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Testing the Waters: Double Announcements in Swedish Rights Issues

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Abstract

In recent years, a new model for conducting rights issues has gained popularity on the Swedish Nasdaq Markets. This entails splitting the traditional announcement of a rights issue and its terms into two steps: an initial press release disclosing all terms except the subscription price and the number of shares to be issued, followed by a press release disclosing all terms. This study seeks to assess the difference in abnormal returns between firms conducting one or two announcements. The dataset is composed of 370 rights issues from the Swedish Nasdaq Markets (Nasdaq Stockholm and Nasdaq First North Growth Market) identified from the prospectus register of the Swedish Financial Supervisory. 302 of these fall under a single announcement occasion and 68 are executed with double announcements. We find significant evidence suggesting a negative market reaction in connection with the second announcement, despite the existence of a previous announcement. The announcements of full terms including subscription price and the number of shares issued are relevant to the market. We also find that in the case of double announcements, the short-term market reaction to the second press release is more negative for issues without any prior announcement of their intention. In other words, the first announcement precedes a smaller second price drop, suggesting a potential mitigating role. Consequently, we speculate that the initial press release can serve as a tool to facilitate the negotiations between the issuing company and its financial advisor regarding the terms of the rights issue, especially in companies with a thin shareholder base in terms of financial capacity. Testing the waters in this way through two announcements is of particular importance during times of strained financial markets.

Keywords: Rights issue, Preferential rights issue, Event study, Market efficiency

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1. Introduction

Humans want to avoid uncertainty. We possess a psychological inclination towards predictability and comfort. Historically, this fear of uncertainty was linked to survival where uncertainty meant danger. Uncertainty regarding shelter. Uncertainty regarding the next meal.

While our society has evolved in the last centuries and, to a large extent, alleviated uncertainty regarding humans' basic physiological needs (food, water, shelter, health and sanitation), the notion of discomfort surrounding uncertainty is an inherent fear that persists in individuals (Maslow, 1943). We seek a sense of predictability and stability as we need it in order to properly plan for future needs. And, whether it is in our personal lives or our professional decision-making, certainty is something we strive to establish.

Financial markets are therefore not exempt from this uncertainty aversion. This industry is inherently characterized by risks, volatility and complex interdependencies (Malkiel, 1973). From global economic shifts and unexpected domestic events, this is a landscape marked by unpredictability. To navigate through these complexities, financial markets and the actors involved seek measures that reduce the effects of uncertainty and help manage investor expectations.

1.1. Background to the problem

When a public company is in need of financing, it is faced with two primary options: issuing equity or taking on debt. In the case that it is unable to take on new debt, the firm is required to perform an equity offering. The equity option can further be preferred, in the cases where it helps firms escape a problematic capital structure with a high debt-to-equity ratio and an obligation to pay interest. However, many companies would prefer to simply take on new debt, avoiding dilution of shares.

A key decision to settle when issuing equity is determining the target group of investors. There are three ways to raise equity: a public sale, a private placement, or a rights issue (Brealey, Myers, and Allen, 2020). While it differs from market to market, the majority of the equity raised by public companies on the Swedish financial market is through rights issues. In

fact, 85% of all seasoned equity offerings by value are constituted by rights issues, with public offerings representing less than 1% (Holderness & Pontiff, 2016). We define a rights issue as: “ an offering of rights to the existing shareholders of a company that gives them an opportunity to buy additional shares directly from the company at a discounted price rather than buying them in the secondary market” (Corporate Finance Institute). Under the right conditions, it can thus serve as an efficient and quick way to raise funds and makes for an attractive option for the issuer.

Furthermore, there are several critical aspects that come into play with this type of deal. One of the most significant ones being the so-called underwriting agreement. When issuing rights, underwriters such as financial advisors engage into a contractual agreement with the issuing firm. The contract states that guarantors (institutional or private investors) will purchase a specified portion of the issued shares in the case that they remain unsubscribed, acting as a safety net in the transaction. The price at which they purchase the shares is a discounted theoretical ex-rights price (TERP). TERP represents the diluted share price after the issue (Erik Nerpin, personal interview, 28th of February 2025).

1.2. A new model on the rise

In recent years a new negotiation approach between financial advisors and companies has become increasingly common in Sweden when issuing preferential rights. A new structure on preferential rights issue has arisen - one based on the traditional principle of supply and demand. This method, specifically gaining traction during 2022, allows a direct engagement from the public when it comes to guiding the pricing of the issue. It further alleviates the negotiation process between the advisors and the issuers by consulting an impartial third party; the market.

Traditionally, as observed on the prospectuses published on “Finansinspektionen” the issuing firm publishes a single press release announcing the preferential rights issue along with a statement of the full terms including the subscription price of each share and the subscription period. Typically, the release is conditioned upon agreement of an extraordinary general meeting convened by the board. When the general meeting has agreed to the issue and its terms, a prospectus is published. The time window between when the information is

communicated (sometimes as part of a follow-up of the general meeting or in a separate announcement) and the official publication of the prospectus varies; typically ranging from a couple days up to a few weeks.

However, this new method, informally referred to as the “Carnegie Model”, hereinafter abbreviated to “CM”, (see section 4.1), introduces an additional step in the communication process, publishing an initial press-release stating the intention of a rights issue before following up with a second announcement disclosing the full terms of the issue (following the same guidelines as the traditional single press release, stating intentions, amount of funding needed and full terms). The terms “press release” and “announcement” will be used interchangeably throughout this paper.

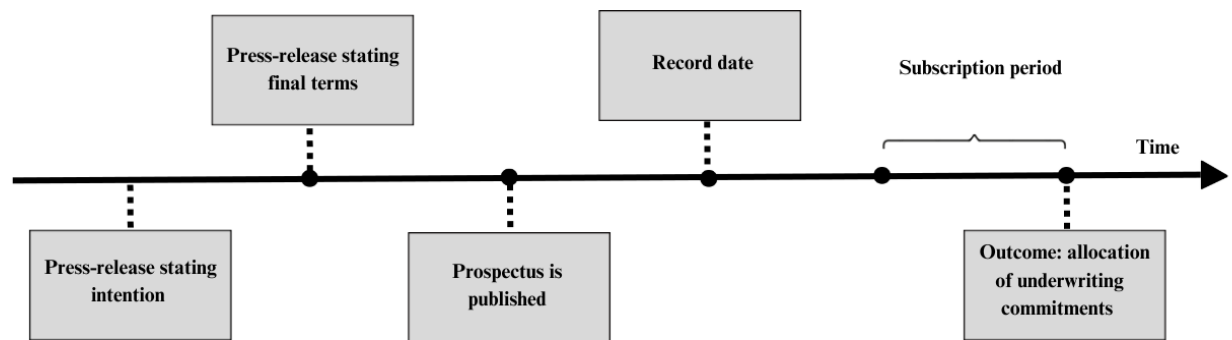
1.3. Legal framework

In 2006, a new Swedish Companies Act was implemented, which introduced a new rule in support of the model born in the following years. The rule (Chapter 13, section 5, paragraph 1, Item 8) states that, in addition to the traditional decision-making forms, where a general meeting decides on all the terms of a new issue or authorizes the board of directors to decide on all terms, a general meeting can choose to decide on all terms except the subscription price and the number of shares to be issued and authorize the board of directors to decide them later. The rule is limited to regulated markets, meaning that it is not applicable for companies listed on Nasdaq First North, Spotlight and NGM. What makes this rule particularly relevant for the CM is that it legitimizes the approach of announcing an intent to carry out a rights issue without disclosing the subscription price or the number of shares upfront. Instead these terms are decided at a later stage when the intent to carry out the rights issue is converted to a full decision. Without the support of the method in the Companies Act, the CM could potentially have been criticized, given its potential impact on market perception of a share, with prices tending to fall. Thus, the company’s act legitimized the use of the Carnegie Model on regulated markets.

1.4. Instructive case : Cantargia 2022

An illustrative example of the “Carnegie Model” in practice is Cantargia’s rights issue in 2022. On June 21st, 2022, the pharmaceutical company announced its intention to conduct a fully covered rights issue of SEK 250 million, fully underwritten by investors in Carnegie Investment Bank’s network, providing investors with preliminary information without specifying the subscription price and the number of shares to be issued. Subsequently, on July 18th, 2022, the company officially confirmed the rights issue, detailing all terms, including the subscription price, share ratio, and timeline.

Figure 1: Typical timeline with two announcements



While this is the standard timeline, the time of publication for the prospectus can vary; either before or after the record date. However, it must always be published before the subscription period.

This early communication allowed the market to gradually absorb the news, manage investor expectations as well as reduce volatility and uncertainty regarding share price. This approach commonly used by investment banks increases transparency between investors and the issuing company by publishing an announcement stating intent to perform a rights issue. This additional communication may serve as a tool for enhancing an early interest among investors prior to launching the offering.

1.5. Purpose of the study and research question

The purpose of this study is to investigate the effects of an extra press release on the evolution of a company's share price. More specifically we want to examine how the initial announcement of intent to conduct a rights issue, conducted prior to the disclosure of full terms, affects market reactions, investor sentiment, and price volatility. By analyzing rights issues conducted on the Swedish stock exchange where the Carnegie Model has been applied, we test the hypothesis that this new model contributes to stabilization of share prices and reduces market uncertainty.

In our study we will look at price volatility of company share prices where the model has been applied and compare it to those that have followed the traditional single-announcement approach.

Research question: *To what extent can an extra press release informing investors of intention to pursue a preferential rights issue limit price-drop after full terms are released?*

1.6. Contribution

We expect that our paper will contribute to the literature on market efficiency, by analyzing a new and unexplored model, while anchoring our research in established economic theories, specifically Fama's (1970) Efficient Market Hypothesis.

By examining the short-term abnormal returns of firms applying the Carnegie model prescribing two sequential press-releases, we challenge the strong EMH which predicts an insignificant market reaction (zero) following the second announcement which assumes all relevant information has already been priced in.

In addition, by conducting a comparative study between two sample populations, companies carrying out rights issues with the Carnegie Model and companies carrying out an issue following a traditional single announcement structure, our study aims to identify differences in share price development. Specifically, we aim to highlight how rights issue communication may influence market dynamics.

1.7. Sample, method and assumptions

To limit the scope of the Swedish financial market, we extracted our data from the Swedish Financial Supervisory Authority (Finansinspektionen). Specifically we utilized the Prospectus Register (“Prospekt Registret”), focusing on the equity related prospectuses (Aktier) that fell into the following categories; EU Growth Prospectus (“EU-tillväxt prospekt”), Prospectus (“Prospekt”) and Growth Prospectus (“Förenklat prospekt”) between July 1st, 2019 and March 13th, 2025. To ensure data consistency and comparability, we further narrowed our sample to companies whose announcements were publicly available and published on the Nasdaq Nordic company news platform. This indirectly captures only companies listed on Swedish Nasdaq stock exchanges (Nasdaq Stockholm and Nasdaq First North Growth Market).

The methodology applied in this study is an event study, as we examine abnormal returns over three event windows: two short term event windows of 2 and 11 trading days and a longer event window of 31 trading days. To estimate abnormal returns related to a public announcement regarding equity issues, we apply the market model (Mackinlay, 1997).

Mackinlay (1997) states a key statistical assumption underlying the market model, i.e. returns are assumed to follow a normal, independent and identical distribution in time. Consequently, we assume OLS to be a consistent and efficient estimator for the market model parameters: α_i and β_i for firm i .

Aggregating abnormal returns to generate cumulative average abnormal returns (CAAR) assumes no clustering to ensure independence in abnormal returns across firms (MacKinlay, 1997). Event windows $[-15, 15]$ for each rights issues need to be separate without overlapping.

While not stated directly as a statistical assumption, the requirement of “no information leakage” is an important design condition of the model to create a viable event study. It is assumed that, given rationality in the marketplace, the effects of an event will be reflected immediately in security prices (Mackinley, 1997). This assumes that the event studied is regarded as a set of new information, not previously available.

1.8. Findings

We find support for our hypothesis that firms issuing two announcements exhibit short-term cumulative average abnormal returns (CAAR) following the second announcement. This finding suggests a potential violation of the strong form of the Efficient Market Hypothesis (EMH). Furthermore, we find support for our second hypothesis within the event window $[0,1]$, implying that short-term abnormal returns following the official press release of a rights issue differ between firms with one and two announcement occasions. These results indicate that the use of an additional press release has real-world, measurable implications for market behavior and how prices react to announcements.

1.9. Thesis Structure

This thesis is divided into 8 sections. It is structured as follows; section 2 is our literature review and provides insights on previous studies and economic theories that hold relevance to our subject. Here we also provide an explanation of the research gap that our thesis aims to help fill, followed by a presentation of our hypotheses. In section 3, we dive deeper into our methodology, detailing the design of our event study and our application of the Market Model. Furthermore, it also provides a discussion surrounding our data sources and sample selection process. Section 4 unveils our empirical findings and results, along with relevant descriptive statistics. Section 5 contains a discussion based on findings and results presented in previous sections. Section 6 provides a final conclusion to our thesis. Finally, section 7 and 8 are reserved for reference list and appendix, respectively.

2. Literature and theory

2.1. Previous studies on equity offerings

We find that extensive research has been made about market reaction to equity offerings, with a focus on public offerings including Neuhierl, Scherbina and Schlusche (2013) and Asquith and Mullins (1986). However, we find limited material on rights issues. Our literature review is consequently dedicated to equity offerings at large.

2.1.1. Negative market reaction to public equity offerings

When firms announce rights issues the market reaction is often negative, with share prices dropping. Studies investigating the effect of public equity issues on stock pricing (Asquith & Mullins, 1986), states that this is in large part associated with the fact that investors believe that managers know something that they do not. This originates in an adverse selection and information asymmetry; “In a world of asymmetric information the managers and insiders have superior information compared to investors (not including underwriters, in our case this refers to existing shareholders), and management’s decision to issue equity conveys information regarding a firm’s intrinsic value” (Akerlof, 1970). Empirical results supporting this assumption show that there are statistically significant negative excess returns associated with industrial public equity issues. Industrial equity issues refers to equity issues by non-financial institutions (as opposed to e.g. banks, credit unions, insurance companies etc.). The average two-day announcement period excess return for primary offerings corresponded to approximately -3.0% (Asquith & Mullins, 1986).

In the same vein, Neuhierl, Scherbina and Schiusene (2013) examine the effect of corporate press releases on equity prices in a window [-1,5]. They conclude that public equity offerings by listed firms (referred to as Seasoned Equity Offerings, SEOs, here) have a statistically significant and negative effect on prices, with cumulative abnormal returns on average dropping 0.139%. Although both of the previously mentioned studies study the market reaction of SEO’s, the samples are different as Asquith and Mullins (1986) primary offerings from a sample of 128 industrial firms between 1963 and 1981. In contrast, Neuhierl (2013) had 2,629 observations from 2006 to 2009. Disparities in time periods and market norms could be an additional explanation for the discrepancy in the magnitude of the negative reaction.

Furthermore, *ceteris paribus*, public large scale equity issues has a negative signalling effect (Leland & Pyle, 1977). Corwin (2003) argues that SEO underpricing is more prevalent with larger offers, acting as a compensation for this higher risk. This is also supported by Scholes (1972) when he examines the price-pressure hypothesis. He implies that seasoned equity offerings can create temporary imbalances between supply and demand in the stock market, resulting in short-term price declines as the market absorbs the increased supply of shares.

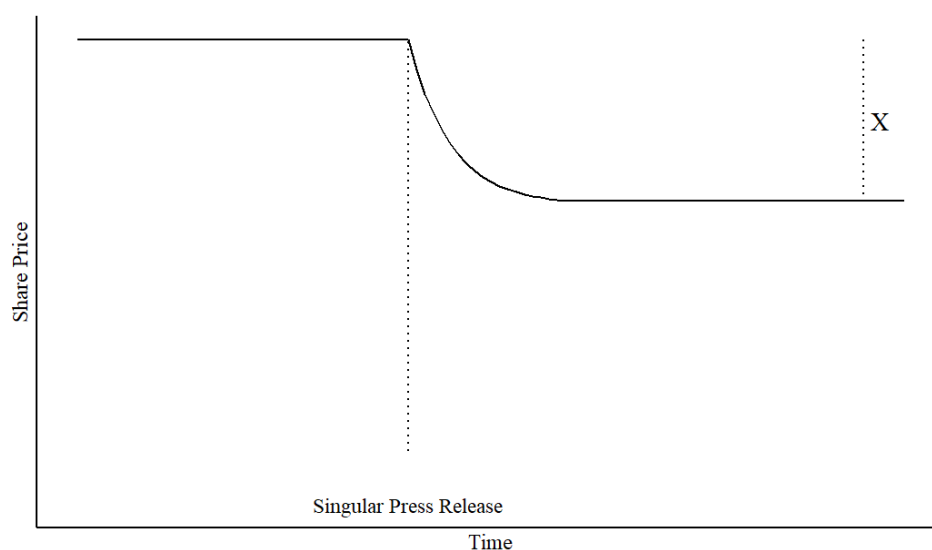
However, he observes that the price decline is persistent, which he attributes to an informational effect. A rights issue can be felt as an implicit signal that a company is struggling. In a *semi-strong* market with private information, debt financing can be a positive signal as the firm judges itself capable of meeting their obligations with their future cash flows. Hence, choosing equity financing sends a negative signal to investors (Ross, 1977). This aligns with the logic of the Pecking Order, where equity is considered as a last resort when internal and debt financing are insufficient (see section 2.2.2).

2.2. Applicable theories

2.2.1. Efficient Market Hypothesis

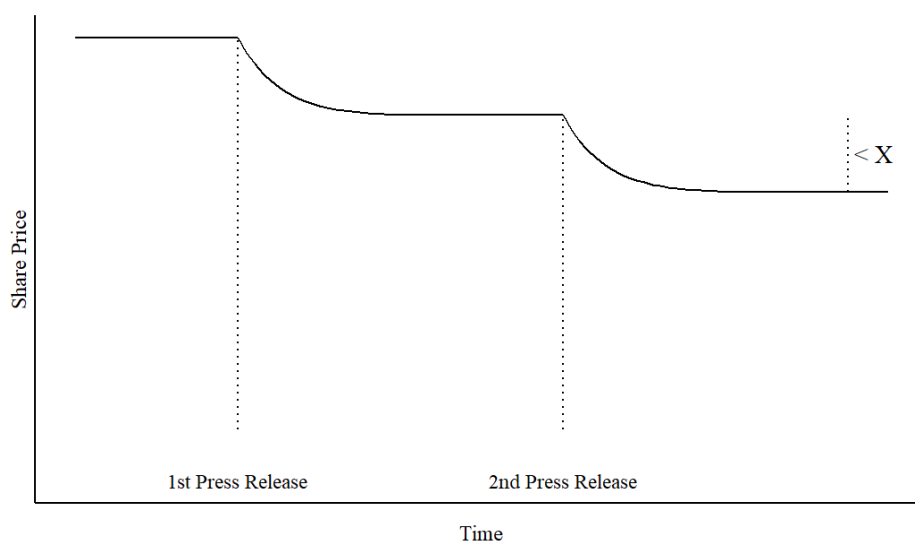
The market reaction to an equity issue is supported by the efficient market hypothesis (EMH). According to early research, the general definition of EMH states that capital market prices fully reflect all available information on the market (Fama, 1970). The extent of this definition varies as there are three forms discussed: the *weak*, *semi-strong* and *strong* form of the efficient market model. According to the *weak* model, prices reflect historical prices and performance. *Semi-strong* efficiency is more encapsulating, as the prices now incorporate all past prices and public information including recent announcements. The study finds some evidence against the *strong* efficiency which gives the most comprehensive and extreme form of the model. Here, all information, private and public are said to be included in the asset price. Following this logic, a press release announcing a preferential rights issue would have no effect on stock price, since the information goes from private to public. Furthermore, the *weak* form states that stock prices reflect historical data such as prices and returns and does not include the effect of new announcements on stock pricing. As studies show that public information, the announcement event, affects share price, we presume that the *semi-strong* model of the EMH is the most representative (Asquith & Mullins, 1986).

Figure 2. Share price effect with a single announcement, assuming semi-strong EMH



With a single announcement, firms issue a singular press-release detailing the final condition of the rights issue. Announcement of rights issues may create a negative signalling effect, leading to a price drop. X represents the assumed short-term decline in share price following the official announcement of the rights issue.

Figure 3. Share price effect with double announcements, assuming semi-strong EMH



With the Carnegie model, firms issue two separate press-releases. The first press-release announces the firm's intention to perform a rights issue, without detailing the final terms of the rights issue. The

second press-release, held subsequently, states the final terms of the issue. The announcement of the rights issue may create a negative signalling effect leading to a price drop. X represents a possible short-term decline in share price following the second announcement of the rights issue.

Assuming weak EMH, the share price is only a reflection of historical data and performance. Note that we do not plot a graph since the share price would not react to the press releases themselves, but rather when the shares are subscribed.

2.2.2. Information asymmetry

There is extensive research on the topic of information asymmetry in the context of equity issues. Many findings suggest that the presence of information asymmetry contributes to negative price reactions.

As illustrated in the “Market for Lemons” model, situations characterized by significant information asymmetry between negotiating parties often give rise to adverse selection problems (Akerlof, 1970). In the context of the “Carnegie model”, investors who believe they lack potential valuable internal information (e.g. financial health of the company or the true motives behind the rights issue), may adopt a pessimistic perception on the firm's future valuation. This can further be attributed to the financial principle of “Pecking Order” (Myers and Majluf, 1984), which suggests a preferred order in which companies seek financing; Internal financing (retained earnings), Debt financing (loans and bonds) and lastly, equity financing (new issue of shares). Equity financing being ranked as the least favorable option is due to flotation costs (e.g. underwriting fees, legal and accounting expenses) as well as the perception that “management knows best”. Investors may thus perceive equity offerings as a signal that the firm is overvalued and see it as a sign that they are unable to finance themselves. In turn, this leads to an adverse selection problem, particularly for companies that want to raise equity for growth rather than as a means of survival. As a result, these companies may have to compromise on pricing, issuing shares at a lower price than intended (Rock, 1986).

2.2.3. Other determining factors: Bounded Rationality and optimal market timing

Market conditions play a key role in shaping investor attitudes and their willingness to participate in equity offerings. During economic upswings, investor optimism and firm valuations tend to rise (Fama, 1990). Investors often exhibit bounded rationality (Simon, 1955), relying on broad macroeconomic signals rather than perfect information. They are more inclined to purchase shares they believe will yield positive returns. Thus, when economic indicators improve, equity investments tend to follow suit.

Theoretically, this suggests that firms should strategically time their equity offerings to align with periods of heightened investor optimism. Doing so would maximize capital raised, minimizing price drop of shares.

However, when the market is economically strained, companies facing capital needs have difficulties attracting investors. Consequently, these firms often compromise for a satisfactory result rather than an optimal one (Fama, 1990). In this context, the Carnegie Model helps bridge the gap between the dry demand and the urgent need for money. The Model attracts underwriters who benefit from more favorable pricing through an initial announcement that allows them to assess and negotiate based on market demand.

2.3. Understanding the model

2.3.1. Underwriting commitment : A guarantee with a premium

A rights issue allows companies to raise new capital from existing shareholders. With regards to specifically preferential rights issues, companies tend to want to raise quickly in order to achieve their strategic objectives. However, issuing rights does not imply full shareholder participation. This lack of shareholder engagement can be attributed to multiple factors. Firstly, negative signalling effects; If investors lack belief in the company, they will refrain from purchasing new shares (Scholes, 1972). Secondly, many shareholders may not afford to

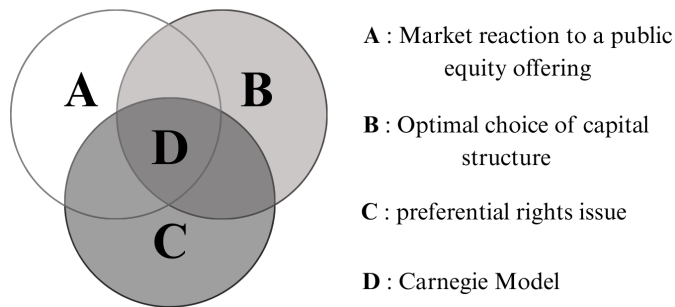
purchase these new shares (e.g. individuals, smaller companies) or find the subscription price unattractive. In the scenario that shares remain unsold, companies issuing the rights are left with insufficient funding.

As a result, many companies use underwriting commitments to ensure a satisfactory amount of capital is raised. Underwriting commitments entails an agreement between an issuing company and a guarantor. The underwriter, usually a financial advisor (e.g. investment bank), agrees to help the company find guarantors willing to buy any unsold shares in the issue. The portion of the rights issue that the guarantor covers ranges up to 100% of the shares. Additionally, they agree on the price at which the guarantors will purchase any unsubscribed shares. In return, the guarantor receives compensation for taking on the risk of buying the leftover shares, in either cash, stock or a combination. This is often calculated as a percentage of the total amount they are covering, often around 8-12%. The underwriters are remunerated for their administrative work surrounding the issue, approximately equal to 5-6% of the issue amount (Erik Nerpin, personal interview, 28th of February 2025).

Underwritten issues can benefit all parties involved. Firstly, it benefits shareholders indirectly. Without the agreement, some shares risk remaining unsold, leading to a decreasing share price. Next, the company naturally reaps the benefits from this deal. The presence of reputable underwriters can serve as a certification mechanism, mitigating adverse selection vis a vis investors. Respected financial institutions indirectly signal a belief in the company (Akerlof, 1970). Thus this commitment allows for three-fold benefits. The issuing firm is guaranteed capital assurance, the underwriting party (guarantors and financial advisors) can make a profitable deal, and shareholders are offered a protective mechanism against dilution of their shares value.

2.4. Implications of the Carnegie model

Figure 4. Research gap



There is currently substantial research on market reaction following public equity offerings and firms optimal choice of capital structure. However, the intersection of these fields, along with the relatively unexplored topic of rights issues forms a gap which we aim to fill with the “Carnegie Model”.

While research on equity offerings are extensive, studies on preferential rights are far less prevalent, especially those covering the Nordic financial markets. This lack of data combined with the novel nature of the model, highlights a significant gap in the literature.

There are, unavoidably, structural disparities between national financial markets and exchanges. For instance the presence of growth markets such as Nasdaq First North Growth, is characteristic of the Swedish market. This market, technically classified as a Multi Trading Facility (MTF), specializes in smaller, often early stage companies (Nasdaq). Unregulated markets play a significantly larger role in Sweden than in the United States, where such markets are far less prevalent.

While traditional economists such as Asquith and Mullins (1986) and Scholes (1972) provide valuable insights in terms of understanding overall market dynamics, their studies are more applicable to equity issues performed in the United States. U.S. stock exchanges are typically dominated by large-cap companies. Thus, Scholes’ finding that demand tends to absorb new supply over time, might only be due to the nature of the market. However, these conditions do

not apply to the same extent to Swedish growth markets. In such markets, the relative size of the issue is comparatively larger than in the case of larger-cap firms. The perceived risk of the issue might consequently be higher. Another important distinction is the shareholder base. Larger firms are held to a greater extent by institutional investors (De La Cruz, Medina, and Tang, 2022). For Sweden, approximately 40% of large firms' shares were held by institutional investors, compared to only 20% for small firms' shares in 2020. A similar trend was observable for US figures according to the paper from OECD. Institutional investors are also a more prominent owner in general in the US: by the end of 2020, institutional investors held around 75% of large firms' shares and 40% of small firms' shares. For Sweden, the corresponding figures are much lower, as previously stated. Smaller companies have less equity attributed to institutional investors. Their existing shareholders base might thus have limited financial capacity to subscribe to shares following an issue, particularly if it consists largely of retail investors.

When a rights issue is offered on the Swedish markets, the supply of shares increases significantly, often doubling the number of shares in circulation. This supply shock, combined with a thin shareholder base that is typically not composed of institutional investors, creates an imbalance in the market. Existing shareholders have limited ability to absorb the increased supply. They may sell their shares if they can obtain a price above the issue price, anticipating the ability to repurchase them in the issue. Consequently, restoring equilibrium often requires support from external parties.

In sum, the share price development on Swedish Nasdaq markets might be affected by factors beyond those explored in previous American studies, as they include smaller listed companies with high capital needs and a different shareholder structure.

2.5. Hypotheses

To achieve a more comprehensive and overarching analysis, our study is structured around two consecutive hypotheses.

First, we want to examine short term price drops following the second announcement made under the Carnegie Model structure. Here we will apply three event windows $[-15,15]$, $[-5,5]$ and $[0,1]$, focusing on the shortest event window $[0,1]$ (Asquith & Mullins, 1986). By testing the short-term reaction, we indirectly evaluate the level of market efficiency.

H1₀: For firms with two announcements, there are no short-term cumulative average abnormal returns following the second issue announcement.

H1₁: For firms with two announcements, there are short-term cumulative average abnormal returns following the second issue announcement.

Secondly, we examine the price volatility of shares, where the issue has followed the Carnegie Model structure and compare this to a control sample of companies whose equity issue follows the traditional set-up of one singular press release. In this second hypothesis, the same three event windows $[-15,15]$, $[-5,5]$ and $[0,1]$ are applied, with the reference point being the official announcement of the preferential rights issue with the full terms. Note that this corresponds to the second announcement occasion for firms using the Carnegie Model. We can thus formulate the following hypothesis.

H2₀: The abnormal returns following the official press release of the preferential rights issue are equal for firms with one and two announcements occasion.

H2₁: The abnormal returns following the official press release of the preferential rights issue are not equal for firms with one and two announcements occasion.

3. Methodology

3.1. Event study

The primary aim of the report is to analyze the effects that an extra press release informing investors of preferential rights has on stock pricing. We therefore choose our research method to be an event study allowing us to compare the abnormal returns in our two groups.

Our hypotheses are best examined using the one-factor market model, as the standard in event studies prescribes. According to MacKinlay (1997), the gains acquired from employing a multifactor market model are limited when applying short event windows. Multifactor models may include unnecessary variables with little explanatory power. Abnormal returns remain similar while there is little reduction in their variance. Additionally, multifactor models introduce cross sectional constraints as it prescribes equal returns for firms with same factor exposures (Fama, 1991). The market model is in this case more flexible to detect idiosyncratic abnormal returns, without imposing strong assumptions from asset pricing theory (multifactor models).

The second press release responsible for announcing the full conditions of the preferential rights issue is the event t around which we will measure the abnormal returns (AR). We register the closest valid trading day (excluding weekends and public holidays in Sweden) as the event day.

To test our first hypothesis, we have an event window length of 2 trading days with $[0, 1]$ to capture only short-term reactions from the second announcement on Group CM. Our second hypothesis will have an event window of 31 trading days $[-15, 15]$ to focus on the longer term reaction of the market and avoid capturing the window when the price stabilizes after the issue. Companies in Group CM are distinguished by having a first announcement expressing their intentions to undertake the issue, before the full conditions are announced (the event). In our sample, the average interval between these two public announcements is 32.5 days, with a 28 days median. To isolate the effects of the second announcement, the first announcement needs to fall outside of the event window. The left bound of -15 ensures this condition, with four exceptions. Additionally, we generate results for the event window $[-5, 5]$, allowing us to limit the presence of exceptions down to zero.

Note that communication around a preferential rights issue often occurs before the official conditions are posted. After the general meeting has approved to carry out the rights issues including all terms, the prospectus is posted shortly thereafter. Since the motive behind the extra general meeting is announced along with the outcome, some investors could foresee the rights issue happening and interpret it as a signal. This information leakage is however limited as any bulletin from the extraordinary general meeting with the subscription price is classified as a second announcement, unless the subscription price has been published previously in conjunction with the decision of the board of directors.

To estimate the parameters used in the market model, we set an estimation window of 120 trading days prior to the event window (MacKinlay, 1997). This gives us an estimation window of $[-135, -16]$ ensuring that the estimation window and the event window do not overlap.

3.2. Limitations of an event study

While we regard the event study method as the most suitable choice for our analysis, several limitations exist. Firstly, there exists uncertainties regarding the optimal length of the study horizon. It is common practice to select an event window larger than the specific period of interest to allow for an examination of the periods and information surrounding the event. However, choosing an excessively large event window risks incorporating unrelated market movements, which can distort the accuracy of the results. On the other hand, an event window that is too narrow may exclude relevant information (MacKinley, 1997). To address these challenges, we have adopted a complementary approach. We will conduct an initial $[0,1]$ event window to test our first hypothesis. For our second hypothesis testing, we will establish two additional event windows: $[-15,15]$ and $[-5,5]$. This approach will help us balance market movements before, during, and after the event.

We further acknowledge limitations within our specific event study. A primary limitation is our inability to perform a Randomized Controlled Trial (RCT) on our sample. Conducting an RCT would eliminate selection bias and control for confounding variables. However, since our study relies on observational data, there might be omitted variables impacting both the

price development of a stock and its selection to Group CM. As a result, the lack of randomization in the grouping process limits our ability to establish causality.

3.3. Abnormal returns

We quantify the price drop and the market reaction by calculating the cumulative average abnormal returns (CAAR) of the share prices over the entire event window. To calculate the CAAR, we go through the following steps.

Abnormal returns (AR) are defined as the difference between the actual return R_{it} and the expected return $E(R)_{it}$ for firm i at event date t . We will estimate $E(R)$ using the established statistical market model.

$$AR_{it} = R_{it} - E(R)_{it}$$

Averaging the abnormal returns for each day over the event window gives the AAR (average abnormal return) for each time t . Generating a figure across all issues allows us to draw overall conclusions for hypotheses tested. We use the following formula where N represents the number of separate preferential rights issues:

$$AAR_t = \frac{1}{N} \sum_{i=1}^N AR_{it}$$

We can also aggregate daily AR over the entire event window $[t_1, t_2]$ by entity. This gives us cumulative abnormal return.

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

We then aggregate the figure by adding the AAR of each day t over the event window $[t_1, t_2]$ to end up with the cumulative average abnormal return (CAAR):

$$CAAR(t_1, t_2) = \sum_{t=t_1}^{t_2} AAR_t$$

3.4. Single-factor market model

To estimate expected returns, we use the following market model formula. Here, R_i is the return for firm i at time t defined by α (alpha) which is the abnormal return for stock i , β_i (beta) corresponds to the sensitivity of stock i to the market movement, the R_{mt} is the market return at time t and ε_{it} is the zero-mean disturbance term (residual) for stock i at time t . ε_{it} has a variance of $\sigma_{\varepsilon i}^2$.

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$

The parameters of the market model alpha (α) and beta (β) are estimated using an ordinary least square (OLS) regression, over our estimation window. The results are used over the event window to define the abnormal returns. To quantify the market return R_{mt} , we use the Swedish market index OMX Stockholm PI (OMXSPI) encompassing all listed companies on the Nasdaq Stockholm exchange.

Plugging this in the formula for abnormal returns, we get the new following definition for abnormal returns:

$$AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt})$$

Note that we expect both cumulative abnormal returns in group CM and N to be negative, since equity offerings are negatively correlated with returns (Neuhierl, 2013). A press release expressing the intent to do a rights issue can be expected to crunch the actual returns, leading to negative abnormal returns.

3.5. Statistical tests and robustness checks

Brown and Warner (1985) showed that stock returns are often non-normal and include skewness as well as excess kurtosis (fat tails). In such cases, non parametric tests are used. In order to ensure appropriateness of statistical methods we therefore test for normality amongst abnormal stock return distribution. Here, we use the Jarque Bera test, which tests for skewness and kurtosis of the sample data compared to those of a normal distribution. If the

assumption of normality does not hold, we will employ a non-parametric rank test to test for the significance of our results. In fact, the non-parametric rank tests have shown to provide more reliable inference than do the standard parametric tests when examining Nasdaq stocks daily returns, making it a more robust choice for our study (Campbell and Wasley, 1993). Consequently, as we are comparing two related samples and comparing differences between their mean returns, we will use the Wilcoxon signed-rank test to test for the CAARs. In the case that normality holds, we will proceed with the parametric t-test to assess significance of results. These results will be complemented by a nonparametric Generalized-Rank GRANK test (Kolari & Pynnönen, 2011). We favor the GRANK-T over the GRANK-Z test, due to its robustness against cross correlation due to event day clustering.

Furthermore, our sample exhibits clustering with overlapping event windows and total clustering with identical calendar event days. To accommodate for this, MacKinlay (1997) proposes two methods. Our first alternative is to create a portfolio by aggregating abnormal returns by event time and treat it as a time-series for the t-test. Secondly, we could use a multivariate regression model with dummy variables for the event date and conduct the analysis on a firm-by-firm basis. Even if the second method is popular for cases with total clustering, it halts our aggregate-level CAAR analysis. The test statistic power is also weakened (MacKinlay, 1997). In sum, we decide to deal with cross correlation using the first method, that is to aggregate the returns based on the event date (AAR). But MacKinlay (1997) does highlight the issue of autocorrelation that arises with time-series. Using Newey-West standard errors adjusts for serial correlation and provides a consistent estimate of the variance, allowing us to validly test the statistical significance of the CAAR.

3.6. Sample and data selection

3.6.1. Preferential rights issues

Our data will come from Finansinspektionen under “Prospekt Registret” where we can find all rights issues carried out by companies listed on the Nasdaq Stockholm markets with an issue amount exceeding €2.5 million. Since 1st July 2019, the EU Prospectus Regulation (2017/1129) requires all public rights issues to post a prospectus. Only a few exceptions such as private offerings or small capital amounts (below €2.5 million) allowed an issue to pass

without prospectus. It is worthwhile to mention that a change in regulation has taken place affecting the necessity of prospectus. One of these amendments was adopted the 23rd of October, 2024 and entered into force the 1st of December, 2024.

The new changes now state that a company is no longer required to prepare a prospectus if it has been listed for overing 18 months (on either a regulated market or a growth market) prior to the official offering. This means that more established firms are not required to publish a prospectus, regardless of the amount issued. Furthermore, younger companies, under the condition that the number of shares offered in the issuing represents less than 30% of the shares listed, are also exempted from the requirement of publishing a prospectus. However, there are certain conditions that have to be met in order to be eligible for exemption; the company can not be in bankruptcy nor reorganisation. Additionally, all companies, regardless of exemption eligibility, must publish an 11-page document, with a specific checklist outlining required information. In turn, these new rules make it difficult to conduct future studies based on available prospectus publication. In order to follow a consistent selection criteria we continue to only include the firms for whom there is a full prospectus available on Finansinspektionen, even for offerings extending into 2025.

We will be studying rights issues with stock offerings conducted specifically on the Swedish stock market, between 1st of July 2019 to the 13th of February 2025.

There are a total of 383 observations from the 20th of August 2019 and the most recent taking place the 13th of February 2025. From Finansinspektionen, we include "Prospectus", "Simplified prospectus" and "EU-growth prospectus" as document types. We look at purely stock offerings.

To classify both types of preferential rights issues, we use Nasdaq's search engine for public press releases. Some searches give no results on the website. Consequently, we lose some of the observations. Table 1 below shows the filtering process for our final sample of observations. The number of corporate press releases reveal two distinct subpopulations.

Group CM (Carnegie Model): Rights issues displaying two press releases, the first expressing the intention to undertake the rights issue and a second with all the terms including subscription price and amount of shares issued.

Group N: Rights issues with a single press release disclosing all the terms of the issue.

Our second hypothesis compares CAAR for Group CM and Group N. Since this is not a RCT, heterogeneity between our two subsamples reduces comparability. To account for this, we filter by market capitalization (market cap) of the issuing firm at event date t . The interquartile range (IQR) of the market cap for Group CM firms reveals 9 outliers to the right. These few but extreme values affect the market cap distribution, skewing it to the right. In turn, the 95% confidence interval is disproportionality inflated. Instead, we filter Group N firms based on the IQR of Group CM firms to align their observable characteristics while excluding these extreme values. This approach is supported by Smith and Todd (2005), who highlight the importance of filtering out observations without comparable counterparts to reduce outliers who may introduce biases.

Table 1. Sample selection

	Number of observations		Total
	Group N	Group CM	
All prospects	-	-	923
Preferential rights issues	-	-	586
Press release available on Nasdaq	325	68	393
Available on Capital Iq	315	68	383
Market Cap lower than 3104 MSEK	302	_*	370
Total	302	68	370

**We do not trim outliers in Group CM as they are valid observations.*

Table 2. Prospectus type

	Prospectus	Simplified prospectus	EU-growth prospectus	Total issues
Group CM	10	40	18	68
Group N	11	73	218	302
Total	21	113	236	370

The majority of prospectuses classify as “EU-growth prospectus”, followed by “simplified prospectus” and classic “prospectus”. 302 of our observations are in Group N and 68 are in Group CM.

4. Findings and analysis

4.1. Description of data

This section presents a description of our data findings. Figures 5 through 7 in the appendix, provides an overview of the number of CM rights issues performed per year, as well as the dominating financial advisors. We observed that a total of 26 advisors took part in a CM rights issue during the studied period. However, to maintain clarity and comparability we chose to focus on the top 15 as they represent the most significant contributors in terms of issue volume.

While Carnegie remains the top financial advisor overall, their participation in CM deals seems disproportionately high compared to others. As observed their amount of issues under the CM significantly exceeds that of the other leading advisors in figure 7, and corresponds to more than half of their total rights issues (23 out of 44 issues).

Figure 6 and 7, provides intel on the leading financial advisors in terms of number of total rights issues performed and CM rights issues, respectively. Carnegie stands out as the leading advisor in both categories, handling the highest number of rights issues with and without CM. Notably, approximately half of Carnegie’s total rights issues involve a CM component, a proportion significantly higher than that of any other advisor

Table 3 and table 4 presents descriptive statistics of cumulative average abnormal returns (CAAR) of the second announcement and the official announcement following the second

announcement and the single announcement for Group CM and group N, respectively. All the means and medians are negative, indicating negative market reactions. Group CM displays a higher mean CAAR value than Group N for intervals $[-5,5]$ and $[0,1]$. However, for the event window $[-15,15]$, Group CM has a mean CAAR approximately twice as low as Group N. The cumulative average abnormal returns become less volatile as the event window shortens, with one exception in table 4 where window $[-5,5]$ has a slightly higher standard deviation than window $[-15,15]$. Positive outliers are only visible for Group N for the longer event windows $[-15,15]$ and $[-5,5]$. For the $[-5,5]$ event window both the 91st and the 99th percentiles are positive.

Table 3. Descriptive statistics of cumulative average abnormal returns (CAAR) for Group CM firms

	Min	Max	Mean	Median	SD	P91	P99
$[-15,15]$	-0.35381	-0.00863	-0.15409	-0.09761	0.13608	-0.02926	-0.01168
$[-5,5]$	-0.21699	-0.01114	-0.08351	-0.07881	0.07095	-0.01121	-0.01115
$[0,1]$	-0.08288	-0.04740	-0.06514	-0.06514	0.02509	-0.05059	-0.04775

Table 4. Descriptive statistics of cumulative average abnormal returns (CAAR) for Group N firms

	Min	Max	Mean	Median	SD	P91	P99
$[-15,15]$	-0.19067	0.00268	-0.08900	-0.09597	0.08427	-0.00093	0.00237
$[-5,5]$	-0.18440	0.00895	-0.08582	-0.08970	0.09070	0.00802	0.00885
$[0,1]$	-0.17189	-0.09486	-0.13338	-0.13338	0.05447	-0.10179	-0.09563

4.2. Hypotheses testing

4.2.1. First hypothesis

To test our first hypothesis, we can look at both AAR the day of the event ($t=0$) and the significance of the CAAR. The Jarque Bera test on AAR gives a p-value of 0.1655. We fail to

reject the null hypothesis at a 5% significance level, and we can assume the sample follows a normal distribution. The parametric t-test is applied to generate the following results in table 5. We can observe 9 negative significant average abnormal returns that over our event window at a 5% level. The lowest abnormal return across firms is for day 5, with a -5.4% AAR. Our first hypothesis seeks to examine the short-term returns following the second announcement (day 0). We can observe that stocks on average experience significant abnormal returns of -4.81% on the day of announcement at a 99% confidence level. This correlation assumes that the press release is published in the morning, allowing the market reaction to be recorded by the closing price. However, the negative development continues the next trading day with a significant average abnormal return of -3.62% at the 5% level. Beyond the immediate short-term, there are multiple negative significant AARs including for day -14, 4, 5, 6, 7, 8 and 9. These findings give support for our first hypothesis.

Table 5. Significance of AAR for Group CM

Day	AAR	t-stat	p-value	Day	AAR	t-stat	p-value
-15	-0.0066	-0.3651	0.7162	0	-0.0481***	-3.6701	0.0005
-14	-0.0173***	-2.6803	0.0093	1	-0.0362**	-2.5435	0.0133
-13	-0.0125	-1.4099	0.1632	2	-0.0065	-0.8011	0.4259
-12	0.0056	0.6142	0.5411	3	-0.0108	-1.5163	0.1341
-11	0.0004	0.0632	0.9498	4	-0.0350**	-2.3413	0.0222
-10	0.0016	0.2120	0.8327	5	-0.0540***	-3.5402	0.0007
-9	-0.0026	-0.3644	0.7167	6	-0.0289***	-3.2796	0.0017
-8	0.0100	0.9514	0.3448	7	-0.0337***	-3.9039	0.0002
-7	0.0010	0.1355	0.8926	8	-0.0404***	-4.3990	0.0000
-6	0.0166	1.5029	0.1376	9	-0.0211**	-2.0339	0.0459
-5	-0.0106*	-1.7543	0.0840	10	0.0017	0.2091	0.8350
-4	-0.0025	-0.1719	0.8641	11	-0.0011	-0.1497	0.8814
-3	0.0037	0.4259	0.6715	12	0.0084	1.4168	0.1612
-2	-0.0136*	-1.7024	0.0933	13	-0.0114	-1.1021	0.2744
-1	-0.0065	-0.9087	0.3668	14	0.0005	0.0941	0.9253

Day	AAR	t-stat	p-value	Day	AAR	t-stat	p-value
-15	-0.0066	-0.3651	0.7162	0	-0.0481***	-3.6701	0.0005
-14	-0.0173***	-2.6803	0.0093	1	-0.0362**	-2.5435	0.0133
				15	0.0031	0.4109	0.6824

*Significance is reported for the following levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$*
P-values are obtained with t-test

Computing the CAAR results based on a time series of AAR (aggregated across firms for each event date), as method 1 from MacKinlay (1997) suggests, raises issues of autocorrelation. We apply Newey-West standard errors (Newey and West, 1987). The following table 6 showcases the results for CAARs over the three event windows. As anticipated, standard errors are higher for the larger event windows, reflecting the increased variability introduced by additional data points. To assess our first hypothesis we primarily focus on the [0,1] event window. The cumulative average abnormal returns are significantly negative at the 5% level for all three event windows. After the final terms of the rights issue were disclosed, the stocks under the Carnegie Model underperformed by approximately 8.43% during the two following trading days. Thus, we can reject the first null hypothesis with 95% confidence, since there is a negative short term market reaction. These negative cumulative average abnormal returns are even more pronounced for the two more encompassing windows with a CAAR of -34.68% for the window [-15,15] and -22.02% for the window [-5,5]. The discrepancy in CAAR between Table 3 and Table 6 may be explained by the application of Newey-West standard errors in Table 6, which adjust for autocorrelation and provide a more robust statistical approach compared to the descriptive statistics in Table 3.

Table 6. Significance of CAAR for Group CM

Window	CAAR	SE	t-stat	p-value
[-15,15]	-0.3468***	0.0247	-14.0336	0.000
[-5,5]	-0.2202***	0.0211	-10.4342	0.000
[0,1]	-0.0843**	0.0034	-24.4518	0.026

Note that p-values are rounded and never equal to 0
*Significance is reported for the following levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$*

Despite the assumed normality of our average abnormal returns in Group CM, a non-parametric test can ensure the robustness of our previous results. The GRANK test is applied testing the distribution of the firm-level cumulative abnormal returns (CAR). We specifically apply the GRANK-T test that is appropriate for clustering and short event windows. The GRANK t-statistics are negative for all three windows at a 99% confidence level. We reject the null hypothesis of no event effect on cumulative abnormal returns. The results indicate that the distribution of CARs across stocks was significantly negative over the three event windows. In accordance with hypothesis 1, a short-term negative market reaction is observable in the window [0,1] further enforcing our previous findings. Interestingly, the largest negative GRANK statistic of -7.3994 is in the event window [-5,5]. Although it covers fewer days than the window [-15,15], the magnitude of GRANK may be due to higher negative returns around the event date.

Table 7. Significance of CAR distribution for Group CM

Window	GRANK	p-value
[-15,15]	-5.9787***	0.0000
[-5,5]	-7.3994***	0.0000
[0,1]	-5.0736***	0.0000

Note that p-values are rounded and never equal to 0

*Significance is reported for the following levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$*

4.2.2. Second hypothesis

The Jarque Bera test is applied on the AAR across firms in Group N. With a p-value smaller than $2.2e-16$, we reject the null hypothesis of normality at a 5% significance level. As the GRANK test is not viable when comparing between two groups, we will not apply it here.

Instead, the non-parametric Wilcoxon rank-sum test allows us to quantify the difference in the distribution of CARs between two independent groups. Even if the test does not rely on any assumptions regarding the underlying distribution of CARs, it does not adjust for cross correlation. Since there are overlapping event windows in our two groups, we compute a correlation matrix to check for the level of cross correlation for each of the issuing firms.

For group CM, we find an average cross correlation value of 0.0471 and for group N a value of 0.0755. These results indicate a low level of cross sectional dependence. As a result, we deem that the Wilcoxon rank-sum test remains the most appropriate choice for our second hypothesis. While the recorded presence of cross sectionality implies a violation of the test's assumptions, we do not consider it significant enough to invalidate the use of this test. However, we acknowledge this limitation and its potential implications on results. The null hypothesis that the CARs of both groups follow a distribution with the same central tendency is rejected at the 1% significance level for the windows [-15,15] and [-5,5]. Thus we find support for our hypothesis 2 and can reject the null with 95% confidence for window [-15,15] and [0,1].

Table 8. Significance of Wilcoxon rank-sum two-sided test

Window	W-statistic	p-value
[-15,15]	12550***	0.0042
[-5,5]	11246	0.2199
[0,1]	8006***	0.0045

*Significance is reported for the following levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$*

The two-sided alternative of the Wilcoxon rank-sum test enlightens us about the disparities of CARs between our two groups. To settle which group's distribution of CARs is centered around the smallest value, we need a one-sided test. Here we test the null hypothesis that Group CM has a smaller median CAR than Group N. We effectively reject the null at the 1% significance level in the window [0,1]. The windows [-15,15] and [-5,5] do not exhibit

significant results. The negative abnormal returns are greater for Group N in the window [0,1] with a significant lower CAR median of -11.14% than Group CM at -5.85%.

Table 9. Significance of Wilcoxon rank-sum one-sided test

Window	Median CAR Group N	Median CAR Group CM	W-statistic	p-value
[-15,15]	-0.1519	-0.3056	12550	0.9979
[-5,5]	-0.1450	-0.2100	11246	0.8903
[0,1]	-0.1114	-0.0585	8006***	0.0023

*Significance is reported for the following levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$*

4.3. Summary results

Table 10. Hypothesis results

	Hypothesis	Decision	Window
Hypothesis 1	H1 ₀ : $CAAR_{CM} = 0$	Reject the null	[-15,15]
	H1 ₁ : $CAAR_{CM} \neq 0$	Reject the null	[-5,5]
		Reject the null	[0,1]
Hypothesis 2	H2 ₀ : $CAR_{CM} = CAR_N$	Reject the null	[-15,15]
	H2 ₁ : $CAR_{CM} \neq CAR_N$	Fail to reject the null	[-5,5]
		Reject the null	[0,1]

While our hypothesis 1 focuses on short-term effects, we report longer windows for completeness. Statistical significance in [-15,15] and [-5,5] should be interpreted as supplementary.

5. Discussion

In this section, we will discuss the findings and results obtained in the previous sections. The analysis of our two hypotheses has helped us to reach our research objective, which is to understand the extent to which an extra press-release can limit price-drop after full terms are released. Our findings align with previous literature, such as Asquith and Mullins (1986) and Neuhiel (2013), whose research prescribes a negative price reaction following an equity offering. Our results support that these effects also extend into preferential rights issues. Furthermore, we find that the short-term cumulative abnormal returns (CARs) for Group N are more negative than for group CM in the window $[0,1]$. This partially supports our initial prediction that an extra announcement can serve as a buffer against price drop.

The results of the tests performed for our first hypothesis indicate that there are short term cumulative average abnormal returns for firms with two announcements following the second issue announcement during the $[0, 1]$ event window. The two-day window is supported by Asquith and Mullins (1986) to capture short-term market reaction. Our sample exhibits a stronger reaction of -8.43% compared to the findings of -3% (Asquith and Mullins, 1986). However, we also test for the two larger windows $[-15,15]$ and $[-5,5]$. The negative CAAR grows as the windows expand. This suggests the existence of negative average abnormal returns in days distant from the event date. Since the firms in Group CM have already announced their intention, the negative figures are not surprising. One reason could be that the negative market reaction of the first announcement impacts our event window. By rejecting the null hypothesis that states no reaction, we challenge the validity of the strong form of efficient market hypothesis which prescribes that all information available is fully reflected in stock price (Fama, 1970). As such, would the EMH have held, the market reaction should have already occurred prior to the event date when the Board finalized the terms, leaving no significant post-announcement abnormal returns. Settling on the semi-strong form of EMH, we can subsequently compare the market reaction of Group CM and Group N to the event.

The findings from our second hypothesis testing indicate that the abnormal returns following the official press release of the preferential rights issue are not equal for Group CM and Group N. By rejecting the null hypothesis, we can confirm that a second announcement is associated with a measurable difference in returns, suggesting it holds real-world relevance.

Firstly, the Wilcoxon rank-sum test results indicate that there is a statistically significant difference in distribution of abnormal returns between the two groups for the intervals $[0, 1]$ and $[-15, 5]$ with a p-value below 0.01. The Wilcoxon rank-sum one-sided test, on the hand, provides us with the median CAR values for both groups. For a short-term window $[0,1]$, Group N experiences a stronger negative market reaction (lower abnormal returns). Indeed the median CAR for Group N reaches -11.14% compared to Group CM at -5.85%. These findings conform to our expectation that firms with two announcements experience a smaller drop than firms with only one. This further supports our belief that an additional announcement can limit the price decline that usually follows the official announcement day. The market seems to have already absorbed part of the negative signaling following a rights issue which could alleviate the price setting in the underwriting process. Observing the market reaction, the issuing firm and the advisors can thereafter determine an appropriate price at which the guarantors subscribe to the remaining shares.

The findings presented in figure 5 indicate a significant increase in CM rights issues in 2023 compared to previous years, likely attributed to one of the most challenging financial periods for the Swedish economy in the last six years (Reuters, 2025). In 2023, Sweden faced a GDP contraction of 0.3% (World Bank, 2023), while the proportion of CM deals in relation to total rights issues surged from 13% in 2022 to 24%. This suggests that CM deals are often associated with economic downturns, a trend evident in the subsequent decrease in deals and CM proportion in 2024 as the economy began to recover.

The increased frequency of rights issues appears to be linked to shifts in investor sentiment. In times of economic strain, investors often become more cautious and risk-averse. It is thus reasonable to assume that companies grow increasingly desperate for external financing.

In such markets, where a fully subscribed issue is implausible, the Carnegie Model can readjust the supply of shares to match the weakened demand. The issuing firm relies on external parties for funding to sustain operations and promote growth. When the underwriters negotiate the strike price at which the guarantors will purchase the unsubscribed shares, opposing incentives tend to push the price in different directions. It is in the firm's best interest to secure the highest possible strike price in order to support the share price and

mitigate the risk of a potential decline if guarantors are required to step in and cover the issue.

The company may be biased and hold an overly optimistic view regarding the development of its prized company. In contrast, for guarantors, the underwriting commitment becomes increasingly risky as the strike price rises, leading them to advocate for the lowest possible price. However, none of the parties can predict the future. To settle the negotiation and agree on a price, they have the opportunity to consult an unbiased third party: the market itself. To test the waters, an additional announcement before establishing a final strike price allows them to examine market demand and monitor price movements. This provides an estimation for where share prices may settle. Ultimately, the Carnegie Model serves as a useful stepping stone in reaching an agreement.

6. Conclusion

This paper examines the extent to which an additional press release stating the intention to perform a rights issue can limit the price drop after full terms are released. The event study conducted to explore this question is based on data and observations from the Swedish Financial Supervisory Authority (Finansinspektionen) and Nasdaq, covering the period from July 1st, 2019, to February 13th, 2025.

The market and timeline chosen provide for an interesting context. It captures a period filled with turbulence and market movements. Furthermore, Swedish financial markets present a unique environment with a high prevalence of preferential rights issues, making it well suited for such an analysis. Previous research conducted regarding equity offerings is often based on the American financial landscape, limiting its applicability to our study. We contribute with insights from the Swedish markets, both regulated (Nasdaq Stockholm) and non-regulated (Nasdaq First North Growth).

Foundational works such as Asquith and Mullins (1986), as well as more recent research by Neuhierl et al. (2013), find that share prices decline following an equity offering. Our results

are consistent with their findings. By comparing the distribution of cumulative abnormal returns over our two samples, we can conclude that they possess significantly different tendencies. They are both negative, but Group CM experiences lower CARs than Group N in the longer event window, possibly due to delayed reactions to the first announcement. The opposite is true for the two-day window. In accordance with Asquith and Mullins (1986), the short-term abnormal returns are negative for the two groups. However, Group N exhibits the steepest drop, indicating market surprise. Further contribution is made when examining the validity of the strong form of the EMH model (Fama, 1970). Our results indicate a presence of short-term cumulative average abnormal returns following the second announcements for Group CM, leading us to question the soundness of the theory.

Our study has some limitations that are important to assess. Since this is a new model, not all of our observations from Group CM are identical. The period between the first and the second announcement may vary, which in turn may interfere with our results. Additionally, certain earlier observations fall under a “gray zone” of the Carnegie Model, possessing similar but not identical characteristics. For instance, we did not distinguish between the intentions behind the press releases, possibly creating noise in our sample. The relatively small sample size of 68 Carnegie Model rights issues may also introduce overestimation of effects and a higher risk of bias.

Despite the weaknesses in our study, we still believe that it can serve as a solid foundation for future research. As we examine abnormal returns associated with the second announcement, we disregard any effects from the first announcement. A relevant future study would be to examine the total dilution effect both with and without the model, comparing the TERP (theoretical ex-rights price) to the unaffected share price prior to any announcements. However, the recent changes made to the EU Prospectus Regulation may increase the difficulty in identifying prospectuses, potentially limiting the sample size. Another insightful approach would be to complement this quantitative topic with a qualitative element: exploring the underwriters' strategic motive behind the decision to pursue an extra press release. However, company policies and confidentiality concerns may prohibit a transparent disclosure of this information.

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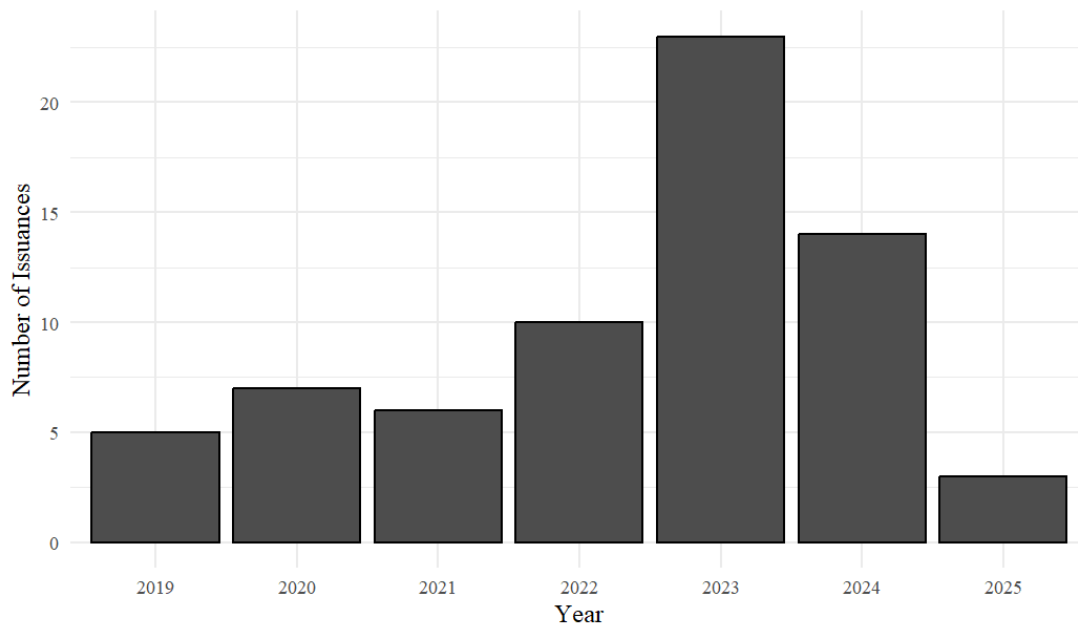
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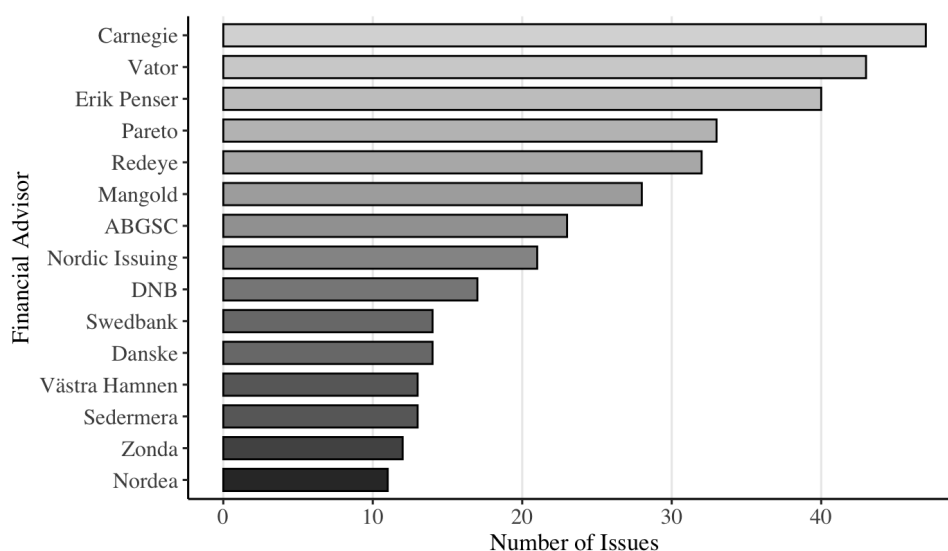
8. Appendix

Figure 5. Total number of Carnegie Model Rights Issues performed per year between July 2019 - March 2025



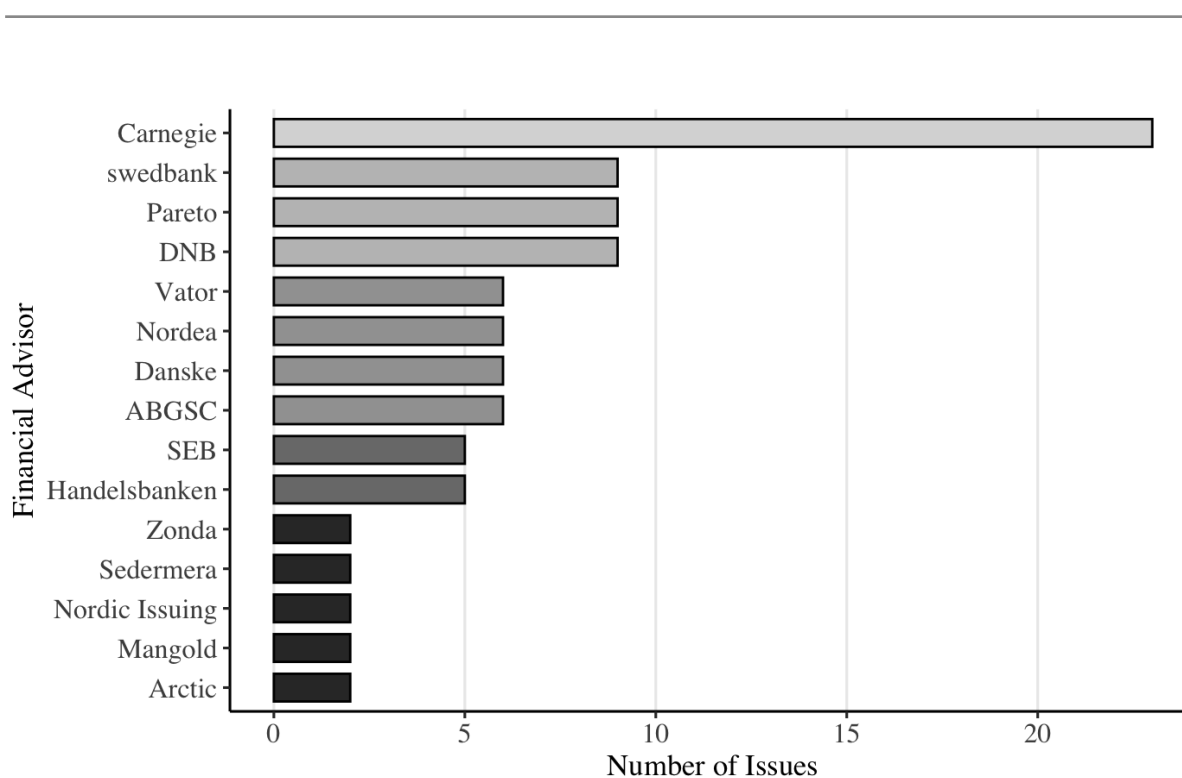
With a total score of 68 deals, we can observe an overall increase in the frequency of CM issues in the last few years with an upturn in 2022, and a significant spike in 2023. A total of 25, 57, 40, 77, 94, 72, 5 rights issues were conducted in 2019 through 2024, respectively.

Figure 6. Top 15 Financial Advisors by Total Number of Rights Issues



**Multiple advisors can underwrite a deal. The number of issues shown refers to how many deals each individual advisor took part in over the years, causing certain issues reflected in the plot to overlap. Three prospectuses are not included in this plot as neither their financial advisor nor their issuing institution was stated in their official prospectus announcement. 370 issues are included. Erik Penser Corporate Finance was acquired by Carnegie in 2023, forming Penser by Carnegie which is categorized as Carnegie (Carnegie).*

Figure 7. Top 15 Financial Advisors by Number of Carnegie Model Rights Issue



**Multiple advisors can underwrite a deal. The number of issues shown refers to how many deals each individual advisor took part in over the years, causing certain issues reflected in the plot to overlap. 68 issues are included.*

Table 11. Descriptive statistics of abnormal returns (AR) for Group CM firms

	Min	Max	Mean	Median	SD	P91	P99
[-15,15]	-1.4729	1.0547	-0.3468	-0.3056	0.5056	0.3240	0.7675
[-5,5]	-0.8812	0.9170	-0.2202	-0.2100	0.2856	0.1140	0.4467
[0,1]	-0.5513	0.3945	-0.0842	-0.0585	0.1561	0.0655	0.2257

Table 12. Descriptive statistics of abnormal returns (AR) for Group N firms

	Min	Max	Mean	Median	SD	P91	P99
[-15,15]	-0.83791	1.99653	-0.00480	-0.00293	0.09065	0.05772	0.21995
[-5,5]	-0.83791	1.99653	-0.01630	-0.00608	0.11749	0.05538	0.23467
[0,1]	-0.83791	1.99653	-0.08595	-0.02993	0.20453	0.04291	0.20620

Table 13. Abbreviated and full legal names of financial advisors

ABGSC	ABG Sundal Collier
Arctic	Arctic Securities
Carnegie	Carnegie Investment Bank AB
Danske	Danske Bank A/S
DNB	DNB Bank ASA
Erik Penser	Erik Penser Bank AB
Handelsbanken	Svenska Handelsbanken AB
Mangold	Mangold Fondkommission AB
Nordic Issuing	Nordic Issuing AB
Nordea	Nordea Bank Abp
Pareto	Pareto Securities AB
Redeye	Redeye AB
SEB	Skandinaviska Enskilda Banken AB
Sedermara	Sedermara Corporate Finance AB
Swedbank	Swedbank AB
Vator Securities	Vator Securities AB
Västra Hamnen	Västra Hamnen Corporate Finance AB
Zonda	Zonda Partners AB

AI-Disclosure

When writing this thesis we have taken help from both ChatGPT 4o and Grammarly. We used ChatGPT as an assistance tool when troubleshooting and adjusting our R codes, as well as help with spelling and finding alternative synonyms. With regards to spelling, punctuation and ensuring correct phrasing throughout the text, we took some assistance from grammarly. We believe that the combination of the two platforms aided in increasing the quality and clarity of our research paper, helping us refine certain elements of our work.

However, there are noticeable limitations associated with generative AI tools, specifically ChatGPT. While they serve as helpful tools, generative AI does not possess critical thinking. It bases its assumptions and findings on several different sources, which combined with the lack of analytical reasoning makes it an unreliable source. To reduce the risks associated with its usage, we made sure to double check the information it generated with a legitimate source.

This insight taught us the importance of thinking with a critical eye and not believing everything you read. However, if you acknowledge its limitations it can definitely serve as a valuable tool.