjust the BHR for market movements. For both the CARs and BHRs, we face the problem of the choice of an appropriate market benchmark for the Euro.NM firms. We opt for the FTSE

Eurotop 300 and FTSE Euromid indices. According to FTSE, the Eurotop 300 is a widely accepted European benchmark, which measures the performance of Europe's largest 300 companies in terms of market capitalization. The Euromid represents the medium-capitalization companies across Europe and consists of all the companies in the FTSE World Europe index minus the FTSE Eurotop 300 companies.

For each of the firms introduced on the Euro.NMs from the first year of the exchange until 2000, we calculate market-adjusted returns as well as buy-and-hold returns, measured over the period starting one month after the IPO and covering periods of 1 to 5 years (if applicable). Panel A of table 7 shows the performance of firms listed on the *Nouveau Marché*: there is statistically significant underperformance by more than 20 per cent in the first two years. Although, longer-term returns are also negative, they are not statistically significant from zero. The BHRs are substantially negative and even reach –50 per cent over a five-year period. It should be noted that these results include the effect of the bursting high-tech and dot-com bubble of March 2000. On the right-hand side of panel A, we largely exclude the consequences of the bursting of the dot-com bubble by investigating the performance over 1 year and 2 years for the IPOs introduced during the period 1996-99. As a result, entirely different results are obtained: in the first year, the market-adjusted returns are between 18 and 31 per cent, depending on the benchmark. Over the first two years after the IPO, the results are significantly positive or insignificantly different from zero, depending on the market benchmark.[9]

A similar picture can be sketched for the *Neuer Markt* where the underperformance after the IPO is even worse: the share prices of firms introduced during 1997-2000 experienced market-adjusted price decreases of between 40 per cent (BHRs) and 60 per cent (CARs) over a two-year period (panel B of table 7). For a smaller subsample for which we can calculate returns over three and four years, we find that the negative price correction amounts to around 64 per cent (BHRs) and 173 per cent (CARs). Excluding the market crash from the year 2000 (right-hand side of panel B), we find strongly positive one-year returns, which substantially decline over a two-year period when the effect of the bursting dot-com bubble becomes

[9] The data presented in panel A exclude 10 outliers with returns of over 200% (excluding initial underpricing): Soitec, A Novo, Valtec, Egide, Wavecom, FI System, IT Link, Kalisto, Coheris, Metrologic. The inclusion of these firms gives a significantly positive return of 33% for year 1 and 51% for the three-year period. For panel B, we excluded the following outlier firms which had abnormal returns of more than 200%: EMTV & M NMBL, Mobilcom, Morphosys, Dlogistics, Advanced Optics Network, MWG-Biotech, Parsytec, Teleplan, and CE Consumer Electronics.

apparent for part of the sample (the IPOs introduced in 1999). The situation on the Brussels, Amsterdam and Milan Euro.NMs (panels C-E) is similar.[10]

The table in the appendix shows long-run underpricing by industry: the negative price correction in years 3 to 5 is larger in those industries characterised by high initial underpricing.

The evidence presented in section 4.1 (that IPO volume and initial returns are highly correlated (as in Lowry and Schwert 2002)), and in this section (that a severely negative performance correction takes place 3-5 years subsequent to the IPO) is consistent with the existence of a speculative bubble.

[insert table 7 about here]

5. Conclusions

In 1996/97, the European New Markets were launched in order to facilitate the financing of innovative companies with a high-growth potential. These were the type of companies that continental European listing rules would have excluded earlier. Consequently, the Euro.NMs established admissions, listings and disclosure regulation, trading procedures and operational standards as a means to achieve an efficient decentralized market which reduced the barriers to flotation for small and medium-sized companies and provided start-up ventures with the best possible access to risk capital. We find that Euro.NM IPOs are substantially younger than IPOs on the main markets. Except for the Belgian market, Euro.NM IPOs also come from different industries, mainly high-tech industries.

The initial returns we documented in this chapter are remarkable in four ways. First, underpricing is on average 2-3 times higher than that on the main markets. It should be noted that the Euro.NMs were created during a surging IPO-wave and about two years before the bursting of the dot.com bubble. Second, the distribution of the initial returns is very different from that of IPOs on the established markets. Especially, the proportion of IPOs with negative initial returns is much higher. Third, in the period starting one month after the IPO and ending

[10] For each of the Amsterdam, Brussels and Milan markets, one outlier firm was removed. Prolion (NMAX) gave a return of around 800 per cent in its first year of trading (603 per cent in the first two years and 545 per cent in the first three years of listing). The impact of one firm was such that without removing it from the sample the first year-average returns were 33.53 per cent, but its removal brought the returns down to –29.33 per cent (significant). International Brachytherapy (Brussels Euro.NM) had a return of 461 per cent in its first year. Open Gate (Nuovo Mercato) achieved a return of 173 per cent in the first year of listing.

three to five years after the flotation, the buy-and-hold returns and the cumulative abnormal returns of firms introduced on the European New Markets are strongly negative and even substantially more negative than long-term returns on the main markets. Fourth, even across Euro.NMs, we find large differences in short- and long-run performance. Underpricing ranges from only 4 per cent on the *Nouveau Marché* to 86 per cent in the Netherlands. The differences in underpricing also induce differences in the long-term price corrections.

It is puzzling that underpricing and long-term performance between the Euro.NMs are so different. What we can largely rule out are differences in regulation: those differences are only minor and cannot account for the major discrepancies in performance across markets. Furthermore, the flotation method cannot explain differences either as most firms introduced on the Euro.NMs (with exception of NMAX) used the book-building method. We have shown that the performance discrepancies can largely be explained by differences in firm and industry characteristics. Small deviations in industry distribution (especially in terms of the weight of internet and telecoms firms) can already account for significant performance differences between the Euro.NMs. Ljungqvist and Wilhelm (2002) show for a sample of US IPOs that more fragmented ownership, lower pre-IPO insider ownership stakes, lower equity stakes held by venture capitalists and investment banks, and directed share programmes can already explain some changes in performance across time. Furthermore, the agency conflicts between issuers and investment banks may also account for the differences in IPO performance over time and across markets. Loughran and Ritter (2001) and Biais et al. (2000) conjecture that issuers grew complacent as valuations spiralled.

Finally, the larger underpricing and stronger market correction in the Euro.NMs compared to the main markets suggests that a higher degree of uncertainty (resulting from more lenient listing rules in the Euro.NMs) and investor irrationality were present in the new markets.

References

Arosio, R., Bertoni, F. and Giudici, G. (2001), 'The good, the bad and the ugly... everyone wants to join the Nuovo Mercato', Working paper, Politecnico di Milano and University of Bergamo.

Arosio, R., Giudici, G., and Paleari, S. (2000), 'Why do (or did?) internet-stock IPOs leave so much money on the table?', Working paper, Politecnico di Milano.

Aussenegg, W., Pichler, P. and Stomper, A. (2002), 'Sticky prices: IPO pricing on Nasdaq and the *Neuer Markt'*, Working paper, Boston College.

Avgerinos, Y. (2000), 'Towards a pan-European securities market for SMEs: The Easdaq and Euro.NM models', European Business Law Review 11, 8-26.

Bebchuk, L. and Roe, M. (1999), 'A theory of path dependence in corporate ownership and governance', Stanford Law Review 52, 127-152.

Becker, R. and Hellmann, T. (2001), 'The genesis of venture capital – lessons from the German experience', Working paper, Stanford University Graduate School of Business.

Benveniste, L. and Spindt, P. (1989), 'How investment bankers determine the offer and price allocation of new issues', Journal of Financial Economics 24, 343-361.

Biais, B., Bossaerts, P. and Rochet, J.-C. (2000), 'An optimal IPO mechanism, Review of Economic Studies', forthcoming.

Biais, B. and Faugeron-Crouzet, A.-M. (2002), 'IPO auctions: English, Dutch, . . .French, and internet', Journal of Financial Intermediation 11, 9-36.

Bolton, P. and von Thadden, E.-L. (1998), 'Blocks, liquidity and corporate control', Journal of Finance 53, 1-25.

Boot, A.W. and Thakor, A.V. (2001), 'The many faces of information disclosure', Review of Financial Studies 14, 1021-1057.

Bottazzi, L. and Da Rin, M. (2002), 'Venture capital in Europe and the financing of innovative companies', Economic Policy, 34, 231-269.

Bratton, W. and McCahery, J. (2001), 'Incomplete contracts theories of the firm and comparative corporate governance', Theoretical Inquiries in Law 2, 745-782.

Brav, A. and Gompers, P. (2000), 'Insider Trading Subsequent to Initial Public Offerings: Evidence from Expirations of Lock-Up Provisions', working paper, Duke University and Harvard University.

Brown, S. and Warner, J. (1980), 'Measuring security price performance', Journal of Financial Economics 8, 205-258.

Carter, R., Frederick, H. and Singh, A. (1998), 'Underwriter reputation, initial returns, and the long-run performance of IPO stocks', Journal of Finance 53, 285-311.

Chahine, S. (2001), 'Long run underperformance after IPOs and optimistic analysts forecasts', Working paper, Nantes Atlantique.

Cherubini, U. and Ratti, M. (1992), 'Underpricing of Initial Public Offerings in the Milan Stock Exchange', Mimeo, Banca Commerciale Italiana.

Coffee, J. (2001), 'The coming competition among securities markets: which strategies will dominate', Working paper, Columbia University Law School.

Derrien, F. and Womack, K.L. (1999), 'Auctions vs. book building and the control of underpricing in hot IPO markets', Working paper, Dartmouth College.

DiNoia, C. (1998), 'Competition and integration among stock exchanges in Europe: network effects, implicit mergers and remote access', Working Paper, Wharton School of Business.

Espenlaub, S, Goergen, M. and Khurshed, A. (2001), 'IPO Lock-in Agreements in the UK', Journal of Business Finance and Accounting 28 (9and10), 1235-1278.

Foucault, T. and Parlour, C. (1999), 'Competition for listings', CEPR Discussion Paper No. 2222.

Fox, M. (2000), 'The securities globalization disclosure debate', Washington University Law Quarterly 78, 567-596.

Fox, M. (2001), 'The issuer choice debate', Theoretical Inquiries in Law 2, 563-612.

Goergen, M. (1998), 'Corporate governance and financial performance – a study of German and UK initial public offerings', (London: Edward Elgar).

Goergen, M. and Renneboog, L. (2003), 'Why are the levels of control (so) different in German and UK companies? Evidence from initial public offerings', Journal of Law, Economics and Organization 19, forthcoming.

Grant Thornton (2002), 'European new markets guide 2002', Grant Thornton Working paper series, London.

Hopt, K. (2002), 'Common principles of corporate governance in Europe', in J.A. McCahery, P. Moerland, T. Raaijmakers, and L. Renneboog (eds.), Corporate governance regimes: convergence and diversity, (Oxford: Oxford University Press).

Huddart, S., Hughes, J. and Brunnermeier, M. (1999), 'Disclosure requirements and stock exchange listing choice', Journal of Accounting and Economics 26, 237-269.

Jenkinson, T. and Ljungqvist, A. 2001, 'Going public: the theory and evidence on how companies raise equity finance', (Oxford: Oxford University Press).

Kahn, C. and Winton, A. (1996), 'Ownership structure, speculation and shareholder intervention', Journal of Finance 53, 99-129.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. Vishny, R. (1997), 'Legal determinants of external finance', Journal of Finance 52, 1131-1150.

Leech, D. and J. Leahy (1991), 'Ownership structure, control type classifications and the performance of large British companies', Economic Journal 101, 1418-1437.

Leuz, C. (2002), 'Information-asymmetry based evidence from Germany's new market', Working paper, Wharton School, University of Pennsylvania.

Ljungqvist A. (1997), 'Pricing initial public offerings: Further evidence from Germany', European Economic Review **7**, 1309-1320.

Ljungqvist, A. (1994), 'Under-pricing and long-term performance of German initial public offerings 1970-1993', Working paper, Nuffield College, University of Oxford.

Ljungqvist, A., Jenkinson, T. , and Wilhelm, W. (2001), 'Global integration in primary equity markets: the role of US banks and US investors', Working paper, New York University Stern School of Business.

Ljungqvist, A. and Wilhelm, W. (2001), 'IPO pricing in the dot-com bubble', Working paper, New York University Stern School of Business.

Loughran, T. and Ritter J. (2001), 'Why has IPO underpricing increased over time?', Working paper, University of Florida.

Loughran, T., Ritter J. and K. Rydqvist (1994), 'Initial public offerings: international insights', Pacific-Basin Finance Journal 2, 165-199.

Lowry, M. and Schwert, G. W. (2002), 'IPO market cycles: bubbles or sequential learning', Journal of Finance 57, 1171-1200.

Macey, J. (2001), 'Regulatory competition in the US federal system: banking and financial services', in D. Esty and D. Geradin (eds.), Regulatory competition and economic integration: comparative perspectives, (Oxford: Oxford University Press).

Macey, J. and O'Hara, M. (1999), 'Regulating exchanges and alternative trading systems', Journal of Legal Studies 28, 17-54.

Macey, J. and O'Hara, M. (2002), 'The economics of stock exchange listing fees and listing requirements', Journal of Financial Intermediation 11, 297-319.

Mahoney, P. (1997), 'The exchange as regulatory', Virginia Law Review 83, 1453-1500.

Moloney, N. (2002), EC securities regulation, (Oxford: Oxford University Press).

Manigart, S and De Maeseneire, W. (2000), 'A first evaluation of Easdaq and Euro.NM and their initial returns', Working paper, University of Ghent.

Pagano, M. (1998), 'Changing microstructure of European equity markets', in G. Ferrarini (ed.), European securities markets: the investment services directive and beyond, (The Hague: Kluwer Law International).

Rajan, R. and Servaes, H. (1997), 'Analyst following of initial public offerings', Journal of Finance 52, 507-529.

Ritter, J.R. (1991), 'The long-run performance of initial public offerings', Journal of Finance 46, 3-27.

Ritter, J.R. (1997), 'Initial public offerings', in Logue, D. and Seward, J. (eds.), Handbook of modern finance, (New York: Research Institute of America).

Röell, A. (1998), 'Competition among European exchanges: recent developments', in G. Ferrarini (ed.), European securities markets: the investment services directive and beyond, (The Hague: Kluwer Law International).

Rogiers, B., Manigart S. and Ooghe H, (1993), 'An empirical examination of the underpricing of initial public offerings on the Brussels stock exchange', Working paper, Vlerick School of Management, University of Ghent.

Romano, R. (2001), 'The need for competition in international securities regulation', Theoretical Inquiries in Law 2, 387-562.

Santos, T. and Scheinkman, J. (2000), 'Competition among exchanges', Working paper, University of Chicago.

Steil, B. (1996), 'The European equity markets', (London: Royal Institute for International Affairs and European Capital Markets Institute).

Van de Hoeijen, H. and Van der Sar, N. (1999), 'De performance van aandelenintroducties op de Amsterdamse effectenbeurs', Maanblad voor Accountancy and Bedrijfseconomie 73, 120-132.

Van Frederikslust, R. and Van der Geest, G. (2001), 'Initial returns and long-run performance of private equity-backed initial public offerings on the Amsterdam stock exchange', Working paper, Rotterdam School of Management, Erasmus University.

Table 1: Number of IPOs on the Euro.NMs

This table includes the number of recently introduced IPOs on the Euro.NMs. The numbers exclude (i) transfers from the OTC, (ii) firms already listed on Easdaq, (iii) introductions, (iv) rights issues, (v) and firms with missing share prices.

Year	Euro.NM Brussels	*Nouveau Marché*	*Neuer Markt*	*Nuovo Mercato*	NMAX (Amsterdam)
1996	–	14	–	–	–
1997	1	17	11	–	3
1998	6	39	41	–	8
1999	6	30	130	6	1
2000	3	50	143	21	2
Total	16	150	325	27	14

Source: List adapted from the data provided by the Euro.NMs as well as *Hoppenstedt* and *Deutsche Bank AG* for Germany

Table 2: Listing and disclosure requirements and regulation on the Euro.NMs, Nasdaq Europe, AIM and techMark.

	Neuer Markt	*Nouveau Marché*	NMAX (Amsterdam)	Euro.NM Brussels	*Nuovo Mercato*	Nasdaq Europe (formerly, Easdaq)	AIM	TechMark
Accounting Standards	US GAAP or IAS	French GAAP and IAS (regarding consolidation rules) US GAAP conversion permitted	US GAAP or IAS	US GAAP or IAS	Italian GAAP or IAS	US GAAP or IAS	UK GAAP, US GAAP or IAS	UK GAAP, US GAAP or IAS
Interim Reporting Requirements	Quarterly	Turnover quarterly and accounts bi-annually	Quarterly	Quarterly	Quarterly	Quarterly	Bi-annually	Quarterly
Lock-in Period	6 months	80% of shares for 12 months or 100% for 6 months	80% of shares for 12 months	80% of shares for 12 months or 100% for 6 months	80% of shares for period of 12 months	80% of shares for 12 months or 100% for 6 months	12 months	No mandatory lock-in period
Market Capitalization	€ 5 m minimum	€ 5 m minimum	No minimum requirement	€ 15 m minimum	No minimum requirement	€ 0.50 m depending on route to admission	No minimum requirement	€ 775,000 minimum
Initial Equity Required	€ 1.5 m minimum	€ 1.5 m minimum	€ 5 m minimum	€ 5 m minimum	€ 5 m minimum	Minimum of € 20 m depending on route to admission	No minimum requirement	No minimum requirement
Previous Trading History	Minimum of 3 years financial statements, some exceptions allowed	No minimum but 3 years of financial statements preferred	Minimum of 3 years of financial statements	Minimum of 3 years of financial statements	Minimum 1 year trading, some exceptions allowed	0-2 years depending on route to admission	No minimum requirement	Minimum of 3 years financial statements

Past Profitability	No minimum requirement	No minimum requirement	No minimum requirement	No minimum requirement	No minimum requirement	€ 0-1m depending on route to admission	No minimum requirement	No minimum requirement
Foreign Company Rules	Articles of association must conform to rules of issuer's home jurisdiction	No change	No change	No change	Admission dependent on positive ruling from Borsa; audited financial statements must be submitted for equivalence declaration	No change	No change	Listed rules are modified
Reporting Language	German and English	French	Dutch and English	French and Dutch or English	Italian	English	English	English
Interview with Exchange	No	No	No	No	Yes	Only in listing appeal	No	Yes

Table 3: Characteristics of Euro.NMs' IPOs

This table shows some characteristics of companies listed on the Euro.NMs. Age is calculated as the number of full years between the year of foundation and the year of the flotation.The book-building ratio is calculated as the ratio of the difference between the offer price and the book-building low to the difference between the book-building high and the book-building low. Market capitalization is the market capitalization of the firm at the end of the first day of trading. For Germany, data were not available for most of the foreign firms listed on the *Neuer Markt*. The number of firms for which information of a characteristic is available is given in parentheses.

	Belgium	**France**	**Germany**	**Italy**	**The Netherlands**	**All the Euro.NMs**
Age (in years)	12.6	8.9	7.7	NA	9.9	8.0
	(5)	(54)	(287)		(11)	(357)
Average market capitalization on first trading day (in million €)	9.2	84.6	388.1	656.4	NA	306.7
	(13)	(144)	(280)	(27)		(464)
Median market capitalization on first trading day (in million €)	6.9	43.9	124.6	230	NA	102.7
	(13)	(144)	(280)	(27)		(464)
IPOs with book building	NA	94.3%	100.0%	96.3%	22.2%	96.8%
		(140)	(321)	(27)	(9)	(497)
Book-building ratio	NA	0.7	0.8	0.5	1.0	0.7
		(130)	(318)	(25)	(2)	(475)

Table 4: Industries with the highest frequency of Euro.NMs' IPOs – The top-10 rankings.

This table shows the percentage of Euro.NMs' firms of our sample by industry. Number of firms is shown between brackets. Source: DataStream

Belgium		France		Germany		Italy		The Netherlands	
Banks	19% (3)	Software	29% (43)	Software	29% (90)	Other Business	26% (7)	Software	29% (4)
Electrical Equipment	13% (2)	Computer Services	12% (17)	Internet	12% (36)	Internet	19% (5)	Computer Services	29% (4)
Steel	13% (2)	Telecom Fixed Line	9% (13)	Electronic Equipment	11% (33)	Computer Services	11% (3)	Business Support	14% (2)
Broadcasting	13% (2)	Electronic Equipment	8% (12)	Business Support	7% (21)	Software	7% (2)	Electrical Equipment	7% (1)
Retailers E-Commerce	13% (2)	Media Agencies	3% (5)	Computer Services	6% (20)	Broadcasting	7% (2)	Household Appliances + Housewares	7% (1)
Eng. Contractors	6% (1)	Pharmaceuticals	3% (4)	Broadcasting	5% (17)	Telecom Fixed Line	7% (2)	Household Products	7% (1)
Household Products	6% (1)	Computer hardware	2% (3)	Media Agencies	4% (13)	Chemicals, Speciality	4% (1)	Medical Equipment + Supplies	7% (1)
Clothing + Footwear	6% (1)	Other Distributors	2% (3)	Other Health Care	3% (9)	Distrib. Ind. Comps.	4% (1)		
Textiles + Leather Goods	6% (1)	Retail, Hardlines	2% (3)	Telecom Fixed Line	3% (9)	Electronic Equipment	4% (1)		
Other Financial	6% (1)	Other financial	2% (3)	Auto Parts	2% (5)	Publishing + Printing	4% (1)		
				Chemicals, Speciality	2% (5)	Business Support	4% (1)		
				Pharmaceuticals	2% (5)	Banks	4% (1)		

Table 5: Initial returns of firms floated on the Euro.NMs (1996-2000).

This table presents the average and median first-day and first-week returns of firms floated on the Euro.NM. The first-day return is calculated as the ratio of the trading price at the end of the first day of trading (or the first trading price available) over the offer price minus 1.First-week underpricing is calculated as the ratio of the trading price at the end of the first week of trading (or the closest day to this) over the offer price minus 1.

	Belgium	**France**	**Germany**	**Italy**	**The Netherlands**	**All Euro.NMs**
Panel A: Average first-day returns						
First-day return (%)	10.36	4.19	43.32	18.84	86.07	31.17
First-week return (%)	5.38	25.10	54.27	36.88	64.47	44.18
Sample size	13	144	319	26	11	513
Panel B: Median first-day returns						
First-day return (%)	2.18	0.00	8.00	0.00	90.07	0.19
First-week return (%)	0.00	8.38	30.95	1.25	38.38	18.04

Table 6: Initial returns of firms floated on the Euro.NMs by industry (1996-2000).

This table presents the average and median first-day and first-week returns of firms floated on the Euro.NM, by industry. The first-day return is calculated as the ratio of the trading price at the end of the first day of trading (or the first trading price available) over the offer price minus 1.First-week underpricing is calculated as the ratio of the trading price at the end of the first week of trading (or the closest day to this) over the offer price minus 1. ***,**,* stand for statistical significance at the 1, 5 and 10% level.

Industry	Average (%)	Median (%)	t-statistic (average ≠ 0)	Sample size
Panel A: First-day returns				
Basic Industries	26.11***	25.76	2.563	10
General Industrials	27.65***	2.96	3.350	60
Cyclical Consumer Goods	11.68	0.00	1.521	11
Non-Cyclical Consumer Goods	23.29***	0.00	2.729	33
Cyclical Services	40.46***	1.09	5.500	102
Non-Cyclical Services	14.22***	0.00	2.469	29
Utilities	0.00	0.00	–	2
Financials	19.40*	0.00	1.821	14
Information Technology	34.50***	0.13	7.939	239
Panel B: First-week returns				
Basic Industries	36.45***	39.38	5.215	10
General Industrials	42.27***	18.29	4.739	60
Cyclical Consumer Goods	56.92**	3.18	1.974	11
Non-Cyclical Consumer Goods	40.28***	14.77	3.471	33
Cyclical Services	52.30***	12.97	5.519	102
Non-Cyclical Services	35.61***	17.46	4.135	29
Utilities	15.70***	15.70	10.547	2
Financials	23.65*	5.38	1.652	14
Information Technology	45.28***	23.91	9.394	239

Table 7: Long-run returns for Euro.NMs' IPOs (1996-2000).

This table presents the long term performance of firms floated on the Euro.NM for 1 to 5 years after the flotation each of the 5 Euro.NM markets. CAR stands for cumulative abnormal return adjusted for one of two indices: the FTSE Eurotop 300 or the FTSE Euromid indices. The Eurotop 300 is a widely accepted European benchmark, which measures the performance of Europe's largest 300 companies in terms of market capitalization. The Euromid represents the medium capitalization companies across Europe and consists of all the companies in FTSE World Europe index minus the FTSE Eurotop 300 companies. BHR stands for buy and hold returns. Both the CAR and BHR are calculated for several years starting one month subsequent to the flotation. In parentheses, Brown and Warner t-statistics are given for the cumulative abnormal returns and the skewness-adjusted t-statistics are given for the BHR. ***,**,* stand for statistical significance at the 1, 5 and 10% level.

Panel A: ***Nouveau Marché***

	IPOs introduced during 1996-2000					**IPOs introduced during 1996-99**	
	No. of years after the IPO					**No. of years after the IPO**	
	1 year	**2 years**	**3 years**	**4 years**	**5 years**	**1 year**	**2 years**
CAR (FTEU 300 adjusted)	-21.43*** (-2.43)	-25.66*** (-2.32)	-27.77 (-1.61)	-23.61 (-1.06)	-31.63 (-1.11)	8.15 (0.80)	11.60 (0.02)
CAR (FTE MIDI adjusted)	-19.00*** (-2.20)	-21.45* (-1.93)	-27.68 (-1.60)	-26.67 (-1.20)	-43.21 (-1.51)	17.51* (1.77)	23.92* (1.76)
BHR (FTEU 300 adjusted)	-1.80 (-0.09)	-16.58 (-1.57)	-39.86*** (-3.22)	-47.79*** (-4.52)	-52.88*** (-5.91)	20.59* (1.72)	4.33 (0.29)
BHR (FTE MIDI adjusted)	1.81 (0.20)	-9.89 (-0.93)	-34.68*** (-2.79)	-42.25*** (-3.99)	-50.35*** (-5.91)	31.17*** (2.58)	19.61 (1.36)

Panel B: ***Neuer Markt***

	IPOs introduced during 1997-2000					**IPOs introduced during 1997-99**	
	No. of years after the IPO					**No. of years after the IPO**	
	1 year	**2 years**	**3 years**	**4 years**	**5 years**	**1 year**	**2 years**
CAR (FTEU 300 adjusted)	-13.09 (-1.52)	-59.97*** (-4.99)	-76.66*** (-5.79)	-152.92*** (-4.95)		28.67*** (2.32)	-29.98* (-1.65)
CAR (FTE MIDI adjusted)	-13.75 (-1.54)	-65.94*** (-5.29)	-83.78*** (-6.12)	-172.62*** (-5.58)		36.39*** (2.80)	-32.97* (-1.70)
BHR (FTEU 300 adjusted)	-7.44 (-1.36)	-36.23*** (-5.18)	-53.81*** (-11.33)	-57.33*** (-18.07)		21.89*** (2.72)	-16.06 (-1.37)
BHR (FTE MIDI adjusted)	-7.57 (-1.34)	-40.47*** (-5.65)	-59.38*** (-12.27)	-64.13*** (-19.24)		29.91*** (3.71)	-15.67 (-1.32)

Panel C: NMAX (Euro.NM Amsterdam)

	IPOs introduced during 1997-2000 No. of years after the IPO					IPOs introduced during 1997-99 No. of years after the IPO	
	1 year	**2 years**	**3 years**	**4 years**	**5 years**	**1 year**	**2 years**
CAR (FTEU 300 adjusted)	-38.71*** (-2.26)	-68.37*** (-2.37)	-65.17 (-1.09)	-81.22*** (-2.51)		-12.10 (-0.71)	-46.18* (-1.85)
CAR (FTE MIDI adjusted)	-39.89*** (-2.26)	-62.76*** (-2.14)	-65.95 (-1.11)	-83.86 (-1.41)		-11.55 (-0.65)	-37.83 (-1.48)
BHR (FTEU 300 adjusted)	-29.33*** (-2.58)	-52.38 (-2.59)	-37.24* (-1.65)	-56.43*** (-5.37)		-20.07* (-1.79)	-47.78*** (-2.37)
BHR (FTE MIDI adjusted)	-31.08*** (-2.54)	-46.92*** (-2.30)	-35.84 (-1.34)	-57.48*** (-3.95)		-20.22* (-1.78)	-39.55* (-1.77)

Panel D: Euro.NM Brussels

	IPOs introduced during 1997-2000 No. of years after the IPO					IPOs introduced during 1997-99 No. of years after the IPO	
	1 year	**2 years**	**3 years**	**4 years**	**5 years**	**1 year**	**2 years**
CAR (FTEU 300 adjusted)	5.57 (0.26)	-33.2 (-1.02)	-95.57* (-1.76)			12.22 (0.56)	30.09 (0.41)
CAR (FTE MIDI adjusted)	3.16 -0.17	-34.93 (-1.07)	-107.08* (-1.94)			14.44 (0.66)	31.59 (0.43)
BHR (FTEU 300 adjusted)	-14.59 (-0.90)	-50.75*** (-2.75)	-69.95*** (-9.07)			-6.92 (-0.35)	-40.91* (-1.79)
BHR (FTE MIDI adjusted)	-15.98 (-0.97)	-52.09 (-2.80)***	-77.81*** (-7.85)			-5.54 (-0.28)	-39.58* (-1.78)

Panel E: Nuovo Mercato

	IPOs introduced during 1999-2000 No. of years after the IPO					IPOs introduced during 1999 No. of years after the IPO	
	1 year	**2 years**	**3 years**	**4 years**	**5 years**	**1 year**	**2 years**
CAR (FTEU 300 adjusted)	-34.56** (-2.12)	-22.77 (-0.71)				52.82 (0.74)	38.26 (0.44)
CAR (FTE MIDI adjusted)	-43.85*** (-2.58)	-33.19 (-1.01)				55.66 (0.77)	30.82 (0.35)
BHR (FTEU 300 adjusted)	-26.51*** (-3.07)	-32.39*** (-5.08)				27.79 (1.03)	-18.05 (-0.99)
BHR (FTE MIDI adjusted)	-34.93*** (-3.53)	-41.87*** (-6.31)				30.32 (1.10)	-24.95 (-1.34)

Appendix:

Industrial analysis of long-run performance of Euro.NMs' IPOs (1996 –2000)

This table shows the long-run performance over one to five years for all companies floated on the Euro.NMs by industry. CAR stands for cumulative abnormal return adjusted for one of two indices: the FTSE Eurotop 300 or the FTSE Euromid indices. The Eurotop 300 is a widely accepted European benchmark, which measures the performance of Europe's largest 300 companies in terms of market capitalization. The Euromid represents the medium capitalization companies across Europe and consists of all the companies in FTSE World Europe index minus the FTSE Eurotop 300 companies. BHR stands for buy and hold returns. Both the CAR and BHR are calculated for several years starting one month subsequent to the flotation. In parentheses, Brown and Warner t-statistics are given for the cumulative abnormal returns and the skewness-adjusted t-statistics are given for the BHR. ***,**,* stand for statistical significance at the 1, 5 and 10% level.

Panel A: Basic Industries (code 10)

	No. of years after the IPO				
	1 year	**2 years**	**3 years**	**4 years**	**5 years**
CAR (FTEU 300 adj.)	-28.51 (-1.00)	-51.76 (-1.40)	-53.75 (-1.03)	-48.49 (-0.49)	16.19 (0.14)
CAR (FTE MIDI adj.)	-28.02 (-1.02)	-23.21 (-0.58)	-21.23 (-0.37)	-15.74 (-0.16)	41.52 (0.34)
BHR (FTEU 300 adj.)	-11.56 (-0.44)	-36.25*** (-2.34)	-51.30*** (-4.40)	-63.40*** (-4.07)	-60.42*** (-4.34)
BHR (FTE MIDI adj.)	-8.75 (-0.28)	-30.05* (-1.74)	-46.37*** (-473)	-56.20*** (-4.82)	-57.46*** (-6.65)

Panel B: General Industries (code 20)

	1 year	**2 years**	**3 years**	**4 years**	**5 years**
CAR (FTEU 300 adj.)	3.68 (0.31)	-15.35 (-0.89)	-51.21*** (-2.41)	-76.05*** (-2.45)	-169.44*** (-2.76)
CAR (FTE MIDI adj.)	6.36 (0.52)	-14.40 (-0.82)	-55.72*** (-2.56)	-84.98*** (-2.67)	-184.84*** (-2.96)
BHR (FTEU 300 adj.)	16.16 (1.09)	-12.53 (-0.88)	-38.46*** (-3.11)	-40.00*** (-3.66)	-44.99*** (-2.51)
BHR (FTE MIDI adj.)	19.49 (1.24)	-10.60 (-0.68)	-38.33*** (-3.06)	-40.99*** (-3.28)	-47.21*** (-4.70)

Panel C: Cyclical Consumer Goods (code 30)

	1 year	**2 years**	**3 years**	**4 years**	**5 years**
CAR (FTEU 300 adj.)	-57.94*** (-2.63)	-39.83 (-1.06)	-47.50 (-1.13)	-65.69 (-1.23)	-68.97 (-0.80)
CAR (FTE MIDI adj.)	-56.92*** (-2.62)	-32.55 (-0.87)	-47.43 (-1.14)	-66.47 (-1.28)	-83.08 (-0.99)
BHR (FTEU 300 adj.)	-40.92*** (-3.01)	-59.08*** (-10.79)	-64.97*** (-8.02)	-65.42*** (-5.04)	-64.14*** (-5.81)
BHR (FTE MIDI adj.)	-38.56*** (-2.68)	-50.74*** (-5.60)	-60.93*** (-9.92)	-59.82*** (-9.04)	-62.09*** (-8.39)

Panel D: Non-cyclical Consumer Goods (code 40)

	1 year	**2 years**	**3 years**	**4 years**	**5 years**
CAR (FTEU 300 adj.)	4.83 (0.30)	4.47 (0.19)	-2.59 (-0.08)	42.20 (0.85)	14.89 (0.21)
CAR (FTE MIDI adj.)	6.13 (0.39)	4.07 (0.18)	-10.03 (-0.31)	34.55 (0.69)	-2.51 (-0.04)
BHR (FTEU 300 adj.)	24.98 (1.16)	-10.31 (-0.67)	-28.26*** (-2.10)	-26.69*** (-2.07)	-27.69*** (-2.07)
BHR (FTE MIDI adj.)	27.08 (1.19)	-8.68 (-0.46)	-29.32*** (-2.25)	-26.94*** (-2.09)	-29.89*** (-2.28)

Panel E: Cyclical Services (code 50)

	1 year	2 years	3 years	4 years	5 years
CAR (FTEU 300 adj.)	-0.99 (-0.10)	-50.70*** (-3.22)	-63.94*** (-2.46)	-60.56* (-1.85)	-63.03 (-1.48)
CAR (FTE MIDI adj.)	-1.05 (-0.10)	-52.45*** (-3.25)	-70.51*** (-2.68)	-70.85*** (-2.13)	-83.31** (-1.96)
BHR (FTEU 300 adj.)	-4.71 (-0.49)	-28.75*** (-2.44)	-50.94*** (-5.65)	-54.34*** (-6.35)	-54.00*** (-6.31)
BHR (FTE MIDI adj.)	-1.96 (-0.20)	-28.96*** (-2.47)	-52.84*** (-6.07)	-56.30*** (-6.80)	-56.62*** (-6.86)

Panel F: Non-cyclical Services (code 60)

	1 year	2 years	3 years	3.6 years
CAR (FTEU 300 adj.)	-17.46 (-1.16)	-22.28 (-0.67)	-102.71* (-1.81)	-59.46 (-0.55)
CAR (FTE MIDI adj.)	-22.62 (-1.46)	-28.91 (-0.86)	-119.19*** (-2.09)	-78.78 (-0.72)
BHR (FTEU 300 adj.)	32.43 (0.96)	-20.49 (-1.07)	-51.04*** (-5.27)	-52.84*** (-5.61)
BHR (FTE MIDI adj.)	27.54 (0.79)	-25.35 (-1.27)	-59.78*** (-6.07)	-61.12*** (-6.50)

Panel G: Utilities (code 70)

	1 year	2 years
CAR (FTEU 300 adj.)	27.06	35.76
CAR (FTE MIDI adj.)	17.22	23.29
BHR (FTEU 300 adj.)	5.27	0.23
BHR (FTE MIDI adj.)	-3.85	-9.54

Panel H: Financials (code 80)

	1 year	2 years	3 years	4 years
CAR (FTEU 300 adj.)	-20.67 (-0.85)	-30.17 (-0.76)	-120.23* (-1.65)	-177.20*** (-2.07)
CAR (FTE MIDI adj.)	-22.57 (-0.91)	-35.13 (-0.89)	-133.73* (-1.83)	-195.96*** (-2.27)
BHR (FTEU 300 adj.)	-10.60 (-0.43)	-46.21*** (-5.19)	-55.55*** (-8.16)	-56.93*** (-8.01)
BHR (FTE MIDI adj.)	-12.25 (-0.46)	-51.17*** (-4.82)	-62.61*** (-9.31)	-64.89*** (-8.98)

Panel I : Information Technology (code 90)

	1 year	2 years	3 years	4 years	5 years
CAR (FTEU 300 adj.)	-27.29*** (-3.21)	-64.51*** (-5.01)	-100.07*** (-4.80)	-153.23*** (-5.14)	-155.28*** (-3.19)
CAR (FTE MIDI adj.)	-30.21*** (-3.58)	-70.84*** (-5.49)	-111.91*** (-5.35)	-172.48*** (-5.73)	-181.05*** (-3.73)
BHR (FTEU 300 adj.)	-18.53*** (-3.35)	-38.72*** (-4.65)	-55.64*** (-10.38)	-62.13*** (-18.26)	-61.78*** (-18.44)
BHR (FTE MIDI adj.)	-20.48*** (-3.50)	-42.92*** (-9.87)	-61.62*** (-11.19)	-68.81*** (-20.71)	-68.79*** (-20.71)

Panel J : Other industries

	1 year	2 years	3 years	4 years	5 years
CAR (FTEU 300 adj.)	-0.17 (0.00)	-46.38 (-1.18)	-47.03 (-0.67)	-10.91 (-0.12)	25.88 (0.22)
CAR (FTE MIDI adj.)	12.99 (0.48)	-30.39 (-0.77)	-31.74 (-0.45)	2.04 (0.02)	30.90 (0.25)
BHR (FTEU 300 adj.)	4.63 (0.14)	-50.74 (-1.05)	-52.05 (-0.67)	-42.55 (-0.47)	-103.43***(-4.94)
BHR (FTE MIDI adj.)	19.97 (0.52)	-29.41 (-0.58)	-27.96 (-0.33)	-18.27 (-0.18)	-8.24*** (-3.92)

Figure 1: Histogram of first-day initial market-adjusted returns for the German *Neuer Markt*

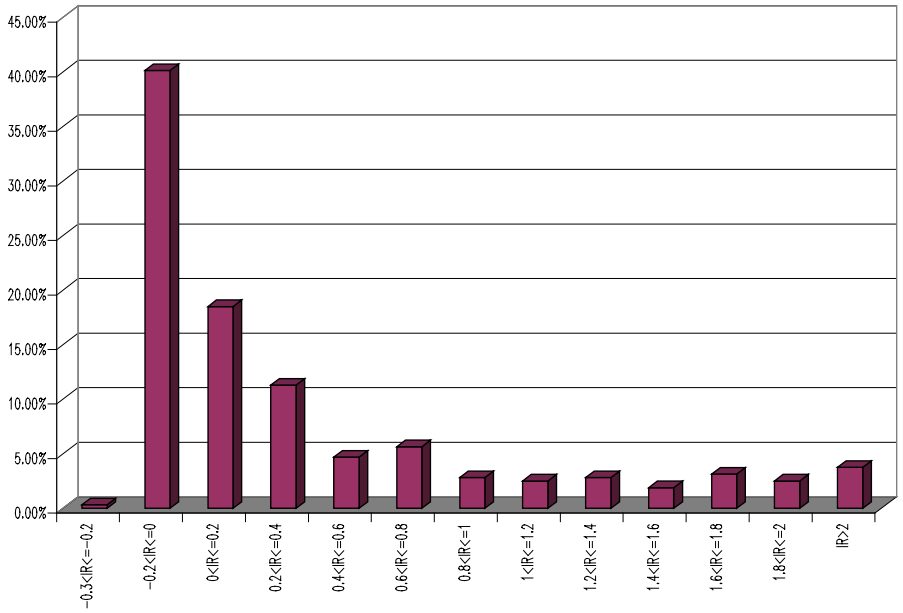

Figure 2: Histogram of first-week initial market-adjusted returns for the German *Neuer Markt*

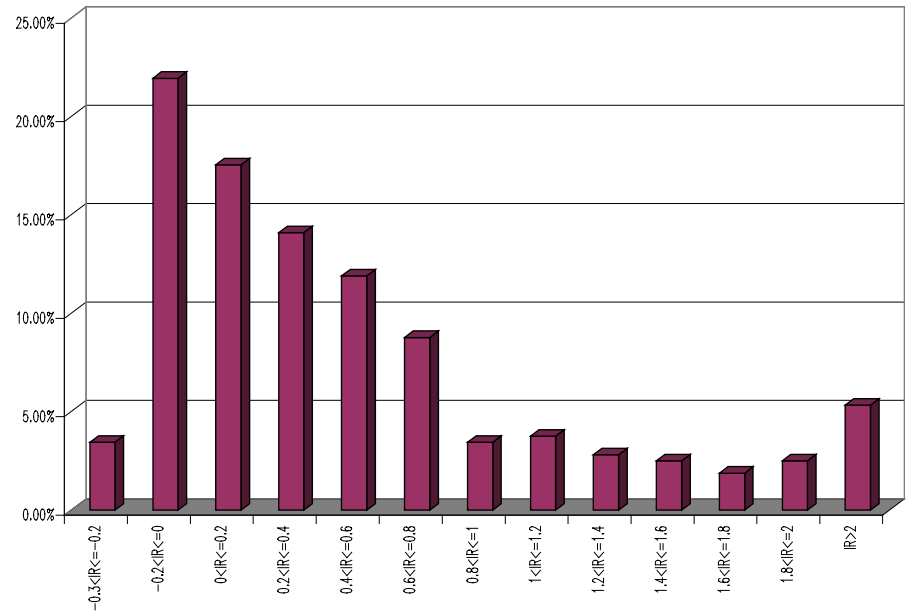

Figure 3: Histogram of first-day initial market-adjusted returns for the French *Nouveau Marché*

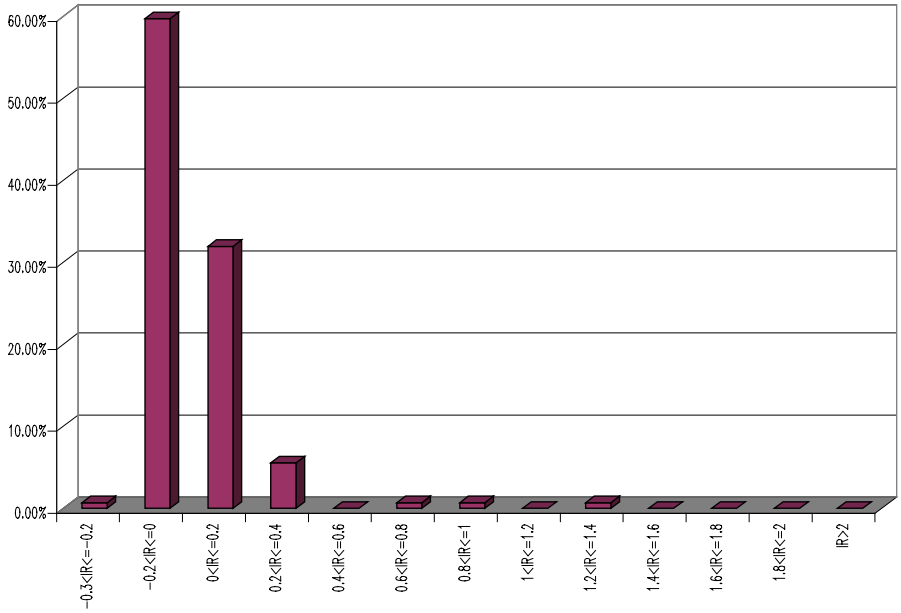

Figure 4: Histogram of first-week initial market-adjusted returns for the French *Nouveau Marché*