

IPO PREMIUMS AND INVESTOR BEHAVIOR IN THE NEUER MARKET

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ABSTRACT

This paper examines the initial public offering (IPO) premiums on equities listed in the German Neuer Market. The Neuer Market was created in 1997 in order to provide a vehicle for new firms to access the capital market in Germany. Regression analysis is applied to a sample of 290 firms with initial public offerings during the first four years of the market. The empirical results indicate that the general performance of domestic and international markets, percent of the stock allowed to free float, and the total number of initial public offerings occurring in the same month are the primary determinants of IPO premiums in the Neuer Market. The findings suggest that a 10 percent increase in the percent of stock allowed to free float at the time of the IPO results in a decline of more than 5 percent on the speculative return.

INTRODUCTION

The German Neuer Market attempted to unite growth firms needing capital with investors seeking higher returns during its five and one-half year lifespan. Because the risk of new firms without a proven history is high, investors may be hesitant to enter the market. By establishing and regulating a platform for this market, the Frankfurt Stock Market hoped to promote growth firms and meet a demand of its investors. It was patterned after the NASDAQ in the United States. During the first four years of existence over 300 firms went public. The Neuer Market was the home of technology stocks and where the majority of the turnover of all the German stock exchanges occurred.

The purpose of this study is to examine the determinants of initial public offering (IPO) premiums in the Neuer Market. Specific areas of interest include the impact of market conditions, liquidity and competition from other issues on the premiums. This paper is organized as follows. First, the motivation for the Neuer Market and its structure is discussed. The next section presents brief characteristics of the initial public offerings and the premiums within the Neuer Market. The third section describes the model and theoretical foundation. The next section presents an empirical evaluation of the determinants of the IPO premiums. The final section offers conclusions and suggestions for future research.

NEUER MARKET BACKGROUND

Innovative growth firms are typically capital-starved. Capital is needed to expand product lines, to establish market share and for basic operations. Initially, firms use venture capital to make an idea a reality. Upon exceeding the limits of venture capital financing, firms must look elsewhere for the capital to grow. Small

firms do not have the credit record or established business record to acquire funds from traditional sources. Bank loans and the corresponding interest payments strain liquidity for young firms because young firms are not likely to receive favorable interest rates. Technology companies face this dilemma more because their business plans are new to investors.

Growth companies may go public to gain the next level of financing. However, the German equity market is fairly underdeveloped. Less than 750 domestic companies have official trading status. In comparison, the New York Stock Exchange is home to over 3,000 firms and the NASDAQ has over 5,000 companies listed. The German stock market recognized the lack of opportunity to raise capital in Germany. In an effort to keep the companies from seeking funds outside of Germany, the Frankfurt Stock Exchange established the Neuer Market. The stock exchange was designed to match investors seeking higher returns with high growth potential companies needing capital.

The organization of the Neuer Market coupled with the backing of the Frankfurt Stock Exchange encouraged the growth market. First, the initial public offering generated an exit strategy for venture capitalists. By supporting a way for venture capitalists to withdraw their capital, the Frankfurt Stock Market promoted further venture capital investment in Germany. In supporting the initial phases of growth, more companies developed and listed on the Neuer Market.

For admission to the Neuer Market all firms needed at least two sponsors. The designated sponsors act like specialists by providing liquidity through binding purchases and sales of the stock. In addition, shares held by company management are ineligible for sale for at least six months following the IPO. These two criteria increase confidence in the company and in turn, increase marketability of the issue. Upon fulfilling the requirements for listing, each firm was required to float at least 20% of the total shareholder equity with a minimum value of Euro 5 million to ensure a base level of liquidity.

In order to maintain listing in the Neuer Market stringent transparency and marketability requirements were employed. The German stock market is divided into three tiers with decreasing requirements. The highest tier with the most stringent listing requirements is Official Trading on which large-capitalization firms are traded. The Regulated Market is the second tier market and has correspondingly lower regulations. The Unofficial Regulated Market is the third and largest tier with few approval prerequisites and no continuing obligations. While officially in the Unofficial Regulated Market, Neuer Market firms followed more stringent criteria for listing than the other three tiers. The additional requirements provided greater transparency and liquidity to investors. Firms listed on the Neuer Market published reports quarterly and annually in both German and English compared to biannual reports in German for domestic firms in the official market. The reports must be in accordance with either International Accounting Standards or U.S. Generally Accepted Accounting Principles, increasing the ability to compare the firms internationally [4]. Unlike the other markets, the Neuer Market firms were required to have at least one analysts meeting each year. The increased depth of the reporting of company information encouraged comparisons with both domestic and international firms and therefore, competition for investment funds. The increased transparency from the quality of the increased reporting lowers the risk and required return of the firms.

Despite the solid foundation built on enhanced transparency, a special vetting procedure to ensure candidates' suitability for listing, and a means of funding immature growth stocks, the Neuer Market became defunct in the spring of 2002. The Neuer Market, as Marx said of the capitalist system, carried within it the seeds of its own destruction. Born in 1997 amid hopes for global stock offerings, the Neuer Market was clouded by scandal-prone companies, accounting irregularities, lawsuits, and the collapse of the Internet bubble. Between July 2000 and July 2002 the index plunged approximately 95 percent and new listings became virtually nonexistent. In 2003 the Neuer Market will be decanted into two differently labeled indexes by Deutsche Boerse (Domestic Standard Index and Prime Standard Index). The closure of the Neuer Market heralds the end of the frenetic phase of Europe's dot-com capitalism, when a record number of companies went public. The legacy of the Neuer Market is that it forced German companies to communicate with investors. Despite its ultimate demise, the Neuer Market provides a unique opportunity to study an explosion of IPO activity during the initial four-year boom.

INITIAL PUBLIC OFFERINGS

Firms ready to go public have exceeded the financing of venture capital and are willing to risk valuation in the marketplace. Investors in small, growth firms seek higher returns but at a cost of high risk. Thus, a good IPO market indicates an appetite for risk by market participants [15]. IPOs occur in the primary market but the capital gains potential occurs in the secondary market. Investors pricing the IPOs recognize the connection between the primary and secondary markets. The price at which they can resell the issue in the secondary market partially determines what they are willing to pay in the primary market. The price of the IPO is set based upon a fair market value of the stock. However, investment bankers unsure of the fair market price and wanting the issue to be a success tend to underprice the issue [17]. This discrepancy leads to a positive speculative return for the initial owners. Empirical evidence from the United States has shown that the average underprice is 15% but varies over time [9, 14, 16, 18]. Further studies have examined the speed of price adjustment and found it usually occurs within one day [6, 10]. The speculative return is present only initially and usually to institutional investors who are better able to gain access to the issue [7].

During 1997, thirteen firms held IPOs for a total market capitalization of Euro 4,138 million, representing just 0.57% of the total capitalization of the Frankfurt Stock Exchange. During 1998, another forty-five firms listed bringing the total capitalization to just over Euro 26 million. The firms together returned 173.9% in 1998. At the end of 1999, 198 firms were listed on the Neuer Market with a market capitalization of Euro 111,276 million, representing 8.01% of the total German stock market. The total return was 66.2%. In 2000, another 133 firms held IPOs, making the Neuer Market the home of 26.56% of all domestic shares. Fifty-six foreign companies, primarily from other European countries, are also listed. The total return for the Neuer Market was -39% for 2000.

When the demand for the shares exceeds the supply, the initial holders of the IPO receive a premium called a speculator's return. Within the Neuer Market over ninety percent of the IPOs had positive IPO premiums. The average return over the first four years was 46%. In both 1997 and 1998, only one firm each year earned a negative return. SER Systeme returned a negative 48.86% in 1997 while Lobster

Network Storage earned a negative 14.29% in 1998. The high return was 323.08% in 1997 and 308.16% in 1998. The average speculative return was 57.35% in 1997 and 75.27% in 1998. In 1999, the returns ranged from -20.83% to 360.87% and only twelve of the 132 firms listing earned negative returns. Sixteen firms earned negative speculative returns in 2000, with the majority coming in the last six months. The range of speculative returns was -25% to 433.33% for 2000. The average speculative return was lower in 1999 and 2000 than in the prior years but still high at 44.89% and 45.94%, respectively.

Forty different investment bankers acted as either lead underwriter or underwriter in the Neuer Market. Four firms, DG Bank, HypoVereinsbank, Commerzbank, and Sal. Oppenheim Jr., participated in over 45 issues apiece. DG Bank was the most active with 70 issues, 44 as lead underwriter. In second place was Oppenheim who participated in 55 issues, 17 times as lead. Fifteen underwriters participated in five or fewer issues. The choice of underwriter may influence the pricing as firms try to ensure a successful listing [1]. While the number of issues per underwriter varied, all forty underwriters but one averaged positive IPO premiums. The lone holdout was Consors Capital Bank, which received no premium (0%) on its one issue. DG Bank averaged a positive 56.66% for its seventy issues, while Oppenheim averaged 66.76%.

Technology stocks dominate the Neuer Market. The firms can be divided into ten industries. In terms of capitalization, the largest industries are technology and Internet, each making up one-fifth of the total value. Financial services at 18.38% and biotechnology at 13.76% are the next in size. Media and entertainment, industrial services, and telecommunications each make up a little over 5% of the total value. Software, information technology services and medical technology are the smallest sectors.

DETERMINANTS OF IPO PREMIUMS

The Neuer Market provided a means for small firms soliciting capital for growth. From 1997 through 2000, the number of issues grew dramatically. Standard regression analysis is employed in this study in order to investigate the determinants of speculative returns. The data source is the Neuer Market company listings of the Frankfurt Stock Exchange. The sample is drawn from 290 firms listed as initial public offerings in the German Neuer Market. Ibbotson and Francis [8] provide the implicit theoretical foundation. The explicit empirical model in this study is defined as $RETURNS = f(INDEX, NASDAQ, VOLUME, FLOAT, COMPETITION, UNDERWRITER)$, where:

RETURNS = first quote minus subscription price divided by subscription price;

INDEX = the value of the Neuer Market index during the subscription period;

NASDAQ = the value of the NASDAQ index during the subscription period;

VOLUME = placement volume of the stock in millions of shares;

FLOAT = percent of the stock that is free floated at the time of the IPO;

COMPETITION = number of initial public offering occurring in the same month;

UNDERWRITER = 1 if the underwriter is classified as a major underwriter; 0 otherwise.

EURO = 1 if the initial public offering occurred after introduction of Euro dollar; 0 otherwise.

The two index variables (INDEX and NASDAQ) are expected to have positive relationships with the initial returns of the IPOs. Index information is readily available to investors and their returns provide a gauge for the returns investors in IPOs can expect. Investors witnessing increasing returns in the indexes may be drawn into the market causing further IPO premiums. VOLUME and FLOAT are expected to have a negative relationship with IPO returns. As the supply of shares available increases, the price should decrease [12, 13]. Previous research reveals that the allocation-weighted excess return is a declining function of volume [11]. Likewise, expanding the amount floated should decrease price [5, 9]. The negative sign associated with free floating stock is tempered by the benefit of greater stock liquidity and serves the interest of managers who do not want to be monitored by large shareholders [2, 3]. The COMPETITION variable is expected to have a negative relationship with returns. Investors in IPOs are looking for capital gains. As investors have more IPOs from which to choose, the amount they are willing to pay for any specific IPO declines [5]. The expected sign on the UNDERWRITER variable is unclear. The four major underwriters should gain expertise in pricing the IPOs and price to ensure success [6]. However, excessive IPO premiums are not desirable from the point of view of the issuing firm because it represents lost capital [10]. The introduction of the Euro is expected to have a positive relationship with IPO returns because it solidified the integration of Europe and its financial markets [4]. The euphoria surrounding the introduction and the positive expectations for Europe's future should be reflected in investor behavior.

Table 1 provides summary statistics for the variables. The mean speculative return is 47.47%. The returns range from 433.33% to -25% with both extremes occurring in 2000. Approximately 90% of the returns are positive; this proportion is significantly different from a chance result of 50% ($t = 16.88$). The Neuer Market index averaged a monthly return of 4.946% while the NASDAQ index's mean return was 2.816%. While the minimums for the indexes were similar to the IPOs' minimum, the maximums for the indexes were much lower than for the IPO stocks. In addition, the Neuer Market experienced greater maximums and minimums than the NASDAQ index over the sample period. The average volume of shares floated by an IPO was 2,667,000 shares. Each IPO faced an average of 12.7 other initial public offerings during its first month. The lead underwriter was DG Bank, HypoVereinsbank, Commerzbank, and Sal. Oppenheim Jr. for 33.8% of the IPOs. Over eighty percent of the IPOs occurred after the introduction of the Euro on January 1, 1999.

EMPIRICAL RESULTS

The estimated empirical relationship between the explanatory variables and initial public offering premiums is presented in this section. The model explains approximately thirty-one percent of the variance in premiums. The correlation for the INDEX and NASDAQ variables is a relatively high but acceptable 0.6. None of the other independent variables have correlations higher than 0.38, suggesting that excessive multicollinearity is not a problem. Three of the seven variables in the models are statistically significant at the five-percent level and one variable is statistically significant at the ten-percent level.

The general performance of the markets via the INDEX and NASDAQ variables have a positive and significant impact on IPO premiums. The value of the Neuer index during the subscription period is easily obtainable by investors. As investors decide what price to pay for an issue, they use the index as a guide to overall market conditions. Because of the tendency to underprice IPOs, many investors speculate on new shares. As investors earn speculative returns pushing up the index, others are enticed into the market seeking their own return. The investors act in a way that brings about IPO premiums, confirming their earlier analysis. Similarly, in a declining market investors move out of the market because of the negative psychology in the market. German investors are also able to watch the returns in other markets. During the late 1990s, many developed countries experienced a boom in technology stocks. One of the most discussed indexes worldwide is the NASDAQ. Because the Neuer Market is patterned after the NASDAQ and German investors may choose between investing in either the Neuer Market or NASDAQ, it is quoted daily in Germany and on the Neuer Market Web site. The positive and significant impact of the NASDAQ index indicates that there was integration between the two markets during the boom and subsequent bust in technology equities. German investors hoping for returns similar to NASDAQ stocks bid up the prices of Neuer Market issues. Both variables indicate the excitement over the technology boom and deflation during the bust.

The size of the IPO issue does not appear to have an impact on speculative returns. The VOLUME variable is negative but not statistically significant. This result is not surprising given that 195 of the firms executed their greenshoe option at the time of placement. This implies that the marketability goal of the Neuer Market has been satisfied. The independent variables FLOAT and COMPETITION both have a negative and significant impact on IPO premiums. A 10 percent increase in amount floated at the time of the IPO results in a decline of more than 5 percent on the initial return. The negative sign on the free float variable indicates that the Neuer Market is liquid. As the percent of the stock that is floated increases, the supply offered to the public increases. This increase in supply reduces the potential shortage of the issue and limits the opportunity for a speculative return. The negative sign on the competition variable indicates that IPO premiums declined as the number of other issues occurring at the same time increases. This implies that the market for IPOs becomes clogged as the deal flow increases. While there was enough demand to purchase all the equity including the greenshoe amounts, investors are less likely to bid up an issue if there is an alternative stock to buy. The empirical results indicate additional listings within a month lowers speculative returns by 1.9 percent.

The choice of underwriter and the Euro both have a positive impact on IPO premiums but are not statistically significant. Firms that used DG Bank, HypoVereinsbank, Commerzbank, and Sal. Oppenheim Jr. as lead underwriter are more likely to have positive IPO premiums than other underwriters. The main underwriters are better able to ensure successful IPOs. Even when the market declined in 2000, many issues from these firms still earned positive IPO premiums. The results indicate that more experienced firms are better able to market and price the issues but the result is not statistically significant. The investment banks realize that part of the success of an IPO is the initial experience in the open market and positive premiums are important ingredient for the success. It is interesting that the firms did not increase the initial price of the IPOs to shift the gains of the premium from the investor to the issuing firm. The higher premium could also occur because

of better marketing of the IPOs by the four banks. IPO premiums are positively influenced by the January 1999 explicit introduction of the Euro currency, but the impact is not statistically significant. It should be noted that IPO premiums were very high during the 12-month window surrounding the formal initiation of the Euro but the Euro euphoria waned thereafter.

CONCLUSION

Smaller companies are a key source of new ideas and growth. Within Germany the breadth of the equity market has traditionally been limited to large-capitalization companies. Firms are more likely to stay in Germany to develop their products if they are able to find the funding in Germany. However, growth firms do not have the track record that enables them to find affordable funding beyond venture capital. Investors seeking higher returns from growth stocks were also underserved. Recognizing the lack of available capital, the Frankfurt Stock Exchange initiated the Neuer Market in 1997 to bring together these two sides.

The initial price and the opening price of IPOs are rarely the same, leading many investors to speculate on new issues. The price in the primary market is set intentionally lower to ensure a successful IPO. Investors bid in the secondary market hoping to own the latest growth stock with the ability to resell it at a potentially higher price. The empirical results of this study indicate that the conditions of the overall market at the time of issue have a significant impact on the IPO premiums in the Neuer Market. Initial public issues offer greater IPO premiums to investors in the time period following a rising market in both Germany and in the U.S. Investors witnessing other investors, both domestic and international, earning speculative returns are enticed into the market causing further premiums. The results corresponding to supply conditions are consistent with a liquid market. The issue volume and free float percentage have a negative impact on speculative return. This is most likely due to the large number of greenshoe options excised and the lack of scarcity of the issues. The number of firms going public at the same time also has a negative impact on IPO premiums. While there is enough demand to purchase all the equity including the greenshoe, investors are less willing to bid up any one issue in a competitive market. The choice of underwriter has a positive but insignificant impact on IPO premiums. Issues from the major four investment banks of DG Bank, HypoVereinsbank, Commerzbank, and Sal. Oppenheim Jr. have higher IPO premiums than other issues.

By increasing the number of firms listed in Germany, the Neuer Market encouraged further expansion of growth firms and further domestic investment in Germany. The rigorous requirement for listing on the Neuer Market promoted transparency and marketability of the issues. A new financial market in an industrial nation provides a unique opportunity to examine investor behavior. The recent closing of the Neuer market provides several potential research opportunities with respect to how and why an equity market in a developed country was able to rise and fall within a five-year period of time. The development and success of the two offspring indexes (Domestic Standard and Prime Standard) is an additional research future research extension.

Table 1
Summary Statistics

Variables	Mean	Standard Deviation	Maximum	Minimum
RETURNS	47.47	72.38	433.33	-25
INDEX	4.95	17.15	48.2	-30.7
NASDAQ	2.82	10.05	22	-23
VOLUME	2.67	3.27	28.1	0.18
FLOAT	34.65	14.16	100	14.2
COMPETITION	12.72	6.21	20	0
UNDERWRITER	0.34	0.47	1	0
EURO	0.19	0.39	1	0

Table 2
Determinants of IPO Premiums

Variables	Coefficient (t-stat)
Intercept	75.630 (4.93)**
INDEX	1.897 (6.96)**
NASDAQ	0.874 (1.85)*
VOLUME	-0.369 (-0.33)
FLOAT	-0.554 (-2.08)**
COMPETITION	-1.910 (-2.569)**
UNDERWRITER	11.553 (1.521)
EURO	3.041 (0.25)
R-square	0.31
F-value	18.35

**Significant at the .05 level; *significant at the .10 level; N = 290

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