Access to Stock Markets for Small and Medium Sized Growth Firms: The Temporary Success and Ultimate Failure of Germany's *Neuer Markt*

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Abstract

Germany's *Neuer Markt* was the largest of numerous new stock markets introduced in Europe during the nineties of the last century to address small and medium sized innovative growth firms. We argue that access to public equity markets is particularly valuable for such firms. However, the conception of the *Neuer Markt* contained some regulatory flaws, and the *Neuer Markt* developed along with a tremendous stock price bubble that broke clamorously in early 2000. As a consequence, the reputation of the *Neuer Markt* suffered from an extraordinary decline in market value and numerous scandals and insolvencies. Primary markets came to an almost complete standstill, and the *Neuer Markt* had to be abandoned at the end of 2002. Thus, apart from the window of opportunity provided by the short-lived *Neuer Markt*, the question of how German innovative growth firms could enter public equity markets remains unresolved. From this state of affairs, we expect negative effects on innovation and growth in the German economy.

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1. The *Neuer Markt* as a new market segment in the context of Germany's Financial Market Reforms

From 1997 to 2002, the German Equity Market consisted of four different market segments. The *Neuer Markt* as segment for small and medium sized innovative growth firms was the youngest of these four. Other segments were the *Official Trading* (*Amtlicher Handel*), the *Regulated Market* (*Geregelter Markt*)[1] and the *Unofficial Regulated Market* (*Freiverkehr*). However, even before the founding of the *Neuer Markt*, market segmentation and other measures in capital market reforms aimed at giving access to the public equity markets to a wide range of firms and to thereby enhance the possibilities for German firms to draw equity capital. However, these efforts were not very successful. Thus, the *Neuer Markt* was a new attempt with a new strategy to achieve a broader representation of German firms on stock markets. In the following, we describe the elevation of this new strategy in the context of German financial markets reform, its stunning temporary success and its ultimate failure. The natural starting point is the public discussion of financial markets reform that took place periodically in Germany since the early eighties.

Debates and reforms in the eighties and nineties

At the beginning of the last decade, the state of German public equity markets was deplorable, both with regard to the number and market capitalization of quoted companies and with regard to the number of IPOs (Theissen, 1998). In 1993, market capitalization was only 24% of GDP, which was less than in other bank dominated countries like France (36%) or (then still bubble driven) Japan (71%), and exceedingly less than in market oriented financial systems like the US (82%) or Great Britain (140%) (Barth/Noelle/Rice, 1997). From a political perspective, this state of affairs should have been a surprise, because about ten years earlier the then likewise deplorable state of German public equity markets had already led to significant reforms that, if successful, should have bettered the situation decisively.

However, why should the German decision makers care for the development of public equity markets at all, if German firms were seemingly able to serve their financing needs mostly without? The German financial system can be identified as bank based and relationship oriented, with certain disadvantages like a lack of flexibility and the missing disciplining effect on management of an active takeover market, but also with the some advantages from relationship financing like a higher degree of long term thinking, better conditions for long term and specific investments and better support of firms in financial distress through their relationship lender, the so called "*Hausbank*".[2] Seemingly, this system is a valid alternative to the market oriented financial systems mainly to be found in Anglo-Saxon countries. Why change this?

In the eighties, public debate focused on the so-called "*Eigenkapitallücke*", i. e., "equity gap". It was observed that German firms held, by international comparison, a relatively low ratio of equity to total assets. At the end of the seventies, this rate was at about 50% in the United States or Great Britain, whereas German firms had to do with about 20% only (Deutsche Bundesbank, 1981/82, Claussen, 1984). It was assumed that this capital structure was not endogenously chosen but result of exogenous restrictions for German firms to raise equity capital. In the years after the war, the ensuing high leverage was not necessarily harmful because, due to persistent growth, almost all economic enterprises were to some degree successful. However, this did not hold anymore when the economic crises' from the seventies onwards put many firms periodically under financial stress. The number of bankruptcies rose from values below 3000 at the beginning of the sixties to more than 9000 in 1980.[3] Somewhat tautologically and in contrast with the alleged advantages of the German "*Hausbank*" system, equity was understood as the main instrument to avoid bankruptcy. Thus, to better the financial situation of German firms, to reduce the number of bankruptcies and thereby enhance the stability of the German economic system, it seemed an urgent task to improve firms' access to equity markets.

Recommendations aimed at the renewal of the *Stock Exchange Act* to lower the entry barriers to capital markets. Until 1987, the German *Stock Exchange Act* distinguished between an official quotation and a non-official quotation only.[4] The *Stock Exchange Act* settled the listing requirements for a listing in the *Official Trading*. Official brokers were responsible for a price quotation and execution. The *Stock Exchange Act* did not settle the non-official quotation. The Stock Exchanges were only authorized to "permit a regulated inofficial market for securities […] provided that the proper conduct of trading and settlement appears to be assured by trading guidelines" (§ 78 Stock Exchange Act).

The *Official Trading* achieved a sufficient degree of liquidity and trading activity in large stocks, which might be attributed to the relatively high listing requirements and stricter regulatory environment. By comparison, the non-official quotation was not very attractive for the issuers and the investors because of low liquidity and therefore high transaction costs (Schrader, 1993). Only a small number of specialized investors became active in this market segment. Seemingly, the ordinary investor needed a much stronger protection to be willing to invest his money in rather small and opaque firms. The *Official Trading*, on the other hand, might have provided such an environment, but was, due to its strict requirements, regarded as too expensive for small- and mid-caps. Thus, the potential capital market reform suffered from the dilemma that the new laws could not at the same time lower entry barriers through lower listing requirements and at the same time increase market liquidity through stricter regulations.

The compromise was to introduce a new market segment placed, with regard to listing requirements concerning size and age of the company and the contents of the issuing prospectus, in-between the *Official Trading* and *Unregulated Market*. Simultaneously, the legislator was forced to implement three recent directives of the *European Community*.[5] The objective of these directives was an Europe-wide harmonization of security trading and a strengthening of the listing-requirements to achieve a better investor protection. These prescriptions were contrary to the chosen compromising approach to make listing easier for small and midsized companies. Consequently, to implement the directives of the European Community, the listing requirements were heightened for the *Official Trading* in 1986 by inauguration of the *Stock Exchange Admission Regulation*, whereas the new market segment for small- and mid-caps was established as *Regulated Market*.

At first sight, these modifications led to an increased use of public equity markets to raise equity capital. The issued capital of domestic companies in the eighties was as high as in the past 35 years combined (von Rosen, 1995). However, this was to a great extend due to secondary offerings of established quoted companies. Very few new companies tapped public markets. From 1987 to 1993, no less than 1,292 companies went public at the New York Stock Exchange, 1,106 at the London Stock Exchange and 384 at the Tokyo and Osaka Stock Exchanges. On the Germany stock exchanges, the number of IPO companies was 146 (von Rosen, 1995). Moreover, the age of companies going public in Germany was, depending on the observation period, 41 to 49 years on average, that is three or four times higher than in the USA and even four to five times higher than in the UK (Neumann, 1997, for the US, Goergen/Renneboog, 2001, for the UK comparison). If at all, the reform had been only a partial success.

Seemingly, the German capital markets suffered from regulatory flaws impeding, in particular, young and innovative growth firms to enter public equity markets. This contrasted sharply with the outstanding success of the American NASDAQ in this regard.[6] The respective failure of the German financial markets was more and more understood as a severe obstruction to the innovation process. Research results on the relationship between innovation, venture capital and going public give strong scientific support to this notion.[7] However, young and innovative firms did not fit into the *Official Trading*, where firms of many times their size were listed. On the other hand, the *Regulated Market* provided an insufficient degree of liquidity, and the *Stock Exchange Act* did not cover the *Unofficial Regulated Market* that remained to be „an opaque and illiquid inter-broker telephone market with low listing requirements“ (Ljungqvist, 1997, p. 1311).

Therefore, some German firms even went public at the American NASDAQ, and more planned to do so.[8] Thus, both efficiency arguments and the growing international competitions between different stock exchanges brought up the urge for the Frankfurt stock exchange to introduce a special market segment with a strong law-protected background to address particularly innovative small- and mid-cap firms (Hopt/Rudolph/Baums, 1997, Büschgen, 1997).

Given this new focus on innovative growth firms, discussion in the mid nineties was back where it had been in the early eighties. However, the experiences of the failed reform from 1986 had to be implemented into the design of the new structure of the German equity markets and should have led to a rather different structure than the earlier, compromising approach. To achieve this new structure through legal means only would have made it necessary to modify the existing *Stock Exchange Act* substantially. Thus, to remedy things rapidly and achieve a higher degree of flexibility and efficiency, the *Deutsche Börse AG* (as the responsible body for the Frankfurt Stock Exchange) choose as mezzanine legal status for the new market segment, containing, in particular, a private organization of trading in the context of a public stock exchange.

If insufficient investor protection was at the heart of failure of the *Regulated Market*, stricter rules were required to gain the trust of the public. Whereas large firms often attain some degree of publicity and transparency through their manifold business activities in a natural way, a market segment for small and medium sized firms had to supply sufficient information for investors through comprehensive and resolutely enforced disclosure rules. Furthermore, it could be argued that young growth firms are more flexible and less bureaucratic compared to larger firms, and that the inherent tendency of large bureaucracies to adhere to rules set up by the authorities might offer an additional margin of investor protection that is not available in smaller and less law-abiding firms. Thus, the new conception could not be a compromise. It had to contain more and not less information requirements and investor protection than does the rules for the *Official Trading.*

The general acceptance of the new market segment relied on investors' trust, i. e., on the positive prejudices of the common investor about the reliability of the supplied information and the fairness and efficiency of market transactions. German investors are said to be cautious and skeptical concerning stock markets. Thus, the development of a better understanding and trust into equity investments at stock markets, of so called "*Aktienkultur*" ("stock culture"), was understood as a main prerequisite for a better development of the German stock markets. The new market segment had to stand the respective test of trustworthiness. If it succeeded, along with the induced new investment behavior the structure of the German financial system might change altogether. Capital market access for young and innovative firms might spur innovation and give new growth opportunity to the somewhat limping German economy. If it failed, even just to some degree, positive expectations could turn into generally negative prejudices about the new market segment and about share investments in general. The consequences for the German financial system and economy could be lasting stagnation. Thus, stakes were high when the new market segment was introduced.

The Design of the Neuer Markt

On March 10th, 1997, the *Deutsche Börse AG* founded the *Neuer Markt* as a privately organized market. However, to achieve the status of a "regulated market" in accordance with the *Investment Services Directive* of the *European Community*,[9] the admission to the *Neuer Markt* required an admission to the *Geregelter Markt* with a simultaneous waiver of being listed at the *Geregelter M*arkt in favor of a listing at the *Neuer Markt* (Kersting, 1997).

As discussed above, the main purpose of the admission guidelines was not to facilitate going public but to gain investors trust. Consequently, the listing requirements were even higher than for an admission to the *Official Trading*, at least on the paper. A further impediment to going public was the need to inaugurate at least two designated sponsors. The designated sponsors were obliged to post price indications or spreads continuously. Thus, designated sponsors were responsible to guarantee liquidity and tradability of the shares. Thereby, they lowered the transactions costs for investors. However, the general public expected the designated sponsors to do more than that in the creation of trust. At least some investors wanted them to guarantee fair transactions and a good conduct of the firms they were sponsoring.

For an admission to the *Neuer Markt*, the *Rules and Regulations Neuer Markt* required an equity capital of the issuer of at least 1.5 Mio. € (*Official Trading*: 1.25 Mio. €) (Deutsche Börse AG, 1997, 2001b) The aggregated market price of the issue had to amount to at least 5 Mio. € (*Official Trading*: 2.5 Mio. €). Additional requirements concern the minimum nominal value of the issue (250,000 €) and the minimum number of shares (100,000). The issuer should have had a track record of, at least, three years, and the free-float of the issue had to be in general at least 25 % of the aggregate nominal volume. Moreover, the issuer had to submit a prospectus in accordance with the *Securities Prospectus Regulation* (*Verkaufsprospekt-Verordnung*), which included additional information concerning sources and applications of funds, affiliated enterprises, profits, losses and dividends per share, consolidated financial accounts and, as addition to the requirements at the *Official Trading*, information about risk factors. Risk factors are „information regarding any factors which could have a substantial negative influence on the financial condition of the issuer or which could endanger the issuer's business success" (Deutsche Börse AG, 2001b, No. 4.1.16). Thus, such information could be crucial for investors to assess the ideosyncratic risk of the respective issue.

After going public, quarterly reports, financial statements and management reports according to IAS or US-GAAP had to be published in both German and English. Furthermore, the issuers were required to hold an analyst meeting at least once a year and to publish an annual corporate timetable and detailed information concerning the convocation of the shareholders' meeting. A six-month lock-up period applied for the incumbent owners. According to the original version of the *Rules and Regulations Neuer Markt*, the issuer had to enforce the lock-up. Remarkably, it was later decreed in the *Rules and Regulations Neuer Markt* that the issuer should obtain written confirmations from the existing shareholders in whom they obliged themselves to meet the six-month lock-up period. These statements had to be enclosed with the application form for an admission. Seemingly, there were some doubts that everybody was complying with the rules.

With validity from March 1st, 2001, *Deutsche Börse AG* also set up the obligation to notifiy ex post every share transaction of the issuer or the management. However, *Deutsche Börse AG* did not introduce the obligation to inform the public about intended transactions ex ante. This information would have been of great value to investors, because it could have contained valuable information about the true prospects of the firm. Also, it could have made potential insider trading more transparent for the public. However, for the same reasons it could have made going public less attractive. The late changes in the regulations concerning insider transactions signal that these posed a severe problem and that the original rules were not suffcient.

To emphasize the credibility of the extensive listing requirements, the issuer was obliged to pay a fine up to 100,000 € to the *Deutsche Börse AG* for each non-performance, delayed or incomplete performance of the obligations resulting from an admission to the *Neuer Markt*. It might be discussed if this amount was sufficient. However, the private status of the *Neuer Markt* restricted the means of enforcement, in particular with respect to non-monetary sanctions that are particularly valuable in distress when monetary penalties are no longer credible.

At the same time, new laws for ad hoc-publicity and insider trading had been implemented for the whole German capital market, and a new regulatory agency, the *Bundesaufsichtsamt für den Wertpapierhandel*, had been installed to enforce the respective regulation to bolster market discipline and thus enhance investor protection. Together with the special requirements of the *Neuer Markt*, a seemingly powerful set of rules and regulations gave support to high expectations for the success to the *Neuer Markt* as segment for young and innovative growth firms offering high investment risk, but likewise high expected returns due to high transparency, investor protection and ensuing high liquidity.

The Marketing

The *Neuer Markt* intended to facilitate the research of banks and other information intermediaries through high requirements concerning listing and publication, to reduce transaction costs through designated sponsors, and to raise the investors' readiness for trading through a strong national and international publicity (Francioni/Gutschlag, 1998). Thereby it seemed possible to duplicate, although on a much smaller scale, the success of the American NASDAQ. To reach this ambitious target, the *Deutsche Börse AG* promoted the new market segment actively by a number of different activities. For instance, the *Deutsche Börse AG* presented the *Neuer Markt* and respective listed companies at fairs, congresses and meetings of analysts and investors at home and abroad. Furthermore, the *Deutsche Börse AG* developed a high media presence for the *Neuer Markt* by presentations of listed companies and IPO candidates in special publications, advertising-campaigns, a separate section in the stock quotations of financial newspapers and further intensive public relations activities.

In its design of the *Neuer Markt*, the *Deutsche Börse AG* stressed the importance of indices as a marketing device and as an underlying for potential derivatives. Until the founding of the *Neuer Markt*, the *Official Trading* was the only market segment represented through several separate indices. The 30, 70 and 100 most important blue chips of the *Official Trading* were united in the DAX 30-Index, the MDAX and the DAX-100.[10] Among these, the DAX 30-Index received most attention because turnover concentrated very much on the shares represented by this index, whereas the liquidity of the other so-called *Nebenwerte* was decisively smaller. However, the CDAX-Index as a broad market index referred to all stocks listed in the *Official Trading* and the *Regulated Market*.

With the foundation of the *Neuer Markt*, the *Deutsche Börse AG* created the NEMAX-All-Share-Index as a special index for the new market segment. This index was computed both as a performance-index and a price index and comprised all domestic and foreign stocks listed at the *Neuer Markt*. Since July 1st, 1999, additionally the NEMAX 50-index was computed from the prices of the 50 most important firms at the *Neuer Markt*, and since May 15th, 2000, indices for ten industrial sectors extended the index family of the *Deutsche Börse AG*. The latter ones were also computed as price- and as performance-indices and referred to market capitalization and equity turnover.

Due to the fast growing significance of the *Neuer Markt*, various derivates referring to the *Neuer Markt* were constructed. Apart from Equity Warrants and Discount Certificates, several investment banks created special certificates on *Neuer Markt* blue chips. Dresdner Kleinwort Wasserstein issued Index Participations on NEMAX-50 index, Open-End Certificates on NEMAX-All-Share and NEMAX 50 index and Sector-Index Certificates on NEMAX-All-Share for biotechnology, IT-Services and Media & Entertainment. The German-Swiss derivatives exchange Eurex also provided the market with Futures and Options on the NEMAX 50 and options on eight individual *Neuer Markt* firms.

The efforts of the *Deutsche Börse AG* to establish a high reputation for the *Neuer Markt* met with a great resonance in the market on the side of potential IPO candidates. In 1997, 11 of 16 listed companies at the *Neuer Markt* declared that the good image of the *Neuer Markt* was the main motive for a listing in this segment in favor of a listing in another market segment (Theissen, 1998). Thus, the *Neuer Markt* became very prestigious soon, and firms could enter this attractive market segment with a rather short track record and low turnover that would not be sufficient to enter the *Official Trading* or the *Regulated Market*. Despite a rather small number of IPOs during its first year, the *Neuer Markt* was set on the track to high publicity and good reputation by the end of 1997 and promised to become a big success.

2. The impressive (but temporary) success story of the *Neuer Markt*

Underpricing, investor behavior and IPO frenzy

The initial success of the *Neuer Markt* becomes more stunning through a comparison with the development of other public equity market segments in Germany in the preceding years. During the 14 years before the founding of the *Neuer Markt*, there were, on average, 16 IPOs per year. From 1985 to1996, the aggregated nominal gross proceeds amounted to about 2.2 billion € per year on average. Without counting the IPO of the Deutsche Telekom AG in 1996, the aggregated nominal gross proceeds per year were only 1.4 billion € on average. As can be seen in Table 1, both the number of IPOs and the aggregated gross proceeds increased sharply after the founding of the *Neuer Markt*:

Table 1: Going Public in Germany 1977-2002

Year	**Numbers of IPO**	**Nominal Gross Proceeds** (in Mio. EUR)
1977-82	10 (in all)	n.a.
1983	11	n.a.
1984	24	n.a.
1985	11	922
1986	27	2,364
1987	19	905
1988	14	418
1989	23	1,164
1990	23	1,639
1991	20	1,609
1992	8	411
1993	8	426
1994	15	637
1995	20	3,551
1996	14	12,684 [a]
1997	36	2,536
1998	67	3,292
1999	168	12,964
2000	159	25,609
2001	22	3,179
2002	5	245

[a] Thereof Deutsche Telekom: 10,055 Mio. EUR

Sources: Titzrath (1995), Deutsche Börse AG (2000)

It was not only the *Neuer Markt* that profited from this hot issue phase. Even firms that did not fit into the conception of the *Neuer Markt* considered going public more seriously now, and some decided to use the favorable IPO climate to enter other market segments. Thus, the number of quoted shares increased markedly in all market segments, although by a lesser degree than at the *Neuer Markt*. Furthermore, the IPOs at the *Official Trading*, although small in number, mobilized high aggregated gross proceeds because, on the average, much larger firms went public in this market segment than in the other market segments (see Table 3 below).

The success of the *Neuer Markt* was fuelling a new enthusiasm of German investors for share investments. This profound increase in the public interest for shares was well prepared by the massive marketing campaign for the IPO of the Deutsche Telekom AG that started trading on the *Official Trading* November 18th, 1996. For the first time in Germany, an IPO was promoted through all the channels of the mass media and with all techniques of modern marketing. The campaign succeeded in placing the enormous amount of 10 billion €, i. e., more than seven times the average of the aggregated annual IPO volume during the decade before, in one single IPO. The ensuing (initially) positive trend of the Deutsche Telekom stock price assured many unsophisticated investors that they had made the right decision in turning to equity investments for the first time in their life.

When, four month later, the *Neuer Markt* started trading, the good taste of the Telekom IPO was still fresh. Furthermore, a strong underpricing marked some of the first IPOs and stimulated the demand for new shares. In particular, the first IPO at the *Neuer Markt*, that of Mobilcom, was also accompanied by a successful marketing campaign very much along the lines of Deutsche Telecom AG (they did even employ the same well-known film actor as the main promoter in their TV spots) and achieved an underpricing of more than 50%. Such enormous gains in a nick of time appealed to the investors' greed. And, as the strong underpricing proved to be persistent at the *Neuer Markt*, more and more private investors were keen on such would-be gains and participated in the underwriting.

The investors' frenzy becomes more understandable when looking at the enormous extend of underpricing that was, on average, much higher for IPOs in the *Neuer Markt* than for IPOs in the *Official Trading*. In particular during the second year of the *Neuer Markt*, investors could have gained a profit of 80.24 percent on average by selling new shares on their first trading day, given that they received the same amount of new shares in all the issues. In comparison to the average underpricing of 10.42 percent in the *Official Trading*, these profits seemed to be highly attractive for private investors, even if these had been aware of the greater risk and potential adverse selection effects and their consequences for the degree of underpricing.[11] Presumably they were not, and many private investors were surprised and embarrassed that they usually received more shares of issues that showed a lower underpricing in comparison to issues that were higher underpriced. They alleged that the methods of distribution of new shares were not fair and triggered a public debate that led to very sensible measures in some banks to make the allocation process more transparent.

Table 2 provides an overview over the development of the underpricing at the *Neuer Markt* in comparison to the *Official Trading* for the years 1997 to 2002:[12]

Table 2: The development of IPO-underpricing at Neuer Markt and Official Trading

	Official Trading		***Neuer Markt***	
	Number of IPOs	**Underpricing [a]**	**Number of IPOs**	**Underpricing [a]**
1997	9	7.26	10	47.66
1998	15	10.42	39	80.24
1999	26	15.68	117	54.84
2000	14	11.58	120	48.69
2001	5	-1.10	11	10.89
2002	1	-4.55	1	-0.34

[a] Initial return adjusted by the DAX-100 index referring to the end of the drawing period up to the first trading day.

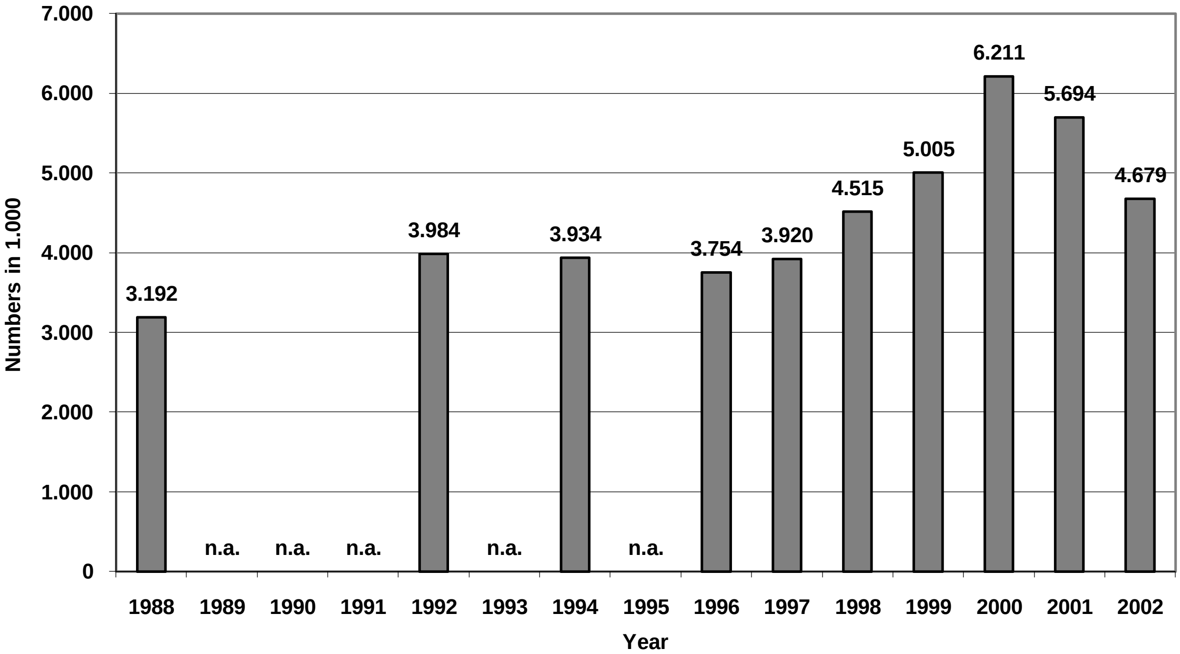
Sources: Deutsche Börse AG: Fact Books, Hoppenstedt Börsenforum, Börsenzeitung; own calculations.

In many IPOs (and obviously, these were the most attractive ones), private investors did receive by far not as many new shares as they intended to buy. To avoid this disappointment, some opened accounts at different banks to multiply their orders. This behavior gave banks additional incentives to promote IPOs and thereby to attract new investors hoping for an additional share in the issues. Nonetheless, because the *Neuer Markt* was aiming at small growth firms, the issues were much to small to satisfy such general demand, even though many were, seen from today's perspective, much too large for the respective firms. However, a positive secondary market trend made many private investors belief that it did also pay to buy the shares not received in the IPO initially after the IPO on the secondary market. Thus, disappointed investors nurtured underpricing, as underpricing was responsible for their disappointment, because it drew more and more investors to the primary market. In this circle, reflection about the market itself, the issuers and the potential risk of each investment were postponed in favor of the chase for fast money.

Primary Market Participants

Institutional investors often remained skeptical and saw in the *Neuer Markt* a market for gamblers and freaks. Many of them abstained from investing their own money. However, the general public was more impressed by the enormous short-term gains. Thus, market participation soon spread to less and less sophisticated investors who became active on their own account after observing their neighbors success, or were an easy prey for financial advisors from banks and other financial institutions. A visible consequence of this development was a strong increase in the number of shareholders in Germany. This number almost doubled from 3.7 million on average for the period before the foundation of the *Neuer Markt* to 6.2 million in the year 2000.

Figure 1: Number of Shareholders in Germany 1988-2002



Source: Deutsches Aktieninstitut (2002)

Whereas these developments influenced all market segments to some degree, the *Neuer Markt* made the pace. However, it contributed to the general hausse of stock markets and the IPO boom that investors found attractive investment alternatives with a more conservative outlook on the other stock markets segments. Risk averse investors who formerly did not invest in stocks at all, could now get the feeling that their risk preferences were well represented through an investment in blue chips on the *Official Trading*. Unluckily, even this type of investor did not control for fundamental factors that might have justified the strong price increase of the blue chips he bought.

The relative importance of the *Neuer Markt* is shown by the distribution of the IPOs over the market segments. More than 68 percent of all IPOs took place in the *Neuer Markt*, which absorbed more than 43 percent of the total gross proceeds. However, even under the special market conditions of the late nineties the *Official Trading*, with an average of 366.41 million € per IPO, received most of the gross proceeds. The data in Table 3 show more details concerning the distribution of the IPOs over the different market segments.

Table 3: Numbers of IPOs, Initial Capital and Gross Proceeds 1997-2002

	Official Trading	Regulated Market	Unofficial Regulated Market	Neuer Markt	Total
Number of IPOs [a]	70	45	22	298	435
Number of IPOs (in percent of total)	16.09	10.34	5.06	68.51	100
IPO-Underpricing (Mean) [b]	11.16	17.30	39.65	53.64	42.34
Gross Proceeds (in Mio. EUR)	25,648.64	784.10	145.18	20,415.55	46,993.48
Gross Proceeds (in percent of total)	54.58	1.67	0.31	43.44	100
Gross Proceeds on average (in Mio. EUR)	366.41	17.42	6.60	68.51	108.03
Initial Capital (in Mio. EUR)	5,754.28	272.87	66.49	4,183.16	10,276.80
Nominal Capital (in percent of total)	55.99	2.66	0.65	40.70	100
Initial Capital on average (in Mio. EUR)	82.20	6.06	3.02	14.04	23.62

a The total number of IPOs was about 457. For 22 IPOs no sufficient data was available; thus, the data refer to the remaining 435 IPOs only.
b Initial Return, market-adjusted with the DAX-100 index refering to the period of the end of the offer period and the first trading price.

Source: Hunger (2002)

It is interesting to note which firms went public at the *Neuer Markt* and which in the other market segments of the Frankfurt stock exchange during the hot issue phase (Burghof/Fischer, 2002). In general, firms that went public usually grew faster and had higher earnings than privately held firms. However, for *Neuer Markt* firms this effect was stronger with respect to growth, and for non-*Neuer Markt* firms with respect to earnings. IPO firms in other market segments were generally older and had no strong financial needs. Thus, the IPO was mainly a device to change the ownership structure of such firms. At least in long run they could achieve dispersed ownership to become a public company in the Berle/Means sense.[13] By contrast, firms that went public at the *Neuer Markt* were very young, grew faster and had strong financial needs the access to public equity markets was intended to serve. Ownership was concentrated in the hands of managers and founders, before and after the IPO. The relative importance of these inside owners even increased through the IPO because other investors tended to sell relatively more shares. Overall, it must be conceded that the *Neuer Markt* was able to address young and innovative growth firms, or at least, firms that were capable to appear to fall into this category.[14]

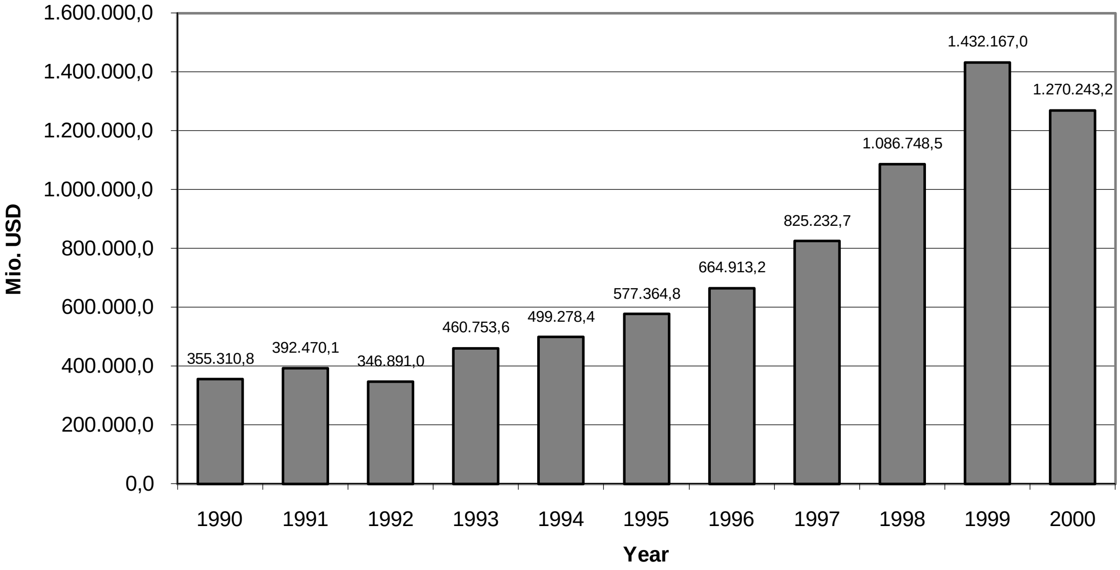
The establishment of the *Neuer Markt* also had strong influence on the venture-capital market because it offered an attractive exit channel. In 1995, only 8 percent of the disinvestments of venture capitalists were done through an IPO (Deutsche Bundesbank, 2000). Seemingly, at the time venture capitalists should or have to disinvest, most portfolio firms were still too small for a placement at the *Official Trading*, whereas the other market segments provided no attractive conditions for an IPO. Thus, the *Neuer Markt* was an ideal exit channel. It gave young growth firms additional prestige and venture capitalists an attractive exit price. Consequently, venture capitalists had a significant share in more than 42% of the IPO firms at the *Neuer Markt*.[15] In 1998 and 1999, the IPO, usually taking place at the *Neuer Markt*, was the exit channel for almost 20 percent of all terminated venture capital investments (Deutsche Bundesbank, 2000). The new earnings from IPOs also changed the relative attractiveness of the investment in venture capital funds that realized spectacular returns for some years. Investments in such funds soared, and many institutional investors set up new entities for such investments.

Secondary markets: bubble and burst

At the end of the last decade, both the numerous IPOs and a strong increase in share prices at the *Neuer Markt* and the other market segments lead to a strong increase in market capitalization of the whole market. From 355 billion $ in 1990, market capitalization of the main markets and the parallel markets of the *Deutsche Börse AG* rose to a maximum of 1.432 billion $ in 1999, with a growth rate of more than 30% in 1998 and 1999, i. e., after the founding of the *Neuer Markt*. Such an increase would soon have led to German public equity markets with similar importance as in the UK or US. However, these countries likewise experienced a general bull market in the late nineties. Thus, the relative distance between the different financial systems might not have changed too much, whereas the absolute numbers reached new and unprecedented levels everywhere.

The development of the market capitalization of the whole German public equity market is given in Figure 2:

Figure 2: Market Capitalization of Shares of Domestic Companies in Germany (Deutsche Börse, Main & Parallel Market)

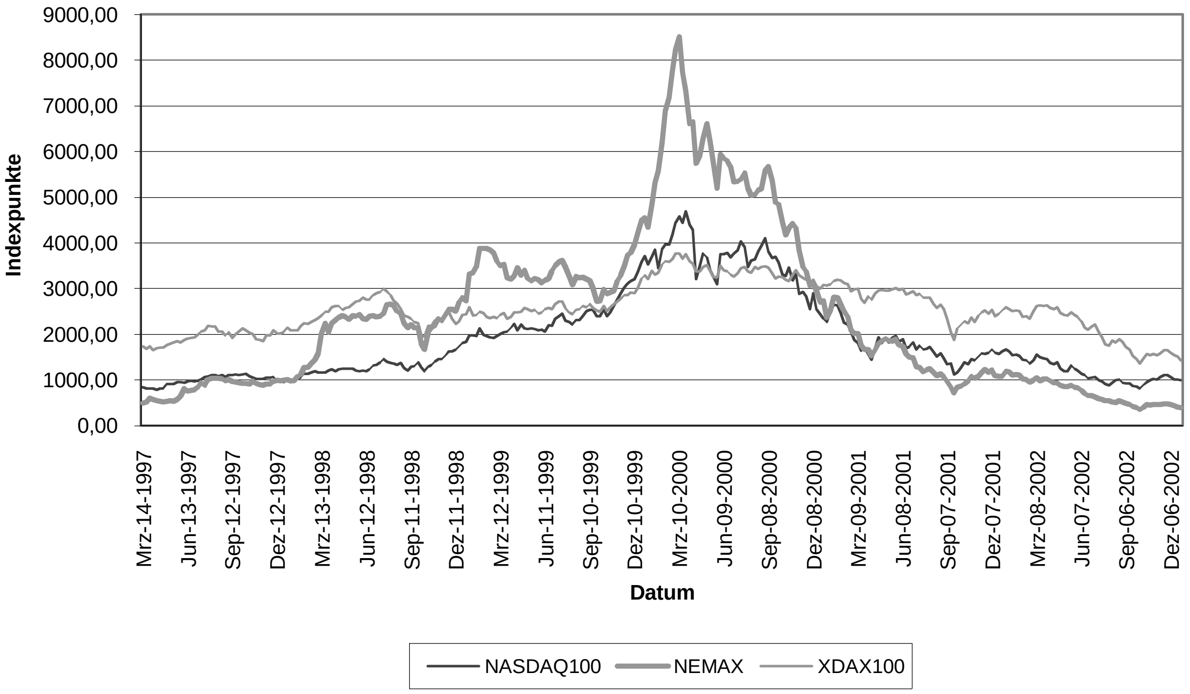


Source: FIBV (2002)

The most striking point in the success story of the *Neuer Markt* is the development of share prices. Stock markets all around the world went through a strong bull market at the end of the nineties. Nonetheless, by comparison with the market performance of other markets, the *Neuer Markt* strongly overperformed any benchmark. During the bullish period until March 10th, 2000, the NEMAX-All-Share index increased by about 1,636% in three years and one month only. Meanwhile, the DAX-100 index grew by comparatively modest 117%.[16] Seemingly, the strong focus of the *Neuer Markt* on innovation and new technologies guaranteed both higher risk and return. However, the *Neuer Markt* even strongly outperformed the technology oriented American NASDAQ, whose index NASDAQ-100 increased by 459%. Thus, other explanations than outstanding expected earnings from technological progress might have been responsible for the great increase of stock prices at the *Neuer Markt*. For any speculation on the existence of a stock price bubble, the *Neuer Markt* was the first candidate.

The following graph shows the developments of DAX-100, NASDAQ-100 and NEMAX-All-Share indices.

Figure 3: Market Performance Neuer Markt, Official Trading and NASDAQ 1997-2002



Sources: Dresdner Bank AG, own calculations

Seen from an ex post-perspective, all this is bubble economics. Neither the prices at the *Neuer Markt* nor at the *Official Trading* or NASDAQ could persist when confronted with realistic economic outlooks and data. At the *Neuer Markt*, price per earnings ratios were meaningless because many of the IPO firms did not earn any money. Thus, price calculations had to rely on expected earnings. However, the aggregated expected earnings of the firms at the *Neuer Markt* that could justify the respective share prices were beyond any sensible comprehension.

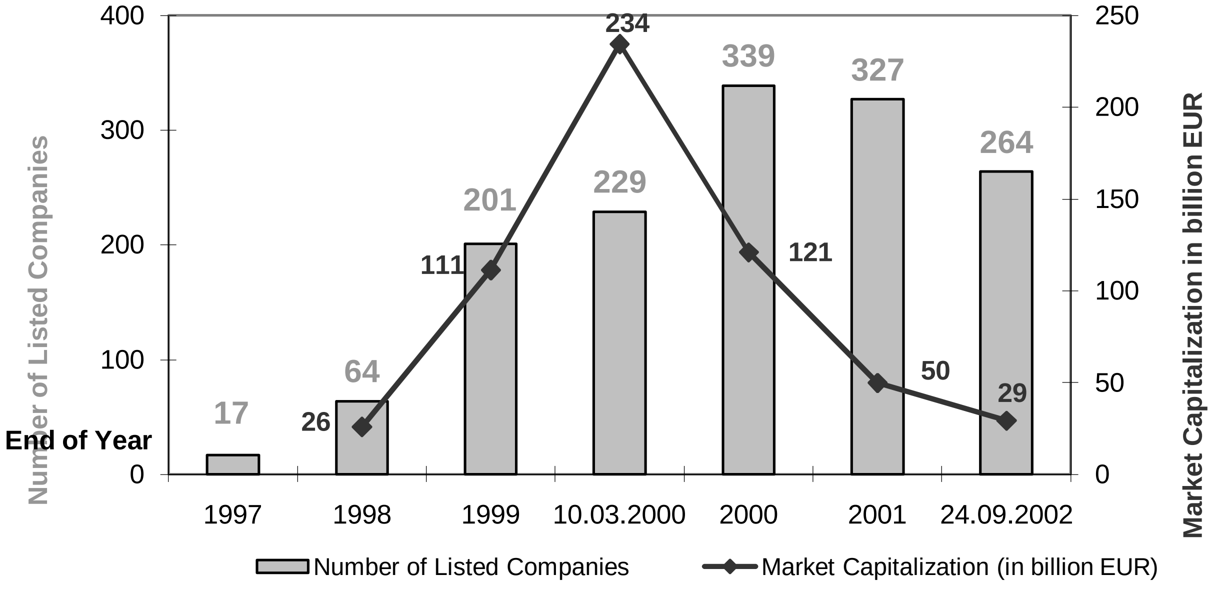
Both DAX-100 and NEMAX-All-Share index reached a maximum at March 10th, 2000, and than fell back sharply to levels of 1998 or 1997. The *Neuer Markt*, that had experienced the stronger increase before the breaking of the bubble, consequently suffered most. In early October 2002, the NEMAX-All-Share index reached its all-time low of 349.02, scarcely 4% of its maximum in March 2000. Since that date, the *Neuer Markt* recovered somewhat. However, this slight increase was a dividend on the ruin of the *Neuer Markt*, because in October 16th, 2002, the *Exchange Council* of the Frankfurt Stock Exchange decided to abandon the old segmentation concept and in particular the *Neuer Markt*. To what degree this is a particular failure of the *Neuer Markt*, shall be discussed in the following section.

3. The Breakdown of Prices and Good Reputation

The economic failure of the market and its participants

The rapid way up and the speedy way down of the *Neuer Markt* is most impressively described by the development of the numbers of listed companies and their market capitalization. During the growth period of the market the number of quoted companies increases from two at the start on March 10th, 1997, to more than 339 in 2000. The market capitalization reached its highest level on March 10th, 2000, with about 234 billion €. Than, the bubble broke and just two and a half years later the total market capitalization has decreased to 29 billion € only. This is a reduction in market value of more than 200 billion €, or 87.5%. With a certain time lack, firms began to leave the market, while the primary market suffered an almost complete breakdown. Only five firms went public on German stock markets in 2002, and only one applied for a listing at the *Neuer Markt*.

Figure 4: Market Capitalization and Number of Listed Firms at the Neuer Markt



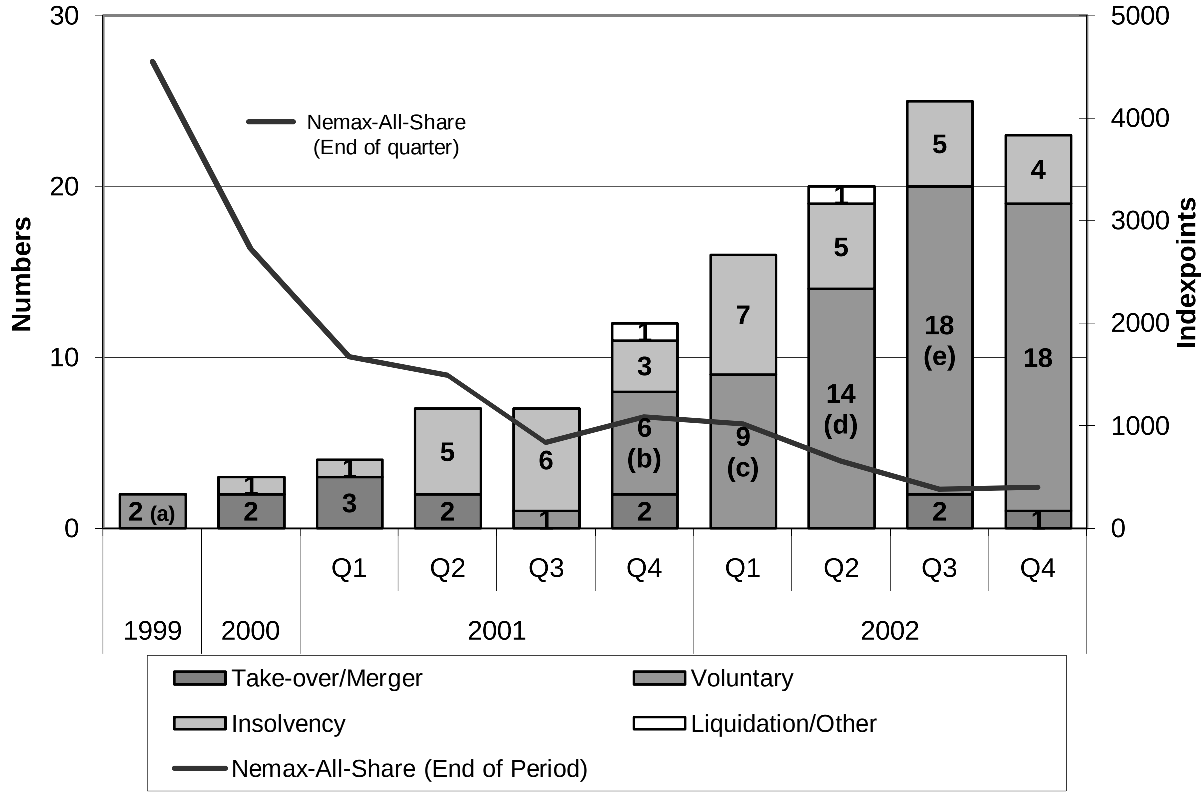
The crisis of the *Neuer Markt* began in early 2000, when numerous companies had to confess that they would miss their forecasts from the prospectuses and other publications. At that time, similar announcements came from many firms in Germany and abroad, marking a turning point in the world's business cycle. However, stock market segments with older firms showed more resilience to bad news than did, in particular, the *Neuer Markt*. Per se, this is no surprise. As mentioned above, the stock prices of many firms at the *Neuer Markt* could be justified, if at all, only through high expected - not actual - earnings. A change in the general economic outlook should thus hit the stock prices of such firms particularly hard.

However, it became obvious soon that investors had to expect worse than just a sharp correction of unrealistic bubble prices. Seemingly, for many firms at the *Neuer Markt* strong economic growth, or continuing ignorance of the true state of affairs, was a precondition for their survival. Thus, soon after reaching the turning point of stock prices, rumors spread through market reports and popular stock exchange-magazines that numerous companies listed at the *Neuer Markt* were threatened by bankruptcy. Blacklists were sent around, containing many well-known names. The management of the respective firms vigorously denied such threats. Nonetheless, the rumors contributed to the general downwards trend of stock prices at the *Neuer Markt*.

In September 2000, the first company listed at the *Neuer Markt* declared itself bankrupt. *Gigabell AG* started trading at the *Neuer Markt* at August 11th, 1999, at 38 € and reached its highest price level at July 3rd, 2000, with 123 €, only two month before it went bankrupt. The *Deutsche Börse AG* expelled *Gigabell AG* from the listing on February 23rd, 2001, to avert further damage for the reputation of the market.[17] Furthermore, the *Deutsche Börse AG* intensified the listing requirements with effect from March 1st, 2001. From now on the members of the board of directors as well as the members of the supervisory board had to publish their own sales of stocks of own company-shares to protect the remaining shareholder from the possible disadvantages of insider trading. Market participants commented that these measures were both too late and too little.

Further insolvencies followed, and the dropdown of the market performance continued. From July 2001 onwards, several of the distressed or insolvent companies applied for a listing at the *Regulated Market* to relinquish the listing at the *Neuer Markt*.[18] Simultaneously, the *Deutsche Börse AG* announced to strike penny-stocks and insolvent companies from the stock list with effect from October 1st, 2001. The insolvent *Kabel New Media AG* was the first company that was expelled from the stock list due to the new delisting regulations. From now on the number of firms leaving the *Neuer Markt* and getting into financial distress increased alongside with the deterioration of the market performance:

Figure 5: Termination of Admission to the Neuer Markt



(a) Thereof 1 insolvency in Q2/2002
(b) Thereof 2 insolvencies in Q3/2002
(c) Thereof 1 insolvency in Q2/2002, 2 in Q3/2002 and 1 in Q4/2002
(d) Thereof 1 insolvency in Q3/2002 and 1 in Q4/2002
(e) Thereof 1 liquidation in Q4/2002

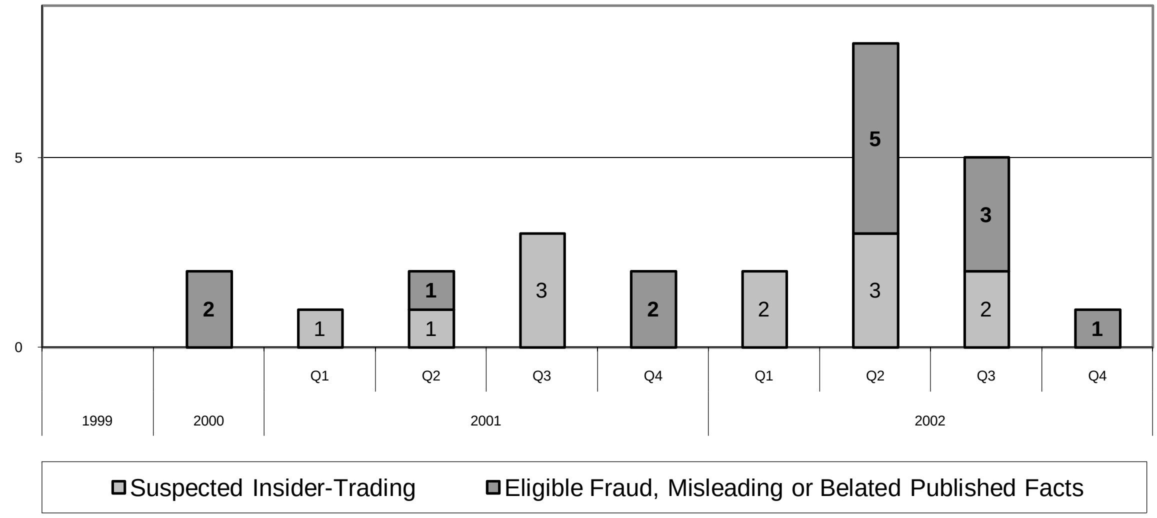
Sources: Deutsche Börse AG (2003), Ad-hoc announcements of the companies

Even a voluntarily delisting was not able to protect neither the *Neuer Markt* nor the company itself from reputational damage. Many of the firms that changed to the *Regulated Market* voluntarily later applied for insolvency. Thus, the number of insolvent companies once listed at the *Neuer Markt* reaches 46 at the end of 2002 (from a total of 119 firms that left the *Neuer Markt*), and might be expected to increase further with some time lack.[19]

Fraud and reputation

However, it is not the lack of economic success alone that enraged investors and destroyed the reputation of the *Neuer Markt*. In September 2000 *CPU AG* had to pay a fine because of an offense against the ad-hoc announcement-guidelines. In November 2000, the CEOs of *Infomatec* were imprisoned on remand for alleged stock price manipulations and insider trading,[20] and in March 2001 the *Federal Supervisory Authority for Securities Trading* started an inspection because of suspected insider trading of ex-managers of *Ixos AG*. From now on, stock market authorities and public prosecutors became active in numerous cases, producing a wave of negative headlines about the *Neuer Markt* and its participants.

Figure 6: Suspected Insider-Trading and eligible Fraud at the Neuer Markt



Sources: Manager-Magazin, Ad-hoc and financial news of the respective companies; own calculations

Although there is, to our best knowledge, no systematic analysis of fraud and failure at the *Neuer Markt*, from the individual cases we might identify certain typical patterns that show a ominous combination of wrong incentives, lack of supervision and, obviously, immoral misbehavior. To begin with, founder usually would like to sell some of their shares after the IPO to reduce their idiosyncratic exposure and to cash out. To achieve a good price, they might undertake special efforts in investor relations. However, because managers were not obliged to inform ex ante about their selling intentions, investors could not distinguish between the regular information policy on behalf of the firm, and information given with the intention to increase the proceeds of sales by insiders. Therefore it might be obvious that company-announcements were glossed over by emphasizing good news and protracting bad news.

Such a behavior represents illegal insider trading and should have judicial consequences. However, it is very difficult to prove such a misbehavior, and the German authorities seemingly lacked the competence to do so. It was easier to find out about the less frequent cases of faked orders, balance sheets or sales, which lead to the only case of an effective condemnation in courts.[21] Altogether, the many cases of alleged fraud and insider trading and almost complete lack of effective sentences contributed to the bad perception of the *Neuer Markt*. Furthermore, the huge public interest multiplied the reputation damage. Thus, the value of the brand "*Neuer Markt*" became negative for both the firms listed at the *Neuer Markt* and the *Deutsche Börse AG* itself. The closure of this market segment was the logical consequence.

Causes and consequences

The *Neuer Markt* served a purpose that, at least from a theoretical perspective, creates new value: Besides other potential sources of surplus, it enabled the founders and owners of young and innovative firms to rise equity at the public equity markets while protecting their relationship specific investments through dispersed outside equity.[22] So why did it fail?

In basic idea of the *Neuer Markt* was to allow young and innovative growth firms to go public through the guarantee of a high degree of transparency and strong regulatory background. However, as the stepwise tightening of rules in the course of the crisis demonstrates, the original set up contained elements of a compromise. Some of these, like too loose listing and delisting regimes, lacking (ex ante-)publicity for insider sales and insufficient penalties in the case of violations of the rules, might be responsible for some of the adverse incentives, although the general stock price bubble might be the main culprit. To introduce new rules to close the gaps ex post created an ambivalent signal. It could have demonstrated that the *Deutsche Börse AG* was actively protecting investors. However, it was understood as a signal for the defectiveness of the total system that was seemingly constructed to deceive investors.

The *Deutsche Börse AG* intended to use the general push of the primary markets at the end of the last decade to firmly establish the new market segment, both in the eye of public and with respect to the competition between the different stock markets in Europe that concentrated on similar IPO candidates.[23] Thus, a large number of firms had to be brought to the market in a very short period of time. Issuing houses and other participants did likewise generate substantial earnings from their IPO activities, and equity was never cheaper for the owner of potential IPO candidates. Thus, the demand and the supply side met with potentially controlling institutions in their demand for more IPOs. Furthermore, some of the listing requirements like the three years track record or the minimum free float of 25% were non-compulsory. As a consequence, among the accepted IPOs there were many that are seen today, with hindsight, as premature. Other IPO candidates lacked a sustainable economic concept or, due to complex and intransparent group structure, a sufficient degree of corporate clarity, which should have been a precondition for any outsider investment. Thus, nowadays, some analysts even say that most of the firms that went public at the *Neuer Markt* were not really prepared for this step (Hess/Lehmann/Lüders, 2001). However, a different economic development might have led to other conclusions.

Like the destruction of investors' trust after the breaking of the bubble, some other potential causes for the failure of the *Neuer Markt* did trouble the whole financial system, but hit the *Neuer Markt* as a newly established market segment particularly strong. Examples are the ineffectiveness of auditing firms in protecting the public against faked numbers in annual and quarterly reports, or the irresponsible behavior of investment consultants or stock analysts and conflicts of interest inside banks with respect to stock research and portfolio, respectively, funds management. However, other stock markets or market segments faced these problems with a reputation build over decades, or are, due to their size, indispensable. To some degree, the profound failure of the *Neuer Markt* was even helpful to the other stock market segments in Germany because it drew attention away from the difficulties they had.

What are the consequences of this failure? Some straightforward observations after the bursting of the bubble are that, for the few IPOs that took place at the *Neuer Mark*t or other market segments, underpricing seemed to have disappeared. Adding to this observation the low level of share prices, we can conclude that going public is no longer attractive for both the supply and the demand side. That does not mean that the concept in itself has lost its attractiveness. Many firms that had prepared to go public are now waiting for more favorable market conditions (Wieselhuber & Partner, 2002). However, it is doubtful that such conditions will turn up very soon. The opinion of the general public has turned against the stock markets, and the number of shareholders decreases sharply (see Figure 1 above). Thus, at least for the time being, the candidates for an IPO at the *Neuer Markt* (or, from 2003 onwards, an equivalent stock market segment) loose valuable alternatives in financing and corporate governance. If the promoters of the *Neuer Markt* in science and practice were right about the importance of the opportunity to go public for innovation and growth, the failure of the *Neuer Markt* should contribute a lot to the lasting dull perspectives of the German economy. Even though we can only speculate about the quantitative impact, it is obviously an urgent task to overcome the standstill.

4. German Stock Markets after the *Neuer Markt* – Where do we stand?

The decision of the *Deutsche Börse AG* to terminate the *Neuer Markt* was aided by a set of modifications of the existing laws to strengthen the competitiveness of Germans financial system. The so-called *Viertes Finanzmarktförderungsgesetz* (literary: Fourth financial markets advancement law) is in effect since July 1st, 2002. It intends to induce better investor protection, an extended freedom of action for the market participants, and to impede money laundering. One key element of the reform is the modification of the *Stock Exchange Act*, which offers the stock exchanges more flexibility with regard to the organization of the stock trading, so that they are able to react suitably on changes of market situations. Thus, legal barriers that restricted the institutional design of the *Neuer Markt* are now lifted.

Through the modifications of the *Stock Exchange Act*, the requirements for stock trading were altered. A "first segment" (official market) takes the place of the former *Official Trading*. In addition, in a "second segment" (regulated market) the requirements of the former *Regulated Market* are still valid as a minimum standard. Both segments meet the requirements as a regulated market in the sense of the *ECs Directive on Investment Services*. Furthermore, the stock exchanges were allowed to demand further requirements for parts of these market segments. Thus, the *Neuer Markt* could have been easily adjusted to the new legal situation.

However, the *Deutsche Börse AG* was looking for modifications that might help to regain investors' trust, or at least to make it easier for investors to forget about past losses and scandals. Thus, ideas on both marketing and institutional design were needed. Obviously, the brand "*Neuer Markt*" had to be abandoned because it threatened to harm even sound firms traded in this market segment. However, it was indispensable that investors should get the impression that the *Deutsche Börse AG* did more than just change the name to achieve a true rebranding. Thus, since January 1st, 2003, a totally new segmentation concept is in force, containing only two regulated markets, called *General Standard* and *Prime Standard* from now on (Deutsche Börse AG, 2002a). As a third element the *Unofficial Regulated Market* (*Freiverkehr*) keeps on trading. However, this is not a regulated market in the sense of the *Investment Services Directive* and might remain what it was: Illiquide, and rather irrelevant for most domestic stocks.

The listing requirements for an admission of shares to the "second segment", i. e., the former *Regulated Market*, are raised to the requirements of the "first segment", the former *Official Trading*, and are called *General Standard*. Already listed companies enter the *General Standard* automatically. An issuer can apply for a listing at the *Prime Standard* if the shares are admitted to the *General Standard* and the issuer meets additional requirements. Thus, the issuer is obliged to prepare consolidated financial statements according to IAS or US-GAAP, to publish quarterly report containing certain specifications, to publish a corporate action timetable, to hold an analyst's conference annually, and to publish ad-hoc announcements in German and English. Interestingly, these requirements are mainly drawn from the *Neuer Markt* and aim in particular at international investors, as does the English name of both segments. The *Neuer Markt* itself will be terminated December 31st, 2003.

With the exception of the CDAX-index covering all traded stocks at the regulated markets, integration in one of the indices of the Frankfurt Stock Exchange requires an admission to the *Prime Standard* (Deutsche Börse AG, 2002b). These indices are the DAX containing the 30 largest German blue chips, the MDAX containing 50 smaller blue chips traded in Frankfurt and the SDAX describing the performance of the 50 medium sized firms underneath the MDAX. However, MDAX and SDAX comprise only less technology-oriented companies. The 30 largest high-tech companies are in integrated into the TecDAX. It is expected that this index will mainly contain NEMAX-50 firms and thereby link the new segmentation to the *Neuer Markt*. The NEMAX-50 will be calculated until the end of 2004 to guarantee continuity in derivatives trading. Furthermore, a Prime All-Share index and 18 industrial sector indices will be computed. All indices (with the exception of the DAX) contain German and non-German firms traded in Frankfurt. This new index family is calculated with effect from March 24^{th}, 2003.

The rebranding not only of the *Neuer Markt* but also of the total German (Frankfurt) stock market is a signal for the profundity of the crisis. However, as the case of the *Neuer Markt* tells us, it is rather difficult and somewhat paradox to build up reputation through discrete measures and in a short period of time. Thus, the new segmentation and rebranding could be rather costly, whereas gains can be expected in the long run only. Investors need time to learn from their own experience about the reliability and trustworthiness of the new market segments. Generally higher listing requirements and a strict enforcements of the stock exchange rules on listed firms could help to speed up this process, although even they will not win back the trust of a generation of private investors who often lost a fortune. And even such strict rules cannot protect investors from idiosyncratic and general market risk and are thus no guarantee against a further or repeated loss of investors' confidence and trust. Thus, while efficient stock markets might support economic growth, reciprocally the recovery of the German stock markets from their deep and structural crisis might need the help of a general recovery of the economy. Economic stagnation and the inability of the German Governments to reform crucial elements of the public financial system makes it rather improbable that such help is forthcoming.

Thus, the debate is somehow back again where it was ten and twenty years ago: The experiment of the *Neuer Markt* might have enlarged our knowledge about what kind of stock markets Germany needs, but did, after the closing of a window of opportunity, not provide access to public equity markets for a wide range of firms looking for such an access, and in particular not for small and innovative growth firms. Meanwhile, German stock markets lost a lot of time, reputation, and the option to develop under favorable economic conditions. Thus, although a circular development is not a bad thing in itself, one might get the disturbing feeling that this time the German financial system stumbled down the spiral staircase.

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[1] In this context, *Regulated Market* is the translation of its German name “Geregelter Markt”, without any inference to regulated markets in the sense of the *Investment Services Directive* of the *European Community*. In fact, *Official Trading, Regulated Market* and *Neuer Markt* had all been regulated markets in this sense.

[2] See, among many others, Neuberger (2000), or Edwards/Fischer (1994), with a rather critical perception of the German financial system.

[3] However, despite all efforts to reform, the number of firms’ bankruptcies tripled again in the next twenty years. Information on the development of the number of bankruptcies in Germany is provided by the *Statistisches Bundesamt* (Federal Statistics Bureau).

[4] Other topics were fiscal improvements for stock-corporations (in contrast to partnerships or limited liability companies) or for share-investments (in contrast to other investment alternatives) respectively.

[5] Council Directive 79/279/EEC of 5 March 1979 coordinating the conditions for the admission of securities to official stock exchange listing, the Council Directive 80/390/EEC of 17 March 1980 coordinating the requirements for the drawing up, scrutiny and distribution of the listing particulars to be published for the admission of securities to official stock exchange listing, the Council Directive 82/121/EEC of 15 February 1982 on information to be published on a regular basis by companies the shares of which have been admitted to official stock exchange listing.

[6] In 1995/1996, there were 1,131 IPOs at the NASDAQ compared with 34 IPOs in Germany.

[7] See Barry/Muscarella/Peavy III/Vetsuypens (1990) and Kortum/Lerner (1998) for empirical studies. Theoretical approaches are from Allen/Gale (1999), Subrahmanyam/Titman (1999), or Myers (2000). Critical due to the potential loss of less of confidentiality are, e. g., Maksimovic/Pichler (2001),

[8] Digitale Telekabel AG went public at NASDAQ on December 31st 1996, iXOS Software AG starts trading at October 7th, 1998, however, with a dual listing at NASDAQ and Neuer Markt as did QS Communications AG on April 19th, 2000.

[9] See Council Directive 93/22/EEC of 10 May 1993 on investment services in the securities field. In particular international investors see in the attribute "regulated market" an important qualification of a market segment, and some institutional investors are allowed to invest in regulated markets only (Potthoff/Stuhlfauth, 1997).

[10] The admission to these indices depends on the market capitalization and equity turnover. See Deutsche Börse AG (2001a).

[11] See Rock (1986) for the most influential paper on adverse selection and underpricing in IPOs.

[12] Hunger (2002) proves that the differences in the degree of underpricing in both mean and median are statistically significant.

[13] However, as Goergen/Renneboog (2001) show, the disentanglement of the old major shareholders takes a long time, at least in the German IPOs of their data set covering the years 1981 to 1988.

[14] See the discussion of intangible assets for R & D intensive companies in Burghof/Fischer (2002).

[15] See Kraus/Burghof (2003), who use a hurdle rate of 2.5% of cumulative equity stakes of venture capitalists to define venture backing. Mayer (2001) counts even 55.8% of venture backed IPOs in her sample.

[16] Data refer to the period from March 14th, 1997 to March 10th, 2000 (March 24th, 2000 for the NASDAQ) and relates to the price indices of the NEMAX-All-Share index, the DAX-100 index and the NASDAQ-100 index respectively (computed at the end of a week); source: Dresdner Bank AG

[17] The formal reason for the expulsion was that *Gigabell* did no longer provided the required quarterly reports.

[18] Before this date, changes to other market segments or exits from the public equity markets were mainly due to takeovers. The exceptions were the closely related *Lösch Umweltschutz AG* and *Sero Entsorgung AG* suffering from a severe case a fraud that became apparent soon after the IPO. They were induced to change to the *Regulated Market* in April 1999. Although this case contained many of the elements of the later crisis of many firms at the *Neuer Markt* about three years later, it received little attention at its time.

[19] We identify the firms that left the *Neuer Markt* through Deutsche Börse AG, Termination of Admission to the Neuer Markt, February 3rd, 2003. In this overview, *Deutsche Börse AG* emphasize the formal reasons for the termination only and do not discuss their economic situation. Thus, we identify the "true" reasons from the ad-hoc announcements of the respective firms.

[20] However, the first to go to (pre-trial) confinement were, already in 1998, the brothers *Johannes* und *Dieter Löbbert* (and two other managers) of *Lösch Umweltschutz AG* and *Sero Entsorgung AG*.

[21] In November 2002, the founder of *Comroad*, *Bodo Schnabel*, was sentenced to seven years in jail and a payment of about 20 million €.

[22] On the reasons to go public see Pagano/Panetta/Zingales (1998), for the particular relevance of the mentioned reason for IPOs at the *Neuer Markt* Burghof/Fischer (2002). For theoretical contributions see Burkhart/Gromb/Panunzi (1997) and Myers (2000).

[23] Beside the *Neuer Markt*, these were the *Nouveau Marché* in Paris, the *SWX New Market* in Zürich, *Euro.NM* in Belgium, Amsterdam's *Nieuwe Markt*, and Milan's *Nuovo Mercato*, the *Easdaq* and London's *Alternative Investment Market*, all founded between 1995 and 1999.