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Rights Issues in the Swedish Market

A Comparison between Insured and Uninsured Rights Issues

MARIA E. ANDERSSON* and SARA SÖDERBERG♥

*19746@student.hhs.se

♥19779@student.hhs.se

Abstract

The purpose of this thesis is threefold: to thoroughly investigate the characteristics of the Swedish market for rights issues 1986-2005 with a particular focus on the differences and similarities between insured and uninsured offers, to investigate the reasons behind the choice between an insured and an uninsured rights issue, and to examine how the abnormal return and discount following a rights issue is affected by whether the issue is insured or uninsured. Data from 254 issues by companies listed on the Stockholm Stock Exchange from the period 1986 to 2005 is used. We find that the use of rights issues has increased over the years and that practically the entire increase comes from insured rights issues. The main determinants for the choice between insured and uninsured are market capitalization, booming market conditions and ownership concentration. Our result to some extent indicates that the use of an insured rights issue is not interpreted as a certification of value, but overall we conclude that the Swedish market does not seem to consider the choice between insured and uninsured rights issues to be a strong determinant for the abnormal return. The average discount does not seem to vary systematically between the two rights issue methods.

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1 Introduction

A company faces different alternatives when it comes to issuing new equity. It can either go out broadly to the public with an offer like a public offering or more narrowly with an offer to a selected group of investors. This group can be new potential shareholders or already existing ones. This more selective offer is usually a private placement¹ or a rights issue. In this thesis we will focus on rights issues.

A rights issue is when the company offers existing shareholders the right to acquire additional shares in proportion to their current holdings by subscribing to the offer. The company may want to insure itself against less than full subscription in order to obtain the needed capital and/or as a certification of quality as proposed by for example Eckbo and Masulis (1992). In the case the company wants to undertake an insured rights issue they can turn to a guaranteeing investor² who is willing to purchase the remaining subscription rights, which has not been exercised or sold by existing shareholders, at the end of the subscription period. In Sweden it is common that these guaranteeing investors are existing shareholders, often with a large stake in the company (NN, 2006). This distinguishes the Swedish market from many other markets and is most likely due to the high ownership concentration in Swedish companies. If no guarantee is used the rights issue is uninsured.

Much research in the area of rights issues is concerned with the choice between rights issues and private placements.³ In many of these studies the two alternative methods of insured⁴ and uninsured rights issues are partially investigated, particularly the effect each method has on abnormal return and discount. Most findings regarding rights issues indicate that they are offered at a substantial discount.⁵ Furthermore, the abnormal return immediately after the issue tends to be negative. In this thesis we will dig deeper into the choice between insured and uninsured rights issues and investigate the decision from more perspectives: we will give

¹ A private placement is when the company targets a few potential investors, which can but does not have to be existing shareholders of the company.

² In the term guaranteeing investor we include all actors who commit to buy an agreed number of shares under certain circumstances. These investors can be underwriters (such as investment banks), private and public investors and existing shareholders.

³ See for example Barnes and Walker (2006) and Cronqvist and Nilsson (2005).

⁴ We will continuously use the terminology insured rights issues when referring to what is called for example underwritten rights offers or standby underwriting agreements in studies such as Bøhren et al (1997) and Armitage (2002). For a further discussion of this see section 1.1.

⁵ See for example Eckbo and Masulis (1992).

an overview of the Swedish market for rights issues, examine the factors behind the decision to undertake an insured or uninsured rights issue and also investigate the consequences of the choice between insured and uninsured rights issues on abnormal return and discount.

Worldwide, rights issues have been studied from different angles in countries such as UK, US, Norway, Finland, Japan and Australia.⁶ In the Swedish market rights issues is a quite uninvestigated area. Fritzell and Hansveden (2006) and Cronqvist and Nilsson (2005) investigates the choice between rights issues and private placements, but not with a focus on the choice between insured and uninsured rights issues. Consequently, the topic of this thesis has never before been studied with Swedish data. The Swedish market can also be particularly interesting to study with regard to rights issues since it is known for its high ownership concentration, which by for example Eckbo and Masulis (1992) is believed to affect the choice between insured and uninsured.

Hence, the purpose of this thesis is threefold: to thoroughly investigate the characteristics of the Swedish market for rights issues 1986-2005 with a particular focus on the differences and similarities between insured and uninsured offers, to investigate the reasons behind the choice between an insured and an uninsured rights issue, and to examine how the abnormal return and discount following a rights issue is affected by whether the issue is insured or uninsured. The outcome of our thesis is of particular interest since the Swedish market has some special features that might give diverging results compared to previous research in other countries.

This thesis is of relevance to anyone with an interest in the Swedish market for rights issues. Companies that want to undertake a rights issue should be interested in understanding the alternatives insured and uninsured and their consequences. Also shareholders that are offered a subscription right in an issue and potential guaranteeing investors should find our results useful. Analysts and researchers with an interest in the Swedish market should also find our results valuable due to the lack of previous research on the subject.

The thesis is structured as follows: In section 1.1 we state our definitions of what an insured and what an uninsured rights issue is and in section 1.2 we present a case study of a rights issue. In section 2 we aim to describe theories and hypotheses that will help us explain the market reactions to rights issues, why they are offered at a discount and why companies choose either insured or uninsured rights issues. In section 3 the methodology used to answer

⁶ See for example Marsh (1979) for evidence from the UK market, Hansen (1988) for the US market, Bøhren et al (1997) for the Norwegian market, Hietala (1994) for the Finnish market, Kang et al (1999) for the Japanese market and Chan (1997) for the Australian market.

the hypotheses is presented. In section 4 we give an overview of the rights issue procedure. We describe how we collect the data as well as some general patterns of it in section 5. In section 6 we present a comparative analysis of the features of insured and uninsured rights issues. The results from our cross-sectional regressions and our binary logistic regressions are presented in section 7 and 8 respectively. In section 9 we state our conclusions and in section 10 we make some suggestions for further research.

1.1 Defining Insured and Uninsured

Before we move on in the thesis we want to start by clearly defining the categories insured and uninsured rights issues. This proves to be somewhat difficult, as seen in the literature. In Hansen (1988) a rights issue that is guaranteed by a large shareholder is classified as a non-underwritten, or in our terminology uninsured, rights issue. However, Armitage (2002) means that subscription pre-commitments and the use of an underwriter are substitutes. Furthermore, Cronqvist and Nilsson (2005) find in their study of the Swedish market that a high subscription pre-commitment can substitute for a guarantee by an underwriter. This is logical since a high subscription pre-commitment induces a higher take-up level and hence the need of an underwriter is reduced. In interviews with practitioners in the Swedish market (Arneborn, 2006; NN, 2006) it is clear that the use of subscription pre-commitments is considered to give equal effects as the use of a guarantee. We think this is a reasonable approach. Hence, in this thesis the term insured rights issue will include those rights issues where subscription pre-commitments and/or a guarantee have been used. Thus, uninsured rights issues are those rights issues that have neither pre-commitments nor guarantees.

1.2 A Case Study of a Rights Issue

To clarify the process a company faces when they decide to undertake a rights issue we will perform a case study. We choose to look at the right issue of A-com from April 2005.⁷ This is partly a random choice but we also make sure to pick a right issue which is both subscription pre-committed and insured. It is also good to choose a rather recent rights issue to obtain as much information as possible, since the prospectuses in later years are required to contain more data than before.

⁷ To obtain information to perform the case study we examine the prospectus for the issue, interview a representative from the financial advisor Mangold Fondkommission and review press material.

In the beginning of 2005 it became clear to the Vice President of the marketing communication company A-com that the company was in need of more capital in order to create profitable growth and reach the strategic goals. They then turned to their financial advisor Mangold Fondkommission. In discussions between the management and the board of directors of A-com and Mangold the decision was reached to perform a rights issue in order to obtain SEK 19 million. The formal decision to undertake the rights issue was taken by the board of directors on the 17th of March 2005 and was announced in the media the same day. The abnormal return, which is the excess return of the stock compared to the market index, of the A-com share on the announcement day was -7.26 percent.

During the discussions between A-com and Mangold it became clear that A-com wanted a fully insured rights issue. Large shareholders as well as outside investors were approached, and finally subscription pre-commitments of 15 percent and a guarantee for the remaining 85 percent were agreed upon. The subscription pre-commitments were made by seven current shareholders with varying stakes in the company. The guarantee was made by a guarantee consortium consisting of four investors: two underwriters, Varsity Capital Group and Mangold Fondkommission, and two private investors, Bernhard van der Osten-Sacken and Rikard Akhtarzand. The compensation for the guarantee consortium consisted of either a cash amount corresponding to seven percent of the maximum amount guaranteed by the investor or A-com shares to a value of nine percent of the maximum amount guaranteed by the investor.

During the decision process, Mangold and A-com together created the prospectus, which was made public in the beginning of April. Three existing shares gave the right to subscribe to one new share to the issue price SEK 0.45. It was now up to each and every shareholder in A-com to decide if they wanted to subscribe to the issue, sell the subscription right in the secondary market or leave it unused. The 8th of April was the last day for trade of the share with the subscription right included. The trade with the share excluding the subscription right started on the 11th of April. This means that if you had a share before the 11th of April you could at this date sell the share but keep the subscription right. All shareholders that held a subscription right in the company by the 13th of April were allowed to participate in the rights issue. The trade in subscription rights took place between 15th and 26th of April and subscription to the rights issue was allowed between 15th and 29th of April. The trade of the subscription rights as usual took place at the Stockholm Stock Exchange at the same list as the A-com share.

The stock price on the day after the offering was SEK 0.49. Given the offer price of SEK 0.45 this gives a discount of $((0.49-0.45)/0.49)*100 = 8.17$ percent which is fairly low. Approximately 35.7 percent of the issue was subscribed by shareholders and for the remaining 64.3 percent the insurance was used (Hugin, 2005). Hence A-com received the requested SEK 19 million. The ownership concentration increased substantially as a result of the issue. Before the issue, the total ownership of shareholders with a stake larger than five percent was 26.0 percent and after the issue the number was 52.3 percent. The total stake of the 25 largest owners increased from 57.4 percent to 72.0 percent.

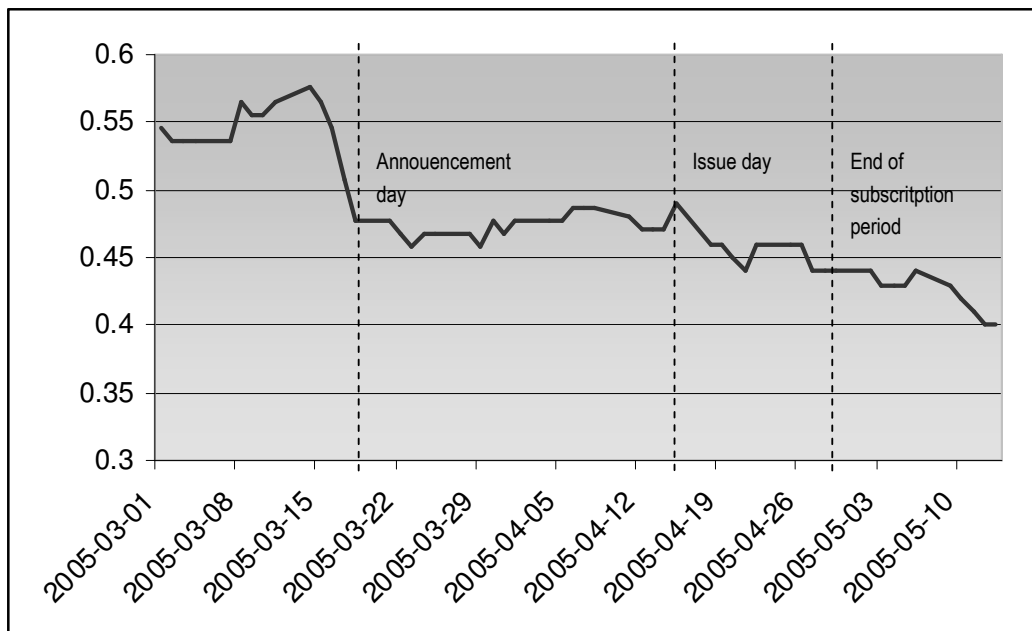


Figure 1 Stock price development of the A-Com share around the rights issue offer

In figure 1 we can see the price development of the A-Com share around the time of the rights issue. As we can see the price drops just before the announcement day, recovers slightly up to the issue day and then turns down again.

2 Theoretical Framework

The theories we have used are here categorized with respect to the purpose of the thesis. We present the theories used to explain, in order, the abnormal return following a rights issue, the offered discount, the reasons to choose an insured rather than an uninsured rights issue, and finally some characteristics of the market for rights issues.

2.1 Abnormal Return

2.1.1 Adverse Selection

To find what implications the adverse selection theory might have on abnormal return following a rights issue we start off by presenting the underlying theory by Myers and Majluf (1984). This model concerns the situation where a company seeks new funds to undertake a certain project and relies on three crucial assumptions: 1.) There exists asymmetric information between the management and the market, where the management knows more about the true value of the company than the market, 2.) The CEO of the company always maximizes the return of the existing shareholders, 3.) The offer is directed both to existing and potential shareholders, thus it is a public offering.

Under these circumstances a manager who is aware that the company is undervalued will not choose to issue new equity through a public offering. If an undervalued company chooses to undertake a public offering the value of the shares for the existing shareholders will become diluted and hence the old shareholders will be worse off than before the offer.

Thus all issuing companies in a public offering are overvalued. Since all actors in the market in this model know that the CEO always maximizes the return of the existing shareholders they also know that all issuing companies must be overvalued for the reasons explained above. The new shareholders will thus demand a discount to compensate for this overvaluation. Furthermore the market reaction following a public offering is negative since the market interprets this event as a sign of overvaluation. The manager of an overvalued company that wants to undertake a public offering has the option to choose between an insured and an uninsured issue. The benefits of an insured public offering are that the market reaction will be less negative and that the demanded discount will be lower. This is the case since a guaranteeing investor only is willing to give a guarantee after a thorough investigation because of the relatively large amount of capital set aside to be invested in the issue. This guarantee gives a signal to other potential investors that the issue price is fair and hence reduces the asymmetric information.

What we now have explained is the basic Myers and Majluf (1984) model of asymmetric information regarding public offers. For our purpose we need to modify this model to make it appropriate for rights issues. The assumptions of asymmetric information and that the CEO will maximize the profits of existing shareholders remain unchanged. However, the offer is now instead only directed to existing shareholders.

In line with Eckbo and Masulis (1992) who also adapts the Myers and Majluf (1984) adverse selection model to rights issues, we make some additional assumptions. Firstly, there must be a liquid secondary market for subscription rights where those shareholders who do not wish to participate in the rights issue can sell their rights. A subscription right is the right given to existing shareholders to acquire additional shares in proportion to their current holdings. We consider the assumption on liquidity to be reasonable for the Swedish market, where subscription rights are traded in quite large volumes on the Stockholm Stock Exchange. Secondly, we assume that the existing shareholders are rational and that all shareholders who do not exercise their subscription rights will sell them in the secondary market, since the subscription rights otherwise expire without the shareholders benefiting from either using or selling them. Without this assumption, the take-up measure, which is the extent to which the existing shareholders choose to exercise their subscription rights, cannot be calculated properly. Thirdly, the shareholder take-up level is treated as an exogenous variable and cannot be influenced by managers. Instead the take-up level depends on factors such as shareholders' access to capital, diversification preferences and a desire to maintain certain voting rights in the company. The take-up level, which is here denoted k , is in the interval $[0,1]$. Fourthly, we assume that the market theoretically will be able to recognize companies with the extreme k -values of either 1 or 0, but that it cannot distinguish different levels of k for the rest of the interval.

When k is somewhere between 1 and 0 the effects from the original Myers and Majluf (1984) model will increase as k decreases. Hence if the expected take-up is lower the discount will be larger, the market reaction will be more negative and the company will be more likely to choose an insured rights issue. We assume that k will in fact never be exactly 1, and that the market also anticipates this. This is a reasonable assumption since it is not likely that 100 percent of the shareholders will prefer to participate fully in the issue due to for example capital restrictions or other investment alternatives. As soon as k falls below 1, only overvalued companies will choose to issue due to the manager's inclination to protect the existing shareholders. Thus the market knows that all companies undertaking a rights issue are overvalued. The market can however not distinguish the degree of overvaluation for the different companies and therefore the issuing companies will be priced at an average. In this situation it becomes important for companies that are less overvalued than average to signal their higher quality. For this purpose they will choose to undertake an insured rights issue. This decreases the costs of adverse selection, which compensates for the increased issuing

costs from this method. Since the guaranteeing investor is supposed only to agree to guarantee the issue to a reasonable cost if the company is less overvalued, and thus of better quality than the average issuing company, an insured rights issue is interpreted as a sign of good quality by the market. Hence we hypothesize that the market reaction following an insured rights issue will be less negative than that following an uninsured rights issue. Furthermore we hypothesize that the abnormal return will be less negative for companies with a higher expected take-up.

Our reasoning that insured rights issues will be followed by less negative market reactions is in line with that of Ursel (2006) who says that an insured rights issue can be used to give a signal to outside investors that the company is not overvalued. This is because it can be assumed that a guaranteeing investor only wants to promise to buy shares that he expects to be able to resell. However, we believe that all issuing companies will be overvalued, and that the use of an insured rights issue instead signals less severe overvaluation than average.

The adverse selection model on rights issues described above has many similarities to the one presented in Eckbo and Masulis (1992). The main difference between the two models is that Eckbo and Masulis (1992) assume that undervalued firms with a k lower than 1 still choose to issue. We question the compatibility of this statement with the underlying assumption from the Myers and Majluf (1984) adverse selection model that the manager will always maximize the wealth of existing shareholders. According to our reasoning, undervalued firms will only choose to issue in the theoretical case when k equals 1 in order not to harm any existing shareholders. In our modified model, only overvalued companies will in fact undertake rights issues. This divergence in assumptions makes one of our concluding hypotheses quite different from that of Eckbo and Masulis (1992), namely the one regarding abnormal return following insured rights issues. As earlier stated, we expect the market reaction following an insured rights issue to be less negative than that following an uninsured rights issue. Eckbo and Masulis (1992) predict the opposite since they expect companies that undertake uninsured rights issues to generally be undervalued. From our reasoning above we conclude that undervalued companies will not choose to issue, which makes the hypothesis of Eckbo and Masulis (1992) illogical.

2.1.2 Ownership Concentration and Agency Problem

Sweden is known for its unusual high ownership concentration in listed companies, as concluded by for example LaPorta, Lopez-de-Silanes and Shleifer (1999). This behaviour is

hard to explain with the CAPM theory, which predicts that investors will want to diversify their ownership as much as possible to avoid any idiosyncratic risk (Bergström and Samuelsson, 2001). However, reasons for concentrated ownership can be found; for example Bergström and Samuelsson (2001) argue that concentrated ownership can be a way to solve the agency problem.⁸

In the Myers and Majluf (1984) model it is assumed that the CEO will always act in the interest of the existing shareholders. If we relax this assumption the agency problem might occur. The agency problem arises as soon as the management of the company, the agent, is separated from the shareholders, the principal (Jensen and Meckling, 1976). This induces an information asymmetry between the two groups. There is a risk that the managers become reckless with the company's holdings since they are not fully affected by the financial consequences of their actions. The possible reduction in return on investment for the principal is a part of the agency costs. Jensen and Meckling (1976) refer to this as residual loss. Agency costs also include monitoring costs, which is borne by the principal, and costs for the agent to signal good behaviour, which is called bonding costs by Jensen and Meckling (1976). The incentive of managerial misbehaviour increases if the shareholders are unable to fully monitor the managers. This problem can be solved by increasing the ownership concentration since an owner with a larger stake in the company will be more inclined to put effort into the costly monitoring. Thus companies with a higher ownership concentration can be expected to bear less agency costs than the average company. Therefore we hypothesize that companies with a more concentrated ownership structure will receive a less negative/more positive abnormal return for any conducted rights issue.

However, the agency cost is not entirely reduced when the ownership concentration is high. To some extent the agency problem is transferred from the relationship between managers and shareholders to that between majority and minority shareholders (Bergström and Samuelsson, 2001). In terms of Jensen and Meckling (1976) the majority owner will in this case take the role of the agent and the minority owners will be the principals. Here, the minority owners might suffer from agency costs in terms of residual loss if the majority owner acts only in her own interest. The majority owner bears monetary and/or non-monetary bonding costs to signal good behaviour. If the minority owners experience that the majority owner misbehaves,

⁸ Concentrated ownership can also help to solve what Bergström and Samuelsson (2001) refer to as the matters of incomplete contracts and collective decisions. We will not here go further into these issues since they do not contribute to our analysis.

they have the opportunity to sell their shares and by that action decrease the market price of the stocks. This will affect the majority owner negatively.

2.1.3 Hypotheses Regarding Abnormal Return

Hypothesis 1: The expected abnormal return to an insured rights issue, which is believed to be less overvalued than the average, will be less negative than that of an uninsured rights issue.

Hypothesis 2: Rights issues undertaken by companies with a higher expected take-up will be followed by a less negative abnormal return.

Hypothesis 3: A higher ownership concentration should lead to reduced agency costs. Thus we expect the ownership variable to affect abnormal return positively.

2.2 Discount

2.2.1 Adverse Selection

As discussed above in our modified Myers and Majluf (1984) model the signaling effect of the guaranteeing investor tells the market that the issuing company is less overvalued than average. A less severe overvaluation indicates that the company is of better quality than the average issuing company, which will make investors less inclined to demand a high discount. Thus, we expect the discount of an insured rights issue to be smaller than that of an uninsured rights issue.

Furthermore we hypothesize that companies with low expected take-up levels are more likely to give large discounts, in order to give incentives to the shareholders to exercise their rights. This is also what Eckbo and Masulis (1992) find in their study of the US market. This is further developed by Heinkel and Schwartz (1986), who argue that large discounts can be explained by a fear from the company that the rights issue will fail. If the share market price drops below the proposed issue price at the end of the subscription period, there will be no incentives to exercise the rights. The costs of a failed rights issue might thus cause companies to offer large discounts to make sure that the offered rights are exercised. This gives further support for the hypothesis that companies that undertake insured rights issues will probably offer lower discounts, since they should not be as threatened by a failed issue as the companies that offer an uninsured rights issue. Thus deep discounts could be seen as a substitute for insured rights issues.

2.2.2 Ownership Concentration and Agency Problem

Large shareholders have more incentives to participate in any undertaken rights issue, since they by definition have a larger interest invested in the company. Therefore large shareholders might require a smaller discount in order to subscribe to a rights issue, since they want to maintain their controlling position in the company. A contradictory reasoning to this is that majority shareholders might desire a large discount since they own a large stake and therefore will benefit the most from a large discount. In this case the majority owners will vote for a larger discount even if this is not in the best interest for the company. We believe that this last effect will be the dominating one and hence we state the hypothesis that companies with a more concentrated ownership will offer a larger discount when undertaking a rights issue.

2.2.3 Hypotheses Regarding Discount

Hypothesis 4: Companies that undertake insured rights issues will offer smaller discounts, since the problem of asymmetric information is diminished.

Hypothesis 5: The expected take-up level is negatively related to discounts, since the company will want to give incentives to the shareholders to exercise their rights when the expected take-up is low.

Hypothesis 6: The discount of rights issues undertaken by companies with a high ownership concentration will be larger than for companies with a less concentrated ownership structure.

2.3 The Choice Between Insured and Uninsured

2.3.1 Adverse Selection

In our modified Myers and Majluf (1984) model there are two extreme cases when it comes to using a rights issue: either all of the existing shareholders use all of their subscription rights or none of the shareholders use their subscription rights. If all shareholders use their subscription rights the shareholder take-up level, k , is equal to 1. Thus k is equal to 0 in the case that none of the shareholders use their subscription rights and consequently all of the new shares are purchased by new shareholders.

If k is equal to 1 no conflict between new and existing shareholders arises since no wealth transfers occur between the two groups, assuming that the CEO acts in the purpose of maximizing the profit of the old shareholders. Hence the cost of issuing undervalued stock is zero. Again because the manager will act in the interest of the existing shareholders he is not willing to issue overvalued stock, and therefore only undervalued companies will choose to

undertake rights issues when k is equal to 1. In this extreme scenario there will be no need for the company to offer any discounts since the offer will be fully subscribed anyway. For the same reason the company will also choose to perform an uninsured rights issue instead of an insured rights issue with higher issuing costs. Thus we hypothesize that the propensity to undertake an insured rights issue is negatively related to the expected take-up level. Since the market can identify this extreme level of k , it will also identify the issuing company as undervalued and hence the market reaction to the issue will be positive.

If k is equal to 0 no existing shareholders are expected to subscribe to the issue. In this scenario, the offer is identical to the public offer described above in the original Myers and Majluf (1984) model and only overvalued companies will choose to undertake a rights issue. Since the market knows that the take-up level k in this case is 0, they will here identify the issuing company as overvalued. The new shareholders will demand a discount and the market reaction following the issue will be negative due to the company's overvaluation. The choice of an insured rights issue reduces these costs of adverse selection for reasons explained above. Therefore companies facing a k equal to 0 will choose an insured rights issue, which further supports our hypothesis of the take-up level being negatively related to the propensity to choose an insured rights issue.

2.3.2 Ownership Concentration and Agency Problems

When companies choose an insured rights issue, the guaranteeing investor will monitor the company in order to decide if he is willing to take the risk of guaranteeing the rights issue. This is desirable for the majority shareholder because then the minority owners will obtain an increased insight and hence the majority owners cannot take an unfair advantage of their strong influence and insight. This is thus a bonding cost for the majority owner in line with Jensen and Meckling (1976). This reduces the risk of being exposed to residual loss for both agent and principal. It does not matter if the guaranteeing investor is a majority owner or someone outside the company. This is the case since the guaranteeing investor by committing to invest a large amount of capital signals that he believes in the quality of the company as well as the offer, regardless if he is a majority owner or not. From the reasoning above, we come to the hypothesis that majority owners will want a rights issue that is insured.

Further support for the idea that companies with high ownership concentration are more likely to undertake an insured rights issue is given by Ursel (2006). However Ursel (2006) has a different view of the agency problem than Jensen and Meckling (1976) and means that if a

large shareholder pre-commits the rights issue it probably means that she wants to maintain the control over the company. Ursel (2006) here reaches the conclusion that this might further increase the agency problem between minority and majority shareholders, which is the opposite to the reasoning above, where the expectation is that the agency costs will decrease with a higher ownership concentration.

2.3.3 Financial Strength

Ursel (2006) makes a connection between the use of rights issues and financial strength. Companies that are financially weaker will face higher underwriting fees, since the underwriter will be less willing to give an insurance to buy remaining shares in a company that is more likely to face bankruptcy. These increased costs of insurance may be higher than the reduced costs of adverse selection, and financially distressed companies may thus not want to issue an insured rights issue. Hence Ursel (2006) believes that the propensity to issue insured rights issues is positively correlated to the financial strength.

However, we question the logic of her reasoning. It is plausible that the companies that are in risk of financial distress also are the ones with highest need of capital and hence in greater need of an insured rights issue to secure the capital needed. This is a factor that Ursel (2006) does not consider. The intents of the rights issues included in our study are classified in the groups M&A, increased solidity/financial strength, financial restructuring, joint venture, expansion, specific investment and incentive programme. Of these, increased solidity/financial strength and financial restructuring are the intents that indicate financial distress. This leads us to the hypothesis that rights issues with the intents of financial restructuring or improved solidity are more likely to be insured.

2.3.4 Practitioners' View

To gain further insights into the use of rights issues in the Swedish market we have interviewed two representatives from prominent actors in the market for advisory concerning equity issues. According to the interviewed practitioners the conditions for conducting a rights issue are very different for large and small companies in the Swedish market. Large companies with a liquid stock and a well-known name have fewer incentives to undertake an insured rights issue since their reputation and liquidity will lead to a higher subscription in the rights issue (NN, 2006). Small companies do not have these advantages and hence choose an insured rights issue to a larger extent (Aneborn, 2006). It is also more common for small companies to have to use at least a part of the guarantee than for large companies (Aneborn,

2006; NN, 2006). This leads us to the hypothesis that larger companies are less inclined to undertake an insured rights issue.

2.3.5 Market Timing

The general market timing theories claim that the tendency to issue equity depend to a large extent on the overall market conditions, as stated in for example Baker and Wurgler (2002). Put simply, companies rather issue new equity when their shares are overvalued by an optimistic market.

The market timing theory is closely related to that of adverse selection and pecking order. Under normal market conditions, only overvalued companies with poor future prospects will choose to issue equity. This is because companies with worse future outlook will have greater difficulties in issuing debt, and will then to a greater extent have to issue equity. Furthermore, overvalued companies have greater incentives to issue equity since they have the opportunity to benefit from the unfoundedly high value. Undervalued companies with better future prospects want to diversify themselves from the companies with poorer prospects, and will thus issue debt. Hence, the market uses the companies' choice of capital as a method to separate the good companies from the bad ones.

According to the market timing theory, both companies of better and worse quality will choose to issue equity in periods when the market is booming since more companies face a stock price over the intrinsic value during this period. The problem of adverse selection is then decreased since more companies of good quality are included in the pool of issuing companies.

If we combine this market timing theory with our modified Myers and Majluf model (1984) on adverse selection, we hypothesize that the use of insured rights issues will decrease during periods of market optimism. This is because we expect a larger number of shareholders to be willing to participate in the issue, thus increasing the shareholder take-up level. As stated earlier, the propensity to undertake an insured rights issue is believed to be negatively correlated to the take-up level. Furthermore, during periods of market optimism the investors require a smaller discount. Therefore there is less reason to use an insured rights issue during such conditions, since part of the purpose of using an insured rights issue is to lower the demanded discount.

2.3.6 Hypotheses Regarding the Choice Between Insured and Uninsured

Hypothesis 7: Companies with a higher expected take-up level will be more likely to use an uninsured rights issue.

Hypothesis 8: A company will be more likely to use an insured right issue when the ownership concentration is higher, both since the majority owners will want a guaranteeing investor to monitor the company and since large owners often pre-commit to the offer.

Hypothesis 9: The propensity to issue insured rights issues is negatively correlated to the financial strength.

Hypothesis 10: Companies with a larger market capitalization have less incentive to undertake an insured rights issue.

Hypothesis 11: During periods of market optimism we expect to see a decrease in the use of insured rights issues in the market.

2.4 Market Characteristics

2.4.1 Ownership Concentration and Agency Problems

As mentioned in section 2.3.2, large shareholders by definition have a larger interest invested in the company, and we find it reasonable to believe that they will have a higher incentive to keep their position in the company in order not to lose control. Therefore large owners will be more inclined to participate in any rights issue that is undertaken. Thus, as our next hypothesis we state that the take-up level is expected to be positively correlated to ownership concentration.

2.4.2 Practitioners' View

The use of insured rights issues has become more common after the crisis at the beginning of the 21st century as investors became more cautious (Aneborn, 2006). This pattern is more significant for smaller companies. Even now, after the economy has recovered, many companies choose insured rights issues. This can partly be explained by an unwillingness of companies to be uninsured when most other companies choose an insured rights issue. Since no one is willing to take the risk of guaranteeing the rights issue this could give the market a signal of poor quality. Thus we hypothesize that the use of insured rights issues have increased relative to uninsured rights issues after the year 2000.

2.4.3 Hypotheses Regarding Market Characteristics

Hypothesis 12: The take-up level is positively correlated to ownership concentration.

Hypothesis 13: After the year 2000 insured rights issues have increased relative to uninsured rights issues due to behavioural reasons.

3 Methodology

In this section we will present the methodology used to answer our hypotheses. Our main methods are the cross-sectional and binary logistic regressions. To obtain certain variables for these regressions we use event study methodology and calculate a measure for expected shareholder take-up. For some purposes we will also use correlation analysis.

3.1 Cross-Sectional Regression

A cross-sectional regression can be used to find explaining powers behind certain phenomenon. In this thesis we will use this method to describe how the abnormal return and discounts are affected by the choice between insured and uninsured rights issues.

We will run two cross-sectional regressions: one with the abnormal return and one with the discount as dependent variable. In line with the interviewed practitioners we believe that the use of insured rights issues increased relative to the use of uninsured rights issues after the year 2000, mostly because companies are unwilling to stand without a guarantee when everyone else has one. Therefore we perform the OLS regressions for the full sample period as well as the sub-sample periods 1992-2000 and 2001-2005.

3.1.1 Abnormal Return Model

The dependent variable in this model is the abnormal return (*AR*) on the announcement day of the rights issue for company *i*. This is also the dependent variable chosen by Fritzell and Hansveden (2006). An alternative choice would have been $CAR\{-1,1\}$, which might capture some delayed effects. However when examining table 4 we do not find any substantial difference between $AR\{0,0\}$ and $CAR\{-1,1\}$ and thus we go forth using $AR\{0,0\}$. The model we have decided to use to explain the abnormal return is⁹:

$$AR_i = \beta_0 + \beta_1 D_INS_i + \beta_2 LN_CAP_i + \beta_3 SIZE_i + \beta_4 OWN5_i + \beta_5 TAKEUP_i + \beta_6 CAR60_i + \beta_7 STDEV_i + \varepsilon_i$$

⁹ All variable definitions are shown in Appendix A1.

We want to investigate the effects on abnormal return of the choice between insured and uninsured rights issues. Hence we include a dummy variable (*D_INS*) that takes the value 1 if the rights issue is insured to some extent¹⁰ and 0 otherwise. We find this dummy variable more appropriate than a variable for the percentage insured since we want to clearly separate the effects of an insured and uninsured rights issue. We expect this variable to have a positive sign as stated in hypothesis 1, since the use of a guaranteeing investor indicates less severe overvaluation than the average issuing company as described in the theory of adverse selection.

The ownership concentration is here represented by the total ownership percentage of the owners with a stake larger than five percent (*OWN5*). A higher ownership concentration should lead to reduced agency costs. As stated in hypothesis 3 we thus expect the ownership variable to affect abnormal return positively.

The effect of the expected shareholder take-up variable (*TAKEUP*) should be positive according to hypothesis 2. This is because a high take-up level is seen as a sign that the company is of good quality and/or low risk, which would give a positive effect on abnormal return. How we calculate the take-up measure is shown in section 3.4.

The remaining explanatory variables are included as control variables. Most of the included variables are present in similar models by for example Bøhren et al (1997) and Eckbo and Masulis (1992). We will now present the variables in our model and state the expected signs of their coefficients.

We expect the logged market capitalization (*LN_CAP*) to have a positive relation to abnormal return, since the costs of adverse selection are reduced with size as the information asymmetry is decreased due to for example more media coverage.

Many papers use the logged size of the issue as an explanatory variable for abnormal return.¹¹ However, we find it more informative to use the relative size of the issue, (*SIZE*), which is the size of the issue divided by the market capitalization.¹² If the relative size of the issue is large,

¹⁰ The insured rights issues in our sample are often insured to a quite high degree. The average insured percentage including subscription pre-commitments is 76.7 percent whereas the median is 100 percent.

¹¹ See for example Bøhren et al (1997).

¹² The reason for using the relative size is that this measure makes small and large cap companies more comparable – otherwise, small cap companies would always seem to make small issues in comparison to large cap companies.

it will be harder to obtain full subscription. Thus we expect a negative relation between abnormal return and relative issue size.

The cumulative abnormal return for 60 days prior the announcement date (*CAR60*) is included and as Eckbo and Masulis (1992) we believe in a run-up effect and hence expect a negative correlation to abnormal return. The standard deviation for the company's stock for the 60 days prior the announcement date (*STDEV*) is expected to have a negative sign, since a higher standard deviation increases the risk that the stock price falls below the issue price, which should deter investors.

In order to see if this model is suitable for an OLS regression, we investigate the underlying assumptions regarding multicollinearity, heteroscedasticity, autocorrelation, normality and outliers in line with Gujarati (2003). We remove four outliers from our full regression sample and end up with 103 observations. When we remove these outliers we find no reason not to use the OLS regression, since all tests give the desired results.

3.1.2 Discount Model

To explain the discount on the offering day we run the following regression:

$$DISC_i = \alpha_0 + \alpha_1 D_INS_i + \alpha_2 SIZE_i + \alpha_3 LN_CAP_i + \alpha_4 OWN5_i + \alpha_5 TAKEUP_i + \alpha_6 CAR60_i + \alpha_7 STDEV_i + \varepsilon_i$$

These explanatory variables are the same as in the abnormal return regression since we believe that those variables are relevant for explaining the changes in the discount level as well. Since we already have discussed the explanatory variables in section 3.1.1 we will here only focus on the relationship between the variables and the discount. As before we focus on the variables for which we have hypotheses, namely *D_INS*, *OWN5* and *TAKEUP*.

The insured dummy (*D_INS*) is expected to have a negative relation to the discount as stated in hypothesis 4 since companies undertaking an insured rights issue are less worried that the stock price will fall causing a lower subscription level.

The measure of ownership concentration (*OWN5*) is expected to be negatively related to the discount in line with hypothesis 6. Large owners have more incentives to maintain their strong positions in the company and hence do not require a large discount to subscribe to the offer. If the expected take-up (*TAKEUP*) is high we expect a low discount since the rights issue will be

subscribed anyway and conversely we expect a high discount when the take-up is low in accordance with hypothesis 5.

We expect a negative sign for the logged market capitalization (*LN_CAP*) since larger companies are more visible in the media. Thus the problem of asymmetric information is decreased and therefore the company has less need of a discount to attract investors.

A relatively larger size of the issue (*SIZE*) is likely to be positively related to the discount since if the company request a large amount of money compared to its market cap the company will probably have to give a more attractive offer to obtain the required amount.

A negative cumulative abnormal stock return (*CAR60*) might require a higher discount for investors to be willing to subscribe to the offer. Hence we expect a negative sign for *CAR60*. A high standard deviation (*STDEV*) implies a high risk that the stock price will fall below the issue price and investors want to be compensated for this risk by a larger discount. The relationship between the standard deviation and discount is thus believed to be positive.

Once again to see if the OLS regression is suitable for our chosen model we test for multicollinearity, heteroscedasticity, autocorrelation, normality and outliers. We remove two outliers from the full regression sample and thus reduce the total number of observations to 105. We can thereafter go forward using an OLS regression.

3.2 Binary Logistic Regression

To investigate why companies choose to undertake an insured rights issue rather than an uninsured, we perform a binary logistic regression. A binary logistic regression is used to find the probability that a dichotomous variable will take one of two values (Gujarati, 2003). In our case this means that we investigate the probability that a company will choose an insured rather than an uninsured rights issue under certain circumstances. We include a number of variables which we believe to influence the choice between insured and uninsured rights issues. The coefficients of these variables will then tell us how and to what extent the explanatory variables matter for the choice between insured and uninsured rights issues.

The SPSS output from the regression first classifies the dependent variable into two groups, in our case insured and uninsured. Before the explanatory variables are included in the model, the dependent variable will be classified as the most frequent alternative of the two groups. If there are 80 insured rights issues and 20 uninsured rights issues, the best guess without using

a model will be that a random rights issue is insured. This guess will be correct $80/(80+20) = 80$ percent of time.

Using a model with certain explanatory variables, the aim is to improve this percentage. In our case, more uninsured rights issues will hopefully be correctly classified while most insured rights issues will still be classified as insured. If the percentage is not improved, the chosen independent variables have very little explanatory power for the dependent variable.

The model we have chosen to answer the hypotheses stated in section 2.3.6 is:

$$D_INS_i = \gamma_0 + \gamma_1 SIZE_i + \gamma_2 LN_CAP_i + \gamma_3 OWN5_i + \gamma_4 OWN25_i + \gamma_5 TAKEUP_i + \gamma_6 STDEV_i + \gamma_7 D_BOOM_i + \gamma_8 D_SOL_i + \gamma_9 D_FIN_i + \varepsilon_i$$

Most of the included explanatory variables have the purpose of answering specific hypotheses in this thesis. We have also included some control variables that we think might contribute.

The logged market capitalization (*LN_CAP*) is expected to have a negative sign as stated in hypothesis 10, since larger companies do not have to rely on an insured rights issue to the same extent as small companies in order to get a high subscription.

We include two ownership variables, *OWN5* and *OWN25*. As stated before, *OWN5* is the total ownership percentage of all owners with a stake larger than five percent. *OWN25* is the total ownership percentage of the 25 largest owners. We choose to include both these measures of ownership concentration in our bivariate logistic regression since we want to thoroughly investigate the impact of ownership concentration on the choice between insured and uninsured rights issues. An increase in the two ownership variables should make it more likely that the company will choose an insured rights issue, as stated in hypothesis 8, and thus we expect positive signs for these variables.

If the company expects a higher take-up level from existing shareholders, they should be less inclined to choose an insured rights issue. According to hypothesis 7 the take-up variable (*TAKEUP*) is therefore expected to have a negative sign.

We also include a boom dummy (*D_BOOM*) that takes on the value 1 during years when the return of the Affärsvärlden Generalindex is more than one standard deviation above the average return of the index for the period 1986-2005 and 0 otherwise.¹³ During periods of market optimism we expect relatively fewer insured rights issues in the market, according to

¹³ The classification of boom, bust and normal years is shown in Appendix A2.

hypothesis 11. Therefore we expect a negative sign for the dummy variable for booming markets (*D_BOOM*).

Finally we include two intent dummies. The first takes the value 1 if the intent of the rights issue is increased solidity (*D_SOL*), and the second takes the value 1 if the intent is financial restructuring (*D_FIN*). If the intent of the issue is to increase the solidity of the company or undertake financial restructuring, this is interpreted as a sign of financial weakness by the market. This should increase the propensity of the company to choose an insured rights issue. As follows from hypothesis 9, the dummy variables *D_FIN* and *D_SOL* are thus expected to have positive signs.

If the standard deviation of the underlying stock is high, existing and potential shareholders might want a higher discount to compensate for the increased risk. In this situation it is more probable that the company chooses an insured rights issue, which can work as a substitute for a discount. This is because an uninsured rights issue will be more expensive for a company with a higher standard deviation than for a company with a lower level of risk because of the higher demanded discount. Hence the standard deviation variable (*STDEV*) is expected to have a positive sign.

We believe that a larger relative size of the issue (*SIZE*) increases the probability that an insured rights issue is chosen since a relatively larger issue should make full subscription less likely. Thus we expect a positive sign for this variable.

As stated in hypothesis 13 we expect the use of insured rights issue to increase relative to the use of uninsured rights issues, mainly due to herding effects that occurred after the millennium shift, which made issuing companies less willing to stand without a guarantee. Therefore we perform the binary logistic regressions for the full sample period as well as the sub-sample periods 1992-2000 and 2001-2005.

3.3 Event Study

The purpose of an event study is to investigate how the abnormal return of a company's stock is influenced by a specific event, in this case a rights issue. The dataset from Fritzell and Hansveden (2006) which we use as a starting point for this thesis includes the results from such an event study. We will here give a brief overview of the event study methodology.

The market value of a company on the day of the rights issue announcement is examined by a standard event study procedure as described in Campbell, Lo and MacKinlay (1997). To find

a benchmark for the unobservable market portfolio, Fritzell and Hansveden (2006) use both a general market index model and a market model with a specific benchmark for each firm. In the market index model the abnormal return (AR) is calculated as the difference between the excess return of the company's stock and the excess return of the market index:

$$AR_{i,t} = R_{i,t} - R_{m,t}$$

$$R_{i,t} = r_{i,t} - r_{f,t}$$

$$R_{m,t} = r_{m,t} - r_{f,t}$$

In the market model the abnormal return is calculated as follows:

$$AR_{i,t} = R_{i,t} - (\alpha_i + \beta_i * R_{m,t})$$

α and β are obtained by running a CAPM-regression for each issue.

The cumulative abnormal return (CAR) is defined as:

$$CAR_i = \sum_{t=t_1}^{t_2} (AR_{i,t})$$

This is simply a sum of the abnormal returns for a time period, or event window, from t_1 to t_2 .¹⁴ The impact of the event on the abnormal return is then tested using a specific t-statistic, which can be found in Campbell, Lo and MacKinlay (1997).

The aggregated results from the event study will be used to answer the hypothesis that the expected abnormal return following an insured rights issue, which is believed to be less overvalued than the average, will be less negative than that of an uninsured rights issue.

In our cross-sectional regressions we include the cumulative abnormal return for 60 days prior the issue. To calculate this we collect the return for all stocks from 60 days prior up until the announcement date. We then use the market index model to calculate the abnormal return for each stock.¹⁵ Finally we sum up the abnormal returns to obtain the cumulative abnormal return which is included in the cross-sectional regression analysis in line with for example Bøhren et al (1997). The choice of 60 days prior the announcement date seems reasonable

¹⁴ For a discussion on the choice of event window and estimation period please refer to Fritzell and Hansveden (2006).

¹⁵ The market index model is a less precise approximation of the abnormal return than the market model. However, Fritzell and Hansveden (2006) do not find any substantial differences in their results between the two models and hence we find that the market index model is a close enough proxy to suit our purposes.

since that is enough time to observe trends in the stock market. This is also in line with the method in the study by Eckbo and Masulis (1992).

3.4 Take-up Level

To answer hypotheses regarding shareholder take-up we need to find an appropriate measure. Measuring the expected take-up level and proxies for it has proven difficult and there are many varieties on how to calculate this in the literature. Eckbo and Masulis (1992) use $\ln(\text{market value of equity})/\text{number of common shareholders}$ to calculate a rough proxy for the expected take-up, assuming that a higher ownership concentration leads to a higher expected take-up. We find this measure quite appropriate for the Swedish market since it is based on ownership concentration. As stated earlier we expect a higher take-up level when the ownership concentration is high and with this measure fewer owners lead to a higher estimated expected take-up. However we are unable to find historical data for the number of common shareholders for the issuing companies at the time of the rights issue. We have searched for this data in Datastream, Six Trust, SIS Ägarservice and the yearly publications of Owners and power in Sweden's listed companies without success. We have also inquired VPC, but they were unable to help us on this matter.

Bøhren et al (1997) and Cronqvist and Nilsson (2005) use a different approach to find a proxy for the take-up measure. They look at the number of subscription rights sold in the secondary market in relation to the total number of subscription rights in the issue. This measure relies on the assumption that no subscription right is sold more than once, which we find quite reasonable. Since the subscription rights are only traded for a short period it is likely that buyers will not resell during this period to a large extent. We use SIX Trust to obtain the number of subscription rights sold in the secondary market during the offering period for each issue. These numbers proved to be difficult to find for some issues, particularly the ones from earlier dates. The number of subscription rights per stock in each issue is collected from the prospectuses. This number is then multiplied with the total number of stocks in each company before the issue to obtain the total number of subscription rights in each issue. The estimated shareholder take-up is thus calculated as:

$$\text{Take-up} = 1 - \frac{\text{Number of subscription rights sold in secondary market}}{\text{Total number of subscription rights in issue}}$$

This comes quite close to the actual shareholder take-up since this is an ex-post measure. The Eckbo and Masulis (1992) model originally use the expected take-up, which is an ex-ante

measure based on the market's expectations. This is also what we include in our modified Myers and Majluf (1984) model. The expected and actual take-up would be identical if we assume rational expectations in the market. Due to the generally high ownership concentration and the smaller size of the Swedish companies we believe that this is a reasonable assumption and thus we are able to use our ex-post measure as a proxy for the expected take-up.

A possible criticism of this take-up measure is that existing shareholders also have the possibility to participate in the secondary market trading, which is not reflected in our measure. Furthermore existing shareholders have the highest incentives to do so since they already have an interest in the company. Thus our take-up measure might in fact underestimate the shareholder take-up. Nevertheless this is a measure used in previous studies and we believe that this is the best measure we can find as a proxy for shareholder take-up.

3.5 Correlation Analysis

In order to investigate correlations between our chosen variables shown in Appendix A1 we run correlations in SPSS for the full regression sample of 107 observations. We obtain the Pearson correlations and the t-statistics and corresponding p-values for these variables. These values are then used to examine any linear relationships between our chosen variables and the significance of those. We have chosen to calculate correlations also for the dummy variables, even if these variables are binary rather than continuous which might violate some underlying assumptions. However, after reviewing the topic we have concluded that there should not be any clear objections to our method. To make sure we do not come to any biased conclusions due to this method, we also include a variable for the percentage insured as a complement to our insured dummy. We find that the correlations between these two variables and other variables consistently give the same general results.

4 The Rights Issue Process

To gain an overview of the Swedish market for rights issues we have interviewed two representatives from well-known firms in the market for advisory concerning equity issues. We will here present their view of the process to undertake a rights issue.

When a company decides to undertake an insured rights issue it usually first turns to large existing shareholders if there are any (Aneborn, 2006). This is generally viewed as the fairest alternative since existing shareholders should benefit from the risk already taken by investing in the company. Furthermore if the company turns to other investors the ownership share of

the old shareholders decreases relative to that of the new shareholders. If the ownership is dispersed or large shareholders do not want to give a guarantee the company turns to outside investors. These can be investment banks, institutions or wealthy private persons. In recent years it has become increasingly common for a guarantee consortium to guarantee the issue. This means that one or a few investors have the contractual responsibility against the issuing company. These investors in their turn have agreements with sub-investors. A reason for this can be that the sub-investors want to be anonymous.

The intent of outside guaranteeing investors may vary (Aneborn, 2006). Either they want to gain a stake for long-term holding or they want to sell the shares directly in order to make a profit. To sell the shares directly involves a risk, since the current stock price might be lower than the issue price, but the compensation for guaranteeing the issue is a certain payoff. In most cases the guarantee will not be used, at least not to a full extent, and then the guaranteeing investor will obtain the compensation without service in return. In the last few years it has become more common that private wealthy investors take advantage of the guarantee not being fully used and make large profits from the compensation (Affärsvärlden, 2005).

The most common method of payment to investors that guarantee a rights issue is a percentage of the amount guaranteed (Aneborn, 2006, NN, 2006). This percentage usually varies between 4 and 15 percent depending on the quality of the company, with a higher percentage for a company with a lower quality. Another payment method is that the guaranteeing investor gains the right to obtain more shares in the issuing company.

The average discount has decreased over the years as the rights issue procedure has become more sophisticated (NN 2006). Also the prospectuses have developed during the period; when we examined them we found that the information requirements have become stricter over the years. These changes have occurred incrementally and are partly due to Sweden's entry into the European Union (Sandeberg, 2001).

During the trade period for the subscription rights the price for these rights usually is rather stable around the theoretical value (NN, 2006). This theoretical value is equal to the discount after dilution.¹⁶ The intensity of the trade in the subscription rights depends largely on the size

¹⁶ The discount after dilution is easiest to explain with a numerical example: Consider a company which before the rights issue consists of 100 shares to a market value of SEK 10 per share. The company conducts a rights issue of 20 new shares with a subscription price of SEK 8 per share. Before dilution the discount is hence $10 - 8 = \text{SEK } 2$. After dilution, assuming full subscription, the new market value of each share is $(100 \cdot 10 + 20 \cdot 8) / 120 = \text{SEK } 9.67$. The discount after the dilution is hence $9.67 - 8 = \text{SEK } 1.67$.

and the ownership concentration of the company (NN, 2006). If the company is large the trade is generally more intense and if the ownership concentration is high the trade is less intense.

Almost no rights issues fail, meaning that there are none or very few shareholders that subscribe to the issue, however it is rather common that they are not fully subscribed (Aneborn, 2006). This is not a major problem today since most rights issues are insured and the guarantee will be used to cover for any capital not subscribed for in the issue.

5 Description of the Data

5.1 Data Collection

For their thesis, Fritzell and Hansveden (2006) collect information about all private placements and rights issues that took place on the A-, O- and OTC-list at the Stockholm Stock Exchange between 1986 and 2005.¹⁷ In this thesis we use the data about rights issues collected by Fritzell and Hansveden as our foundation and we then gather further information about these rights issues. The total number of rights issues in Fritzell's and Hansveden's data sample amount to 321.

We investigate the prospectuses in order to obtain information about whether the rights issues are insured or uninsured and if any subscription pre-commitments exist. We also use the prospectuses to find the issue date for each rights issue and the number of subscription rights per share. The prospectuses are collected from different sources. We obtain 199 from the National Library of Sweden, 36 from the Swedish Financial Supervisory Authority, one from the National Archives of Sweden and finally 18 from the issuing companies. This amounts to a total of 254 prospectuses for 142 unique companies. These issues will all be included in our market analysis. For some issues some data has proven impossible to find and therefore the sample size will vary somewhat between different aspects of analysis.¹⁸ This procedure is chosen in order to gain as much information about the market as possible.

For the remaining 254 rights issues we exclude 83 issues for which we do not have the cumulative abnormal returns from the event study by Fritzell and Hansveden (2006).¹⁹ The remaining 171 issues will be the starting point for our cross-sectional regressions. We use the

¹⁷ For a detailed description on how the data was collected please see Fritzell and Hansveden (2006).

¹⁸ The number of issues included for each investigation point is shown in both table 3 and table 4.

¹⁹ For a more detailed description of reasons why certain rights issues were excluded from the event study please refer to Fritzell and Hansveden (2006).

SIX Trust database to collect Affärsvärldens Generalindex for which we then calculate the return and use as a market proxy. Furthermore, we use SIX Trust and in some cases Datastream to collect the stock prices for 60 days preceding the announcement date for each rights issue and for some issues we collect complementary information to be able to calculate the discount. Even after thorough investigation, we are unable to find the stock prices for some issuing companies. Thus we must exclude another 51 rights issues from the analysis. To calculate the shareholder take-up we use SIX Trust to collect the number of subscription rights sold in the secondary market for each issue. 13 observations are eliminated due to missing data. Thus our cross-sectional regression analysis will include a total of 107 rights issues from 79 unique companies. Many of the excluded issues occur during the earlier years in our base sample and thus our regression sample consists of issues from the time period 1992-2005.²⁰

The exclusions for the data set used in the cross-sectional and binary logistic regressions are summarized in table 1.

Reason for exclusion	Number of issues excluded	Number of issues remaining in the sample
Total number of rights issues in original sample	-	321
No available prospectuses	67	254
No available cumulative abnormal return	83	171
Unable to calculate discount	51	120
Unable to calculate take-up	13	107

Table 1 Summary of excluded and remaining rights issues

5.2 Data Description

In our market sample we have 169 (67 percent) insured rights issues and 85 (33 percent) uninsured rights issues. Of the insured rights issues 36 have only subscription pre-commitments, 60 have only a guarantee and 73 have both subscription pre-commitments and a guarantee. The average insured percentage including subscription pre-commitments for the insured rights issues is 76.7 percent whereas the median is 100 percent. Only 19 out of 200 rights issues are subject to subscription pre-commitments in Bøhren et al's (1997) sample between 1980 and 1993 from the Norwegian market. Further evidence that subscription pre-

²⁰ Appendix A3 show a table over how the rights issues excluded from the sample are distributed over time and Appendix A4 shows how rights issues included in the sample are distributed over time.

commitments are much more common in the Swedish market is provided by Cronqvist and Nilsson (2005) who find that more than 50 percent of the rights issues undertaken between 1986 and 1999 have been pre-committed. Also in UK and US many rights issues are pre-committed. Armitage (2002) finds that about 63 percent of the rights issues in his sample from the UK market (1985-1996) are pre-committed to some extent, with an average subscription pre-committment of 26 percent. Ursel (2006) finds in her study of the US market from 1983 to 1999 that 38 percent of the rights issues are pre-committed. The pre-commitments were on average 48 percent.

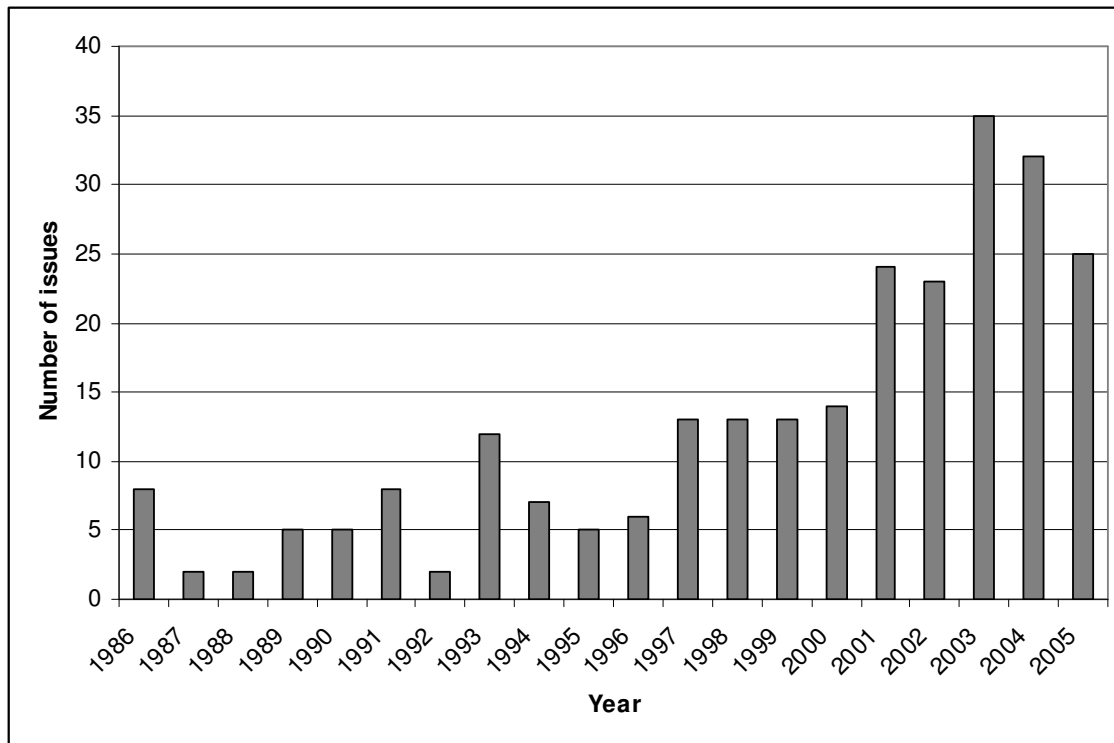


Figure 2 The total number of rights issues over time

When we study the total number of rights issues for each year of the sample period, as seen in figure 2, we conclude that the pattern is somewhat irregular but with a clear increasing trend. The lowest observed number of rights issues is two in the years 1987, 1988 and 1993, and the highest number is 35 in 2003. During the period, the average number of rights issues conducted in one year is 12.70.

The pattern we see in figure 2 can partly be explained by the fact that companies tend to issue rights issues to a larger extent in periods of economic recession (NN, 2006). We see an upswing of rights issues in the first years of the 21st century when the Swedish economy

busts, and a decrease after 2003 when the economy recovers. For an overview of the performance of the Swedish market, see Appendix A2 where boom, bust and normal years are defined. We there see that the years 2001-2003 were marked by a recession and that the economy recovered in 2004-2005.

6 Comparative Analysis of Insured and Uninsured Rights Issues

In this chapter we describe and analyze the similarities and differences we find between insured and uninsured rights issues from several aspects.

6.1 Distribution of Rights Issues over Time

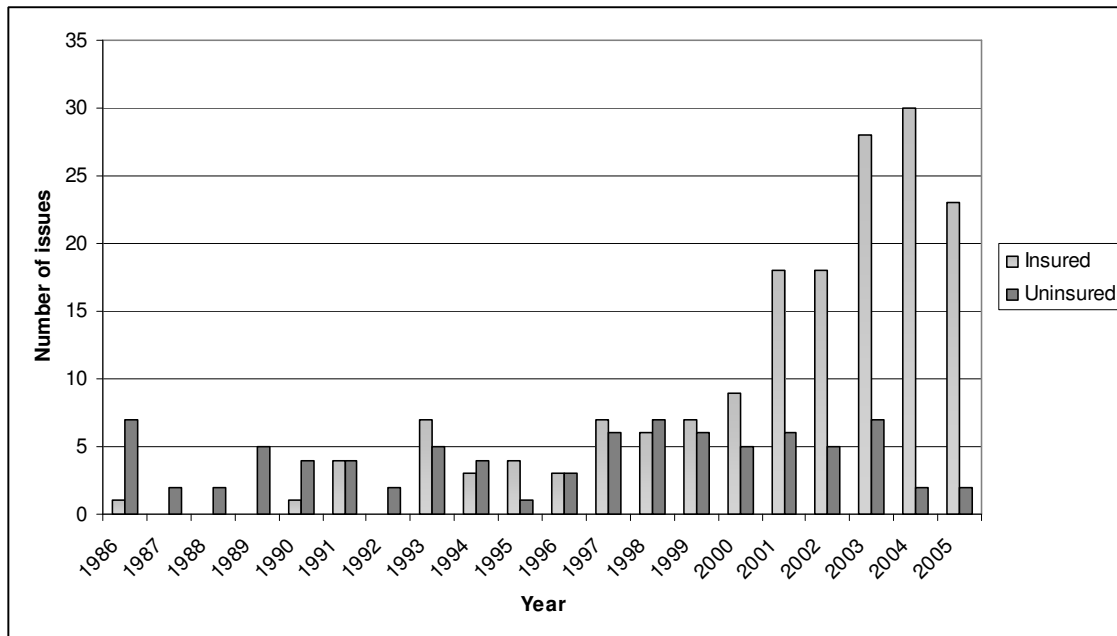


Figure 3 Distribution of rights issues over time

As we can see in figure 3 the number of uninsured rights issues has been rather stable over the sample period whereas the number of insured rights issues has increased sharply. The average number of uninsured rights issues per year is 4.25 and the corresponding number for insured rights issues is 8.45.

The pattern we see in our data has been observed in other markets as well. For example, Bøhren et al (1997) conclude that there has been a shift in rights issues in the Norwegian market. Before 1985 uninsured rights issues were the most common method, but thereafter insured rights issues have been the dominant choice. Eckbo and Masulis (1992) find in their study that 60 percent of the rights issues in the US market between 1963 and 1981 are

insured. However the pattern seem to have shifted in the US market in later years and now contradict our findings; Ursel (2006) finds in her sample from 1983 to 1999 that only 10 percent of the rights issues are insured. However, a large proportion of Ursel's (2006) sample is during the 1990 when the US market was booming, which partly can explain the low number of insured rights issues. This reasoning is in line with our hypothesis of a negative correlation between the use of insured rights issues and booming markets.

We expected the use of insured rights issues to be negatively correlated to booming market conditions. This means that our insured dummy and the percentage insured should both be negatively correlated to our boom dummy. This is also what we find²¹, but the correlations are very weak and not significant and hence we cannot draw any stronger conclusions from this. A reason for this insignificance might be that the expected pattern becomes unobservable due to the strong increase of insured rights issues over the period which appears to be a result of behavioural effects in the market.

6.2 Intent with Issue

Intent with issue	Total	Insured		Uninsured	
	N	N	%	N	%
M&A	38	25	66%	13	34%
Solidity/financial strength	89	66	74%	23	26%
Financial restructuring	17	15	88%	2	12%
Joint venture	1	0	0%	1	100%
Expansion	40	28	70%	12	30%
Specific investment	26	15	58%	11	42%
Incentive programme	4	1	25%	3	75%
Not specified	39	19	49%	20	51%
Sum	254	169		85	

Table 2 Intent with issue

Table 2 shows the distribution in absolute numbers and percentage of insured and uninsured rights issues between categories of different intents. The categories with the intent of joint venture and incentive programme have a small number of observations and thus the high percentages of uninsured rights issues for these categories might not be reliable. Insured rights issues are most frequently used when the intent is financial restructuring. 88 percent of the issues with this intent are insured. When the intent with the issue is to increase the solidity 74

²¹ Correlations for the regression sample is shown in Appendix A5.

percent of the issues are insured. These findings imply that the proportion of uninsured rights issues will tend to be larger when the intent is less critical for the survival of the company, as we expected. This is contradictory to Ursel's (2006) proposition that financially distressed firms will be less likely to undertake an insured rights issue. To investigate this matter further we include dummy variables for the issues with the intent of increased solidity or financial restructuring in the bivariate logistic regression in chapter 8.

We find that the dummy variables for the intent of increased solidity and that of financial restructuring are positively correlated to both the insured dummy variable and the variable for percentage insured. The correlations between the insured dummy and the dummy with intent financial restructuring and between the percentage insured and the solidity dummy are significant at the 10 percent significance level. This gives further support to our hypothesis that the propensity to issue an insured rights issue is stronger when the company is financially weaker.

6.3 Summarized Statistics

	All rights issues			Uninsured issues			Insured issues			p-value
	N	Mean	Median	N	Mean	Median	N	Mean	Median	
Size of issue (MSEK)	252	499	103	84	539	163	168	478	90	0.835
Relative size of issue (%)	246	44.88	27.97	81	42.21	25.00	165	46.18	29.15	0.671
Market value of equity (MSEK)	248	3799	333	82	4234	681	166	3583	274	0.841
Discount (%)	214	37.47	38.31	63	37.50	38.31	151	37.46	38.30	0.994
Largest owner prior to issue (%)	248	30.54	24.95	82	34.25	26.45	166	28.72	22.30	0.058
Largest owner post issue (%)	238	29.28	25.05	77	32.54	25.60	161	27.72	24.70	0.110
Fraction of shareholders owning >5% prior to issue (%)	248	46.65	46.20	82	52.39	51.80	166	43.81	44.20	0.012
Fraction of shareholders owning >5% post issue (%)	232	44.70	45.00	75	50.87	55.50	157	41.75	43.50	0.007
Total fraction for the 25 largest shareholders prior to issue (%)	248	72.94	77.40	82	77.99	82.70	166	70.45	73.20	0.002
Total fraction for the 25 largest shareholders post issue (%)	238	69.86	72.15	77	73.85	81.70	161	67.95	70.40	0.025
Expected take-up (%)	108	82.06	85.77	27	81.48	89.28	81	82.26	85.04	0.804

Table 3 Summary statistics

In table 3 we investigate the mean and median for some characteristics to describe the sample of rights issues and to see if there are any clear differences between insured and uninsured rights issues. We have also tested the equality of the means between the groups for each characteristic, and include the p-values in table 3.

Regarding the issue size, the absolute amount is larger for uninsured rights issues, both in average and median terms. However, when we use the relative size of the issue, that is the issue size divided by the market capitalization, we find the opposite result. The somewhat conflicting results are not unexpected. For a relatively larger issue, the companies seem to be in a larger need of a guarantee in order to obtain the capital required. This effect is not captured by the ordinary issue size measure. These findings are however not statistically significant, since the p-values for size and relative size are both high above ten percent.

As we can see, the average and median market capitalization is larger for the group of companies conducting uninsured rights issues. Even if the inequality of the means is not statistically significant, we think that this finding indicates that larger companies do not have to rely on a guarantee to the same extent due to higher media coverage and hence less asymmetric information. This is consistent with the results described in Bøhren et al (1997) which indicate that those companies that choose an insured rights issue tend to be smaller in terms of total equity than companies choosing uninsured rights issues, but the opposite relation holds for relative issue size. It is interesting to note that Eckbo's and Masulis's (1992) results from the US market are directly opposed with larger absolute issue size, smaller relative issue size and higher market value of equity for insured rights issues.

All ownership measures²², both prior and post issue, show the same pattern. Companies conducting uninsured rights issues tend to have on average a more concentrated ownership structure. We also find statistically significant negative correlations between our ownership variables and both the insured dummy and the percentage insured. This evidence goes against our agency problem hypothesis that companies with a more concentrated ownership should use insured rights issues. Our empirical findings might instead indicate that companies with a concentrated ownership structure do not need a guarantee to the same extent since they can rely on large owners' willingness to subscribe to the issue without making pre-commitments or guarantees. This latter explanation is also partly supported by the theory and findings by Eckbo and Masulis (1992), who state that uninsured rights will be preferred by companies

²² All ownership measures are measured in terms of voting rights rather than cash flow rights.

with a high ownership concentration and high expected take-up level. If we compare our results to the study by Bøhren et al (1997) we see that the ownership concentration does not seem to differ in a systematic way between insured and uninsured rights issues in the Norwegian market. When we investigate the statistical significance of the difference between the means for the two groups, we find significant p-values at the five percent level for all ownership measures except largest owner post issue, which is significant at eleven percent.

The average and median estimated expected take-up do not differ significantly between insured and uninsured rights issues.²³ This goes against our hypothesis that companies with a higher expected take-up are more likely to choose an uninsured rights issue and since we assume that managers are unable to affect the expected take-up level this result is unexpected. In reality managers might be able to affect the expected take-up by communicating with shareholders before the choice between insured and uninsured is made. In that case the expected take-up for an insured rights issue might be higher. This counteracting effect can explain the unclear results.

When we investigate the correlation between the insured dummy and the expected take-up we find a weakly negative correlation of -9.3 percent. For the insured percentage and the expected take-up the number is -6.9 percent. These findings are consistent with Bøhren et al (1997) and Eckbo and Masulis (1992), however these correlations are insignificant and are not strong enough for us to make any clear conclusions. The correlations between the expected take-up and the two ownership variables total ownership percentage by the 25 largest owners and total ownership percentage by owners with a stake larger than five percent are slightly positive but very weak. Hence we are unable to confirm our hypothesis of positive correlations between these variables, and we cannot find proof for the idea that the expected take-up level is higher for companies with a concentrated ownership structure. Support for this theory is nevertheless provided by Bøhren et al (1997).

For the mean and median discount, we do not find any substantial differences between insured and uninsured rights issues. This implies that a large discount is not likely to be used as a substitute for an insured rights issue. This is also what Bøhren et al (1997) find in their study of the Norwegian market. On the US market, however, Eckbo and Masulis (1992) find that the average discount compared to the closing price on the day before subscription period starts is 8.3 percent for uninsured rights issues and 20.4 percent for insured for industrial

²³ We note that the sample is here much smaller due to lacking data, however the distribution between insured and uninsured rights issues is basically the same.

companies. The corresponding figures for utility issuers are 12.7 percent for uninsured rights issues and 8.3 percent for insured.²⁴

6.4 Cumulative Abnormal Return

In table 4 we show the average and median cumulative abnormal return for different intervals. For rights issues in total, the average and median CAR is negative over all intervals except for the interval $\{-20,20\}$ which has a slightly positive average. This is in line with some previous findings²⁵, but the results vary substantially between different markets (Martín-Ugedo, 2003). The average and median CAR is consistently more positive/less negative for the uninsured rights issues. The group of insured rights issues is followed by on average negative stock market reactions for all investigated intervals. For the group of uninsured rights issues the results are more varied. The average CAR is positive for the intervals $\{1,10\}$, $\{-3,1\}$ and $\{-20,20\}$, but the median is only positive for the interval $\{1,10\}$. This contradicts our hypothesis that an insured rights issue indicates less severe overvaluation than for average issuing companies and hence should be followed by a less negative abnormal return than an uninsured rights issue. Thus this is instead in line with the signalling model by Eckbo and Masulis (1992) and the results by for example Bøhren et al (1997) for the Norwegian market.

	Total	N=215	Uninsured	N=61	Insured	N=154	Test for equality of means
	Average	Median	Average	Median	Average	Median	p-value
CAR $\{-1, 1\}$	-2.41%	-1.99%	-0.64%	-0.98%	-3.11%	-2.18%	0.312
AR $\{0, 0\}$	-2.14%	-1.70%	-1.59%	-1.29%	-2.36%	-1.92%	0.693
CAR $\{1, 10\}$	-0.29%	-1.00%	2.79%	1.13%	-1.51%	-1.40%	0.092
CAR $\{-3, 1\}$	-1.62%	-1.53%	0.77%	-0.51%	-2.57%	-2.14%	0.201
CAR $\{-20, 20\}$	0.61%	-1.58%	4.93%	-0.65%	-1.11%	-2.52%	0.188
CAR $\{-1, 0\}$	-1.76%	-1.81%	-1.11%	-1.28%	-2.02%	-1.96%	0.657

Table 4 Average and median CAR

In order to further investigate if it can be proved statistically that the abnormal return following an insured rights issue is less negative/more positive than the abnormal return following an uninsured rights issue we use a t-statistic to test the null hypothesis that the

²⁴ In the US market the separation between industrial and utility companies is common for research purposes. Utility companies are generally producers of public services such as gas and electricity whereas industrial companies basically are all other types of companies.

²⁵ For example evidence from UK and Spain.

means of the two groups are equal. The p-value for this t-statistic is shown in table 4. At the 10 percent level the only significant result is for the $CAR\{1,10\}$. This again contradicts our expectations and to some extent supports the theory by Eckbo and Masulis (1992), but we can not find concluding evidence for either theory.

We find it interesting to see that our results differ from the findings by Cronqvist and Nilsson (2005) who also investigate the Swedish market for rights issues. The mean $CAR\{-1,1\}$ for their sample from 1986 to 1999 is higher for insured rights issues than for uninsured. We believe that these differences can be explained by partly different sample periods, as a substantial part of our observations occur after 1999.

For an international comparison, we look at Martín-Ugedo (2003) who summarizes market reactions for rights issues in different countries and show that these vary substantially. In for example Greece and Japan the abnormal return is significantly positive whereas the abnormal return is negative in UK and Spain. Bøhren et al (1997) find that the two-day announcement effect of abnormal return is more positive for uninsured rights issues than for insured in the Norwegian market. The same pattern is found in the US market, where uninsured rights issues have a less negative abnormal return than insured (Martín-Ugedo, 2003). These findings are hence also in line with the Eckbo-Masulis (1992) model.

7 Results from Cross-Sectional Regressions

We run regressions for both the abnormal return model and the discount model. In line with hypothesis 13 we run the cross-sectional regressions both for the full sample and for the sub-periods 1992-2000 and 2001-2005 to see if we can observe any signs of behavioural changes in the market. The results are presented below.

7.1 Abnormal Return Model

7.1.1 Full Sample Period

The chosen model for explaining the variation in abnormal return following rights issues is as earlier stated:

$$AR_i = \beta_0 + \beta_1 D_INS_i + \beta_2 LN_CAP_i + \beta_3 SIZE_i + \beta_4 OWN5_i + \beta_5 TAKEUP_i + \beta_6 CAR60_i + \beta_7 STDEV_i + \varepsilon_i$$

The regression results for this model are presented in table 5.

Variable	Expected Sign	Coefficient	p-value	95% Confidence Interval		
d_ins	+	0.0116	0.507	{-0.0230;0.0462}	N	103
ln_cap	+	0.0067	0.145	{-0.0023;0.0158}	R²	51.63%
size	-	0.0668	0.000	{0.0478;0.0857}	Adj R²	48.07%
own5	+	-0.0184	0.569	{-0.0825;0.0456}		
takeup	+	0.0513	0.239	{-0.0347;0.1372}		
car60	-	0.1386	0.000	{0.0831;0.1941}		
stdev	-	-0.9907	0.000	{-1.5179;-0.4635}		
constant		-0.0939	0.094	{-0.2042;0.0165}		

Table 5 Regression results for the abnormal return model

The explanatory power for the abnormal return model is quite strong with an adjusted R^2 of 48.07 percent. After excluding the outliers mentioned earlier our sample consists of 103 observations, of which 76 are insured and 27 are uninsured. At the five percent significance level the three coefficients *SIZE*, *CAR60* and *STDEV* are significant. These are also significant at the one percent significance level.

We expected the use of an insured rights issue to have a less negative effect on the abnormal return than the use of an uninsured rights issue. Our findings indicate this as opposed to the findings by Eckbo and Masulis (1992) and Bøhren et al (1997). Our coefficient for the insured dummy is slightly positive, but is not significant. Thus we find some support for the theory that the choice of an insured rights issue is interpreted by the market as a signal of less severe overvaluation than the average issuing company. However, we cannot draw any definite conclusions since the result is not statistically significant. Furthermore, the correlations between the insured dummy and the abnormal return and between the percentage insured and the abnormal return do not give us any evidence in either direction.

The variable for the total ownership percentage of the owners with a stake larger than five percent has a negative sign opposed to what we predicted. However, the coefficient is not significant and hence we are unable to draw any strong conclusions from this.

The sign of the variable for expected take-up turns out to be positive. This finding supports the theory that the market interprets a high expected take-up level as a sign of good quality of the company. Since the coefficient is not significant at the ten percent significance level we cannot definitely confirm this theory.

The log of market capitalization has a positive coefficient as expected and is significant at 14.5 percent. This means that we find support for the idea that the impact of adverse selection costs is less severe for larger companies. We think that a plausible reason for this is the increased media coverage for larger companies that reduce information asymmetries.

The variable relative size of the issue has a highly significant positive coefficient. This contradicts our reasoning earlier that a relatively larger issue would be less likely to obtain full subscription and thus lead to a less positive abnormal return. Our findings could instead either indicate that a relatively larger issue will not be less likely to obtain full subscription and/or that an expected lower subscription does not lead to a lower abnormal return.

There is a strong positive impact on the abnormal return from the cumulative abnormal return for the 60 days prior the announcement date. Hence our findings does not seem to support the idea of a run-up effect in the stock market, but rather some kind of momentum effect which means that a positive (negative) trend is consistent in the short run. Bøhren et al (1997) and Eckbo and Masulis (1992) find contradictory results where the 40 respectively 59 days announcement effect has a negative impact on abnormal return.

The standard deviation is strongly negatively related to abnormal return. This is in line with our expectations that a more volatile stock deters investors, since they are risk averse, which decreases the abnormal return. This negative relationship is also found in Eckbo and Masulis (1992) for public utility issuers, but not for industrial companies.

To sum up, we cannot find any proof in our regression model that the choice between an insured or uninsured rights issue has a strong impact on the abnormal return following the issue. The main determinants of abnormal return instead seem to be the relative size of the issue, the cumulative abnormal return preceding the offer and the standard deviation of the underlying stock.

7.1.2 Sub-Period 1992-2000

When we look at the outcome from the cross-sectional regression for the sub-period 1992-2000, as shown in table 6, we see that the adjusted R-square is considerably higher than for the full sample regression. The coefficients for shareholder take-up, logged market cap and relative size of issue are all significant at the ten percent level. The coefficients for *CAR60* and *STDEV*, which were highly significant for the full sample regression, are now very insignificant.

Variable	Expected Sign	Coefficient	p-value	95% Confidence Interval		
d_ins	+	0.0233	0.267	{-0.0185;0.06518}	N	43
ln_cap	+	0.0126	0.041	{0.00052;0.02474}	R²	70.97%
size	-	0.0719	0.000	{0.04913;0.09468}	Adj R²	65.17%
own5	+	-0.0145	0.772	{-0.1148;0.08589}		
takeup	+	0.1206	0.061	{-0.0061;0.24726}		
car60	-	0.0464	0.430	{-0.0715;0.16426}		
stdev	-	-0.4318	0.507	{-1.7384;0.87479}		
constant		-0.2109	0.030	{-0.4006;-0.0211}		

Table 6 Regression results for the abnormal return model, 1992-2000

The coefficient for the insured dummy variable is positive as expected, which supports our hypothesis that an insured rights issue will have a less negative/more positive abnormal return than an uninsured rights issue since the issuing company is believed to be less overvalued than average. However, the coefficient has a p-value of 0.267 and is thus not significant at the ten percent level. Since the take-up variable is positive and significant at the 10 percent level we find support for our hypothesis that a higher shareholder take-up is interpreted as a sign of good quality. The model gives no support for our hypothesis that a more concentrated ownership would lead to a higher abnormal return, since the *OWN5* coefficient does not have the expected sign and is not significant. Overall, our chosen model seems to work better for the sub-period 1992-2000 than for the full sample period.

7.1.3 Sub-Period 2001-2005

Variable	Expected Sign	Coefficient	p-value	95% Confidence Interval		
d_ins	+	0.0631	0.183	{-0.0305;0.15667}	N	63
ln_cap	+	-0.0074	0.488	{-0.0288;0.01391}	R²	35.56%
size	-	-0.0041	0.919	{-0.0841;0.07599}	Adj R²	27.36%
own5	+	-0.0262	0.684	{-0.1546;0.10218}		
takeup	+	-0.0007	0.992	{-0.1432;0.14195}		
car60	-	0.1739	0.000	{0.08826;0.25953}		
stdev	-	-0.8776	0.027	{-1.6500;-0.1051}		
constant		-0.0073	0.947	{-0.2277;0.21312}		

Table 7 Regression results for the abnormal return model, 2001-2005

The adjusted R-square decreases to 27.36 percent when we apply our abnormal return model to the sub-period 2001-2005, which is lower than the adjusted R-square for both the full sample and the first sub-sample. In this model *CAR60* and *STDEV* are significant at the five percent level. *STDEV* has a negative sign as expected, meaning that more risky companies deters investors, and the coefficient for *CAR60* is positive which indicates that the market expects a positive (negative) trend to be persistent in the short run. The insured dummy variable has a positive sign as expected, which once again supports our hypothesis that an insured rights issue will have a less negative/more positive abnormal return than an uninsured rights issue. As before, the coefficient is however not significant at the ten percent level with a p-value of 0.183. The coefficients of *TAKEUP* and *OWN5* are both highly insignificant and cannot support our hypotheses. In general, the chosen abnormal return model has less explanatory power for the sub-period 2001-2005 than for both the full sample period and the sub-period 1992-2000.

7.1.4 General Comments for the Abnormal Return Model

We see that our chosen model performs best for the sub-period 1992-2000. The insured dummy variable has the expected positive sign for all investigated periods, but is however not significant in any of the regressions. Hence we cannot fully confirm our hypothesis that the abnormal return following an insured right issue will be lower than for an uninsured right issue. The take-up variable is significant and positive for the first sub-sample period and thus supports our hypothesis that a higher expected take-up is interpreted as a positive sign by the market. We find no support for the hypothesis that a more concentrated ownership should lead to a higher abnormal return in any of the investigated samples. Which coefficients that are significant also varies between the models: for the full period it is *SIZE*, *CAR60* and *STDEV*, for 1992-2000 it is *LN_CAP*, *SIZE* and *TAKEUP*, and for 2001-2005 it is *CAR60* and *STDEV*. It is hard to see any clear pattern in these results. Overall, our results are more consistent with our predictions for the earlier sub-sample, which supports the hypothesis of a behavioural shift in the market after year 2000.

7.2 Discount Model

7.2.1 Full Sample Period

As we stated in section 3.1.2 the chosen model for explaining the variation in the offer day discount for companies undertaking a rights issue is:

$$DISC_i = \alpha_0 + \alpha_1 D_INS_i + \alpha_2 SIZE_i + \alpha_3 LN_CAP_i + \alpha_4 OWN5_i + \alpha_5 TAKEUP_i + \alpha_6 CAR60_i + \alpha_7 STDEV_i + \varepsilon_i$$

The results for the regression are presented in table 8.

Variable	Expected Sign	Coefficient	p-value	95% Confidence Interval		
d_ins	-	-0.3040	0.944	{-8.8227;8.2148}	N	105
size	+	-4.4115	0.065	{-9.0100;0.2771}	R²	15.07%
ln_cap	-	-0.7016	0.543	{-2.9830;1.5798}	Adj R²	8.94%
own5	+	24.8194	0.003	{8.6915;40.9473}		
takeup	-	17.4305	0.106	{-3.7950;38.6559}		
car60	-	-10.2332	0.129	{-23.5108;3.0445}		
stdev	+	115.0245	0.084	{-15.7801;245.8291}		
constant		14.1235	0.305	{-13.0769;41.3239}		

Table 8 Regression results for the discount model

After excluding two outliers we have 105 observations for this model. The adjusted R² is quite low at 8.94 percent. The coefficients for *SIZE*, *OWN5* and *STDEV* are all significant at the ten percent level.

The dummy for insured rights issues has a negative sign as expected. We can also see weak negative correlations between discount and the insured dummy and between discount and the percentage insured, as shown in Appendix A5. This gives us some indication that companies undertaking an insured rights issue are less worried that the stock price will fall under the subscription price level. Due to insignificance in the insured dummy coefficient we cannot make any definite conclusions on this matter. Armitage (2002) finds a significant negative relation between the discount and what he calls the percentage underwritten²⁶ in his study of the UK market, which is in line with our theory.

The strongly positive and highly significant coefficient for total ownership percentage by owners with a stake larger than five percent supports our reasoning that large shareholders will desire a larger discount since they have the largest stakes in the company and thus will benefit the most as stated in hypothesis 6.

The coefficient for the expected take-up variable is positive and significant at the 10.6 percent level. We predicted a negative sign since a high expected take-up could make a large discount

²⁶ Note that Armitage (2002) separates percentage underwritten from percentage pre-committed in his study.

redundant. We think that a reasonable explanation for the positive sign is that if the company executives expect a high shareholder take-up, they might be more willing to give a larger discount in order to maintain good relations with the shareholders.

The coefficient for the relative size of the issue is negative and significant at 6.5 percent. This is contradictory to what we predicted and hence our reasoning that a company making a relatively larger issue will have to make the offer more attractive by offering a larger discount is not supported.

The negative sign of the logged market cap variable indicates that the reduced costs of adverse selection for a larger company lead to lower discounts. Nonetheless, the coefficient is not significant and the conclusions are therefore uncertain.

The cumulative abnormal return for the 60 days prior the issue for the issuing company has a negative impact on the discount. It is also significant at the 12.9 percent level, and thus our reasoning that investors require a higher discount if the preceding stock price development has been negative is supported.

The discount is positively affected by the standard deviation of the underlying stock as we expected. This result is also statistically significant at the 8.4 percent level. Thus we find proof that a higher risk in the company is compensated by a higher discount to attract investors. Armitage (2002) also finds a quite strong positive correlation between discount and standard deviation.

In summary we do not find any evidence that the discount of a rights issue is determined by if the issue is insured or not. Instead the factors that seem to have the largest impact are the relative size of the issue, the ownership concentration and the standard deviation of the issuing company's stock.

7.2.2 Sub-Period 1992-2000

In table 9 we see the results from the regression for the discount model for the sub-period 1992-2000. In this model the relative size of the issue, the cumulative abnormal return and the standard deviation are significant at the five percent level. The coefficient for the relative size of the issue is negative, opposite to our expectations. *CAR60* has a negative sign which indicates that the market requires a lower discount from companies with a strong stock development for the 60 days preceding the offer. The standard deviation coefficient is positive

as expected, meaning that riskier companies must offer higher discounts. The adjusted R-square for this model is much higher, 42.06 percent, than for the full sample.

Variable	Expected Sign	Coefficient	p-value	95% Confidence Interval		
d_ins	-	4.9079	0.309	{-4.7426;14.5584}	N	42
size	+	-8.3783	0.002	{-13.585;-3.1708}	R ²	51.95%
ln_cap	-	-1.9282	0.167	{-4.7011;0.84471}	Adj R ²	42.06%
own5	+	14.7253	0.198	{-8.0706;37.5212}		
takeup	-	16.0261	0.273	{-13.206;45.2591}		
car60	-	-32.7342	0.020	{-59.951;-5.5164}		
stdev	+	568.5808	0.001	{259.015;878.146}		
constant		18.5879	0.397	{-25.419;62.5952}		

Table 9 Regression results for the discount model, 1992-2000

The sign of the insured dummy variable is negative, which contradicts our hypothesis that a company undertaking an insured rights issue can offer a lower discount than a company undertaking an uninsured rights issue. The coefficient of the ownership variable is still positive but no longer significant at the 10 percent level. For this sub-sample we see that the take-up variable is not significant but still has a positive sign as for the full sample. Hence we do not find any support for our hypothesis that a higher take-up will result in a lower discount. We conclude that our discount model is much more suitable for the sub-period 1992-2000 than for the full period but that we still are unable to determine how the choice between insured and uninsured rights issues affect the offered discount.

7.2.3 Sub-Period 2001-2005

Variable	Expected Sign	Coefficient	p-value	95% Confidence Interval		
d_ins	-	5.4739	0.560	{-13.243;24.1909}	N	63
size	+	5.1131	0.517	{-10.589;20.8156}	R ²	15.36%
ln_cap	-	4.5935	0.036	{0.32019;8.86685}	Adj R ²	4.59%
own5	+	-2.6471	0.836	{-28.180;22.8863}		
takeup	-	23.0340	0.108	{-5.2214;51.2894}		
car60	-	-3.5478	0.674	{-20.337;13.2420}		
stdev	+	116.4108	0.132	{-36.099;268.921}		
constant		-22.3060	0.319	{-66.745;22.1336}		

Table 10 Regression results for the discount model, 2001-2005

The adjusted R-square for the discount model for sub-period 2001-2005 is very low, 4.59 percent. Only the logged market cap is significant at five percent level, but it does not have the expected negative sign. Instead this indicates that a larger company will have to give a larger discount. The insured dummy variable has a positive sign, indicating that companies undertaking insured rights issues will also have to offer a higher discount. The coefficient is however not significant and thus we can neither confirm nor reject our hypothesis. The *OWN5* coefficient is now negative, contradictive to our hypothesis, but is highly insignificant. The coefficient for the take-up variable is significant at the 10.8 percent level and once again has a positive sign, which indicates that companies with a higher expected take-up level might want to give a high discount to maintain good relations with the shareholders. Overall, our discount model performs quite poorly for the sub-period 2001-2005.

7.2.4 General Comments for the Discount Model

The chosen discount model has highest explanatory power for the sub-period 1992-2000, which is congruent with our earlier findings. The insured dummy variable has a positive coefficient for the full sample but negative coefficients for the two sub-samples. However, it is not significant in any of the regressions and thus we can neither confirm nor reject our hypothesis that insured rights issues will tend to have lower discounts. The ownership concentration coefficient was positive and highly significant for the full sample, thus supporting our hypothesis that large owners will demand higher discounts. We did not find statistically significant evidence for this in any of the sub-periods. The coefficient for the take-up variable has a positive sign for all regressions and is significant at the 11 percent level for the full sample and the 2001-2005 sub-sample. Hence this model gives no support to our hypothesis that a higher take-up will result in a lower discount. For the full sample the significant variables are *SIZE*, *OWN5* and *STDEV*, for 1992-2000 *SIZE*, *CAR60* and *STDEV*, and for 2001-2005 only *LN_CAP*. We are unable to find any intuitive interpretation from these differences in significant variables. In total, we again find that our theories best applies to the sub-period 1992-2000.

8 Results from Binary Logistic Regression

To find out which factors that increases the propensity to use an insured rights issue we run binary logistic regressions. We will run these regressions both for the full sample period and sub-periods 1992-2000 and 2001-2005.

The model we have chosen for the binary logistic regressions as stated in section 3.2 is:

$$D_INS_i = \gamma_0 + \gamma_1 SIZE_i + \gamma_2 LN_CAP_i + \gamma_3 OWN5_i + \gamma_4 OWN25_i + \gamma_5 TAKEUP_i + \gamma_6 STDEV_i + \gamma_7 D_BOOM_i + \gamma_8 D_SOL_i + \gamma_9 D_FIN_i + \varepsilon_i$$

8.1 Full Sample Period

We start by testing the model for the full sample period. The results from that regression are shown in table 11.

Variable	Expected Sign	Coefficient	p-value		
size	+	-1.109	0.124	N	107
ln_cap	-	-0.398	0.015	Original percentage correct	73.8%
own5	+	1.893	0.290	Percentage correct with model	72.9%
own25	+	-6.693	0.039		
takeup	-	-1.079	0.515		
stdev	+	-4.470	0.613		
d_boom	-	0.284	0.698		
d_sol	+	0.729	0.185		
d_fin	+	26.181	0.998		
constant		8.913	0.001		

Table 11 Results from full sample binary logistic regression

For the full sample, consisting of 79 insured and 28 uninsured rights issues, we see that the percentage of correct predictions has in fact decreased from 73.8 percent to 72.9 percent when our explanatory variables are included. Only two variables are statistically significant at the five percent level, *LN_CAP* and *OWN25*.

The logged market capitalization has a negative sign as expected and is highly significant. This confirms our hypothesis that large companies have fewer incentives to use an insured rights issue, as stated by the interviewed practitioners.

Surprisingly enough, the coefficient of *OWN25* is significant at the 5 percent level but does not have the expected sign. *OWN5* on the other hand has the expected sign but is not statistically significant. Thus we find no support for our hypothesis that companies with a concentrated ownership are more likely to use an insured rights issue.

The expected take-up has a negative impact on the propensity to use an insured rights issue as expected and hence supports our hypothesis, but the coefficient is not significant.

The boom dummy has a positive coefficient, which goes against our expectations that the use of insured rights issues will decline during optimistic market conditions. However, the results are not statistically significant and we can neither confirm nor reject our hypothesis.

The intent dummies have the expected positive signs, but are not statistically significant. Hence we do not find any support for the hypothesis that rights issues with the intent of financial restructuring or increased solidity more often will be insured.

Since the percentage of correct predictions is worse when using our model than in the base case without any explanatory variables, this model is not particularly good for predicting the choice between insured and uninsured rights issues. One possible explanation for why this model performs so poorly is, as we hypothesized, that the choice to use an insured rights issue in later years has been more depending on an unwillingness to stand without a guarantee when everyone else has one, as described by the interviewed practitioners (see chapter 4). When we examine figure 3 we see a quite clear trend-break after the year 2000. This indicates that the behaviour of managers in issuing companies has indeed changed over the period. We go forth investigating our model for the two sub-periods: 1992-2000 and 2001-2005.

8.2 Sub-Period 1992-2000

Variable	Expected Sign	Coefficient	p-value		
size	+	-.0532	0.633	N Original percentage correct Percentage correct with model	43
ln_cap	-	0.235	0.365		53.5%
own5	+	12.703	0.011		81.4%
own25	+	-18.496	0.017		
takeup	-	0.011	0.997		
stdev	+	13.383	0.657		
d_boom	-	2.489	0.016		
d_sol	+	0.325	0.707		
d_fin	+	25.687	0.999		
constant		4.259	0.455		

Table 12 Results from binary logistic regression, sub-period 1992-2000

In table 12 we see the results from the binary logistic regression for the sub-period 1992-2000, where the sample consists of 20 insured rights issues and 23 uninsured rights issues. We now see that the percentage of correct predictions has increased significantly from 53.5 percent to 81.4 percent when we use our model. *OWN5*, *OWN25* and *D_BOOM* are all significant at the five percent level.

We had expected the ownership variables to have positive signs. As stated earlier, *OWN5* measures the total ownership percentage of all owners with a stake larger than five percent and *OWN25* measures the total ownership percentage of the 25 largest owners. We are quite surprised to find that *OWN5* and *OWN25* have opposite signs and still they are both strongly significant. *OWN5* gives us support for the hypothesis that companies with a more concentrated ownership are more likely to use an insured rights issue, but *OWN25* provides contradictory evidence. We find this strange since these measures should in theory capture the same effects and we are unable to explain this phenomenon. Something that makes these results even more surprising is that both ownership variables are significantly negative correlated to the insured dummy variable and percentage insured, as well as strongly positively correlated to each other, as shown in Appendix A5.

The logged market capitalization was expected to have a negative sign, but instead we found a positive coefficient. This result was however not statistically significant.

The coefficient for the take-up measure is not significant and very close to zero. Thus the hypothesis that companies facing a higher expected take-up should be more inclined to use an uninsured rights issue is not supported.

The hypothesis stating that it would be less common with insured rights issues during periods of market optimism is not supported by the model. The coefficient for the dummy variable *D_BOOM* is significant at 1.6 percent but does not have the expected negative sign. Instead the result suggests that it will be more common with insured rights issues during periods of market optimism. A reason for this could be that it might be easier to find investors willing to guarantee the issue during these periods. This effect thus seems to be stronger than the one proposed in the hypothesis, namely that the expected take-up should be higher during booming market conditions which should lead to a decreased need for insured rights issues.²⁷ Since we have found that the take-up level does not have a strong impact on the choice

²⁷ We note that there is no significant correlation between the boom dummy and the shareholder take-up, as seen in Appendix A5.

between insured and uninsured rights issues, we believe that the higher propensity of outside investors to guarantee the issue can explain the results.

We expected that issues with the intents of increased solidity and financial restructuring should be more likely to be insured. The variables *D_SOL* and *D_FIN* have the expected signs but are not significant and hence we cannot confirm our hypothesis.

Even if we do not find any strong support for all of our hypotheses the model still has rather strong predictive power for which rights issues that will be insured and which will be uninsured for the sub-period 1992-2000. We will now continue to investigate the later sub-period 2001-2005.

8.3 Sub-Period 2001-2005

Variable	Expected Sign	Coefficient	p-value		
size	+	-1.449	0.391	N Original percentage correct Percentage correct with model	64
ln_cap	-	-0.481	0.399		92.2%
own5	+	6.687	0.102		93.8%
own25	+	-10.279	0.132		
takeup	-	0.470	0.887		
stdev	+	-22.039	0.092		
d_boom	-	-	-		
d_sol	+	-0.216	0.861		
d_fin	+	18.934	0.999		
constant		12.031	0.060		

Table 13 Results from binary logistic regression, sub-period 2001-2005

When we apply our chosen binary logistic model to the sub-period 2001-2005 the resulting percentage of correct predictions is increased slightly from 92.2 to 93.8 percent, as shown in table 13. In this sample we have 59 insured rights issues and 5 uninsured. This rather skewed sample explains the high original correctness, since guessing that a random issue is insured is correct $59/(59+5)=92.2$ percent of the time. Including our explanatory variables only increases this with 1.6 percentage units. Hence this model is not very good at distinguishing between insured and uninsured rights issues.

None of the variables are significant at the five percent level and only the coefficient for standard deviation is significant at the ten percent level. The logged market capitalization

variable has the expected negative sign but is not significant. The ownership variables have the same signs as in the previous sub-sample but are now only significant at 10.2 and 13.2 percent respectively. The previously significant dummy variable for booming market conditions is not present in this sub-sample since none of the years during the period 2001-2005 are defined as boom years.²⁸ We think that it is reasonable that the coefficient for the standard deviations is more significant in this sub-sample, since this period is characterized by a recession. During such market conditions potential guaranteeing investors are likely to be more restrictive and thus it will be harder for riskier companies with a higher standard deviation to obtain a guarantee.

The take-up measure still has no significant coefficient and cannot confirm our hypothesis that a higher expected take-up will decrease the propensity to use an insured rights issue. The intent dummies are still highly insignificant and does not give any strong support to our hypothesis that issues with intents that signal financial weakness should be more likely to be insured.

8.4 General Comments for the Binary Logistic Model

In sum, we conclude that our binary logistic model works better for the sub-period 1992-2000 than for both the full sample and the second sub-period 2001-2005. Even if the predictive power is lower for the first sub-period sample this is still the best model since it gives the highest increase in percentage of correct predictions. These results give some support to the idea that the decision to use an insured rights issue in later years has been more based on an unwillingness to stand without a guarantee when everyone else has one, which was suggested by the interviewed practitioners. This suggests that the theories presented in chapter 2 generally are more suited to explain the choice between insured and uninsured rights issues for the earlier sub-period.

9 Conclusions

The purpose of this thesis is threefold: to thoroughly investigate the characteristics of the Swedish market for rights issues 1986-2005 with a particular focus on the differences and similarities between insured and uninsured offers, to investigate the reasons behind the choice between an insured and an uninsured rights issue, and to examine how the abnormal return

²⁸ See Appendix A2 for definitions of boom, bust and normal years.

and discount following a rights issue is affected by whether the issue is insured or uninsured. This purpose was investigated with a number of hypotheses, for which we will now present our conclusions.

9.1 Abnormal Return

According to our modified Myers and Majluf (1984) model, the use of an insured rights issue should be interpreted as a sign of less severe overvaluation than for the average issuing company. Thus we expect the abnormal return after an insured rights issue to be less negative than that of an uninsured rights issue. We find some support for this in our cross-sectional regression. Hence our result to some extent indicates that the use of an insured rights issue is interpreted as a sign of less severe overvaluation than average. The results are nevertheless not strongly significant and overall we conclude that the Swedish market does not seem to consider the choice between insured and uninsured rights issues to be a strong indicator for over- or undervaluation and hence not a strong determinant for the abnormal return.

When we investigate the cross-sectional regression for the sub-sample 1992-2000 we find statistically significant support for our hypothesis that the expected shareholder take-up has a positive impact on abnormal return. This means that the market during this period interprets a higher take-up level as a sign of good quality.

We find no support for the hypothesis that a more concentrated ownership should affect the abnormal return positively.

9.2 Discount

In our cross-sectional regression results we find no support of the hypothesis that the choice of an insured rights issue should have a negative impact on the size of the discount. Thus, a deep discount does not seem to be a substitute for an insured rights issue.

We hypothesized the expected take-up level to be negatively correlated to discounts in order to give shareholders the incentive to subscribe to the issue. This was not supported in our regression results. Instead, we found statistically significant opposing results which could indicate that majority shareholders in companies with a high expected take-up and a presumed high ownership concentration will vote for higher discounts. However, we are unable to find the expected positive correlation between estimated take-up and ownership concentration. Thus the positive correlation between take-up and discounts might instead be explained by the

fact that the company executives give larger discounts to maintain good relations with the shareholders and keep the high take-up level.

We expected a higher ownership concentration to lead to higher discounts since large shareholders might vote for higher discounts since they will gain the most from this. We found statistically significant evidence for this in our cross-sectional regression for the full sample.

9.3 The Choice between Insured and Uninsured

When we investigate the sub-periods 1992-2000 and 2001-2005 in our binary logistic regression model we see that the behaviour regarding insured and uninsured rights issues seems to have changed over the years. For the first sub-period company executives seem to have behaved more in line with our theories regarding the choice between insured and uninsured rights issues. The behaviour in the second sub-period is probably better explained by the phenomenon described by the interviewed practitioners: the decision to use an insured rights issue in later years has been more based on an unwillingness to stand without a guarantee when everyone else has one.

In line with the interviewed practitioners we expected companies with a larger market capitalization to be less inclined to use an insured rights issue. This hypothesis is supported by our findings from the binary logistic regression for the full sample.

In accordance with the agency problem theory, we predicted that a company would be more likely to use an insured right issue when the ownership concentration is higher. In our binary logistic model we find some contradictory results regarding this hypothesis where *OWN5* supports our hypothesis whereas *OWN25* rejects it.

We are unable to find support for our hypothesis that companies with a higher expected take-up level are less likely to undertake uninsured rights issues, hence we cannot confirm that the decreased adverse selection problem induces the use of an uninsured rights issue. Furthermore, we are unable to find support for the theory that the take-up level is positively correlated to ownership concentration. Thus we cannot prove that larger shareholders will be particularly inclined to keep their stake in the company by pre-committing to rights offers.

For the sub-sample 1992-2000 we found a statistically significant positive relation between the use of insured rights issues and booming market conditions. Thus we can reject our hypothesis that the decreased adverse selection problem should result in a smaller fraction of

insured rights issues. We instead believe that the results indicate that it might be easier to find investors willing to guarantee the issue during periods of market optimism.

Our hypothesis that a company will be more inclined to choose an insured rights issue when they are financially weaker is to some extent supported by our empirical findings. The binary logistic model does not give any statistically significant evidence, but when we investigate the different groups of issue intents and look at the correlations between the two intent dummies and the two insured variables this theory is at least partly confirmed. Hence Ursel's (2006) reasoning that the increased costs of insurance for a financially distressed company may be higher than the reduced costs of adverse selection is refuted.

9.4 Market Characteristics

We find that the use of rights issues in the Swedish market has increased strongly during the period 1986-2005 and that almost the entire increase comes from insured rights issues rather than uninsured, which have remained rather constant. Characterizing for the Swedish market is that companies that conduct an insured rights issue first turn to large existing shareholders for a guarantee rather than to underwriters such as investment banks.

We are unable to conclude whether the main reason for using an insured rights issue is to signal less severe overvaluation than average, as proposed by our modified Myers and Majluf (1984) model, or to guarantee that the capital needed is obtained, as concluded by Armitage (2002). For the period 1992-2000 it is probably a combination of the two. As already noted after the year 2000 the decision to use an insured rights issue is more dependent on the behavioural shift in the market as companies became less willing to stand without a guarantee.

Our findings provide an overview of the Swedish market for rights issues that has so far been missing in the literature. Even if all results are not statistically significant, we still believe that they can contribute to the understanding of the Swedish market conditions. Discrepancies between our results and those from other studies can partly be due to different definitions of what an insured rights issue is. Differences in the choice of period studied can also be a reason that the results are not harmonious. Even so, we believe that our study can contribute to broaden the international understanding of the phenomenon of rights issues, the offered discounts and the market reactions following them.

10 Suggestions for Further Research

When working on this thesis, we discovered several areas of interest for future investigation. The Swedish market for equity issues in general and rights issues in particular is still quite unexplored from an academic perspective. A study of the secondary market trade in subscription rights, with a focus on the price development over the offer period would be interesting. A related subject would be to examine the price development of the underlying stock during the same period. These topics could of course be investigated by dividing the rights issues into sub-categories, both insured and uninsured but also by industry, size etcetera. It would furthermore be interesting to do a variant of our study with a different take-up measure, for example the one proposed by Eckbo and Masulis (1992), to see if those results differ from ours. This would require access to the number of shareholders just before the issue, which we were unable to obtain.

A topic which we have not looked into that is covered in some other papers is the direct and indirect costs for insured and uninsured rights issues. Furthermore it would be interesting to divide the category of insured rights issues into sub-groups by the type of guaranteeing investor to see if and how these affects the results, first and foremost abnormal return and discount. For the same purpose it could be interesting to separate the issues with subscription pre-commitments and see if this category has any distinguishing traits. An analysis categorized by industry of the issuing company might also provide valuable insights.

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Appendix

A1 Variable Definitions

Variable Name	Variable Definition
AR	The abnormal return for the stock of the issuing company for the announcement day.
INS_PER	The percentage that is insured or pre-committed of a rights issue.
SIZE	The relative size of the issue calculated as the requested amount divided by market value of equity.
OWN25	The total percentage owned by the 25 largest owners in the issuing company.
OWN5	The total percentage owned by each owner who has a stake of five percent or more in the issuing company.
TAKEUP	A proxy for the estimated shareholder take-up calculated as: $1 - (\text{number of subscription rights sold in secondary market} / \text{total number of subscription rights in issue})$
DISC	The discount of the issue price on the issuing day is calculated as: $(\text{stock price} - \text{issue price}) / \text{stock price}$
CAR60	The cumulative abnormal return for 60 days prior the issue.
STDEV	The standard deviation for the cumulative abnormal return for 60 days prior the issue.
LN_CAP	The log of the market capitalization for the issuing company.
D_INS	A dummy variable which takes the value 1 if the rights issue is insured and the value 0 otherwise.
D_BOOM	A dummy variable that takes the value 1 if the rights issue is conducted during booming market conditions and 0 otherwise.
D_SOL	A dummy variable that takes the value 1 if the intent of the issue is to strengthen the solidity and 0 otherwise.
D_FIN	A dummy variable that takes the value 1 if the intent of the issue is financial restructuring and 0 otherwise.

A2. Definition of Boom and Bust Markets

Year	Market return	Normal	Boom	Bust
1986	0.645	0	1	0
1987	0.211	1	0	0
1988	0.090	1	0	0
1989	0.389	1	0	0
1990	-0.050	1	0	0
1991	-0.085	1	0	0
1992	-0.150	0	0	1
1993	0.318	1	0	0
1994	0.269	1	0	0
1995	0.115	1	0	0
1996	0.214	1	0	0
1997	0.462	0	1	0
1998	0.152	1	0	0
1999	0.163	1	0	0
2000	0.489	0	1	0
2001	-0.299	0	0	1
2002	-0.232	0	0	1
2003	-0.111	0	0	1
2004	0.283	1	0	0
2005	0.219	1	0	0
Stdev	0.251			
Average	0.155			

A boom period is here defined as the average return over the entire period plus one standard deviation. Correspondingly, a bust period is defined as the average return over the period minus one standard deviation. According to our results, a boom market occurs when the market return for the period is higher than 40.5 percent and a bust market if the market return is lower than -9.6 percent.

A3. Exclusion Analysis

Year	Insured	Uninsured
1986	1	7
1987	0	2
1988	0	2
1989	0	5
1990	1	4
1991	4	4
1992	0	0
1993	5	0
1994	1	3
1995	3	0
1996	2	1
1997	2	4
1998	6	3
1999	3	2
2000	4	3
2001	9	4
2002	8	4
2003	16	6
2004	19	2
2005	6	1
Total	90	57

The table above shows the 147 rights issues that are excluded from the base sample of 254 rights issues and their distribution over time. There are a total of 90 insured rights issues and 57 uninsured rights issues that are removed from the base sample due to lacking data. The regression sample thus consists of a remaining 107 rights issues.

A4. Observations Included in Regression Sample

Year	Insured	Uninsured
1986	0	0
1987	0	0
1988	0	0
1989	0	0
1990	0	0
1991	0	0
1992	0	2
1993	2	5
1994	2	1
1995	1	1
1996	1	2
1997	5	2
1998	0	4
1999	4	4
2000	5	2
2001	9	2
2002	10	1
2003	12	1
2004	11	0
2005	17	1
Total	79	28

The table above shows the 107 rights issues that are included in the sample on which we base the cross-sectional and binary logistic regressions. As we can see, there are no remaining observations left in the years 1986-1991 due to lacking information.

A3. Correlation Matrix for the Regression Sample

		AR	INS_PER	OWN25	OWN5	TAKEUP	DISC
AR	Correlation	1	0.039	0.043	0.105	0.162	-0.113
	p-value		0.688	0.664	0.282	0.097	0.248
INS_PER	Correlation	0.039	1	-.307(**)	-0.187	-0.070	-0.105
	p-value	0.688		0.001	0.053	0.477	0.283
OWN25	Correlation	0.043	-.307(**)	1	.815(**)	0.011	0.051
	p-value	0.664	0.001		0.000	0.909	0.604
OWN5	Correlation	0.105	-0.187	.815(**)	1	0.014	0.185
	p-value	0.282	0.053	0.000		0.885	0.056
TAKEUP	Correlation	0.162	-0.070	0.011	0.014	1	0.080
	p-value	0.097	0.477	0.909	0.885		0.414
DISC	Correlation	-0.113	-0.105	0.051	0.185	0.080	1
	p-value	0.248	0.283	0.604	0.056	0.414	
LN_CAP	Correlation	-0.001	-.301(**)	.325(**)	.227(*)	-0.052	0.024
	p-value	0.994	0.002	0.001	0.019	0.592	0.804
D_INS	Correlation	-0.001	.822(**)	-.262(**)	-0.172	-0.093	-0.066
	p-value	0.995	0.000	0.006	0.076	0.341	0.500
D_BOOM	Correlation	0.071	-0.038	0.136	0.179	-0.014	0.128
	p-value	0.470	0.698	0.163	0.064	0.886	0.188
D_SOL	Correlation	-0.131	0.169	-0.148	-0.151	-.243(*)	0.088
	p-value	0.180	0.081	0.127	0.120	0.012	0.368
D_FIN	Correlation	0.137	0.137	-0.065	-0.064	0.033	-0.092
	p-value	0.158	0.160	0.503	0.513	0.734	0.348

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

(cont.)

		LN_CAP	D_INS	D_BOOM	D_SOL	D_FIN
AR	Correlation	-0.001	-0.001	0.071	-0.131	0.137
	p-value	0.994	0.995	0.470	0.180	0.158
INS_PER	Correlation	-.301(**)	.822(**)	-0.038	0.169	0.137
	p-value	0.002	0.000	0.698	0.081	0.160
OWN25	Correlation	.325(**)	-.262(**)	0.136	-0.148	-0.065
	p-value	0.001	0.006	0.163	0.127	0.503
OWN5	Correlation	.227(*)	-0.172	0.179	-0.151	-0.064
	p-value	0.019	0.076	0.064	0.120	0.513
TAKEUP	Correlation	-0.052	-0.093	-0.014	-.243(*)	0.033
	p-value	0.592	0.341	0.886	0.012	0.734
DISC	Correlation	0.024	-0.066	0.128	0.088	-0.092
	p-value	0.804	0.500	0.188	0.368	0.348
LN_CAP	Correlation	1	-.237(*)	0.169	-0.010	-0.065
	p-value		0.014	0.081	0.915	0.504
D_INS	Correlation	-.237(*)	1	-0.021	0.120	0.169
	p-value	0.014		0.828	0.220	0.081
D_BOOM	Correlation	0.169	-0.021	1	-0.050	-0.110
	p-value	0.081	0.828		0.610	0.258
D_SOL	Correlation	-0.010	0.120	-0.050	1	-.242(*)
	p-value	0.915	0.220	0.610		0.012
D_FIN	Correlation	-0.065	0.169	-0.110	-.242(*)	1
	p-value	0.504	0.081	0.258	0.012	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).