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The Friday Effect in Profit Warnings: Evidence from the Swedish Stock Market

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Abstract

The objective of this study is to examine whether investors on the Swedish stock market react differently to profit warnings announced on Fridays compared to other weekdays. Drawing on theories in behavioural finance, specifically investor inattention theory, and using event study methodology, the paper analyzes abnormal stock returns before, during and after the disclosures. The sample includes 193 profit warnings issued by firms listed in Sweden between 2000 and 2024, of which 69 were released on a Friday. To address potential selection bias, both a full sample and matched-subsample analysis were conducted. The results show that there is no statistically significant difference in cumulative average abnormal returns between profit warnings announced on Fridays and those released on other weekdays during the [-1, +1] event window, neither for the full sample nor the matched-subsample. These findings suggest that the so-called "Friday effect," previously observed in the U.S. market, does not appear in the Swedish market, possibly because of the smaller size of the Swedish stock market, the differences in regulatory disclosure environment and the lack of pre and post market in Sweden.

Keywords: Profit Warning, Efficient Market Hypothesis, Behavioural Finance, Investor Inattention, Friday Effect

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1. Introduction

On June 29, 2018, Facebook announced that it had accidentally shared user data with several third-party companies (Gadwalladr & Graham-Harrison, 2018). On June 16 in 2017, Uber released a report uncovering sexual harassment within the company's workplace (Solon, 2017). On September 17, 2021, President Biden publicly confirmed that a U.S drone strike in Kabul had mistakenly killed ten civilians (Lopez, 2021). Although these announcements differ in content, they have one detail in common, they were all released on a Friday. This practice known as "Friday news dump" is based on the idea that disclosures made on Fridays tend to receive less public attention and media reactions. It is a communication strategy commonly used in industries where public perception, regulation or stakeholder reaction can have serious consequences, particularly in the stock market.

However, this tactic should not be effective in the financial markets, at least not under the assumptions of the Efficient Market Hypothesis (EHM). Proposed by Fama (1970), EHM states that the asset prices in the financial markets fully and immediately reflect all available information at all times. EHM is divided into three forms: the weak form where all historical trading data is incorporated into current prices; the semi-strong form, where it reflects all publicly available information; strong-form, where even inside information is already included in the prices. If markets were truly efficient under the semi-strong form, the timing of a disclosure, whether it's announced on a Monday or a Friday, should not influence how fast or accurately that information is incorporated into stock prices.

In contrast, the literature in behavioural finance challenges this view by arguing that investors are not always fully rational and do not consistently process information efficiently. Instead, psychological biases and emotional decision-making often shape investors behaviour. For example, overconfidence (Barber & Odean, 2001), herd behavior (Fromlet, 2001), and loss aversion (Kahneman & Tversky, 1979) tend to lead to systematic mispricing in the markets (Shive, 2010). These observed investor behavioural patterns challenge the assumptions of EMH by showing that prices do not always fully and instantaneously reflect all available information at all times.

One relevant line of research within behavioural finance is investor inattention theory, which offers an explanation to why information is not always immediately reflected in prices. When investors are overwhelmed with information, they have a harder time processing all the information equally, as a result they allocate less attention to some announcements and more to others (Gabaix et al., 2002). In turn, investors may overlook or underreact to announcements because their attention is elsewhere (Hong and Stein, 1999). This investor behaviour can be influenced by several factors, for example the volume of announcements released on a given day (Hirshleifer et al., 2009), the degree of analyst coverage (Hong et al., 2000), or the timing of the announcement (DellaVigna and Pollet, 2009).

The influence of timing of announcements on investor inattention and its implication on the market reaction is of focus in this study, particurarly the so-called “Friday effect”. This market phenomenon, documented in prior studies primarily conducted in the U.S. market, have found that corporate announcements receive weaker stock price reactions on Fridays compared to on other weekdays. For example, DellaVigna and Pollet (2009) investigated the Friday effect in the context of earnings announcements and Louis and Sun (2010) examined its presence in relation to merger announcements, both finding weaker reaction on Fridays. However, the evidence is not fully consistent. This after Michaely et al. (2016) reported no sign of the Friday effect when analyzing the same announcements types in addition to four others.

This study contributes to the existing literature by examining the Friday effect in a new context, focusing specifically on profit warnings within the Swedish stock market. Unlike prior U.S. studies that predominantly concentrate on scheduled announcements, such as earnings announcements, this research focuses on unscheduled disclosures under Sweden’s continuous disclosure environment, where listed firms are obliged to communicate sensitive information as soon as possible (Finansinspektionen, 2024). By combining a unique type of disclosure with a stricter regulatory environment, this research offers new insights to the field of investor inattention and to the broader understanding of market efficiency in Sweden. Thus, this study seeks to answer the following research question: *Is there evidence of the Friday effect in the Swedish stock market in the context of profit warnings?* To investigate this, the study employs an

event study methodology to examine stock price reactions to profit warnings released on Fridays versus those announced on other weekdays.

This study offers relevant insights into several stakeholders. Regulators may use the paper to understand if the current legislation is sufficient in hindering strategic timing and supporting market efficiency. Listed firms gain a better understanding of how the day of the announcement of the profit warning, specifically Friday versus non-Fridays, influence how they incorporate the disclosure. Lastly, investors can use the findings of this study to adopt their expectations and trading strategy.

The results point to a clear conclusion: The Swedish market reacts similarly to profit warnings regardless whether they are announced on a Friday or another weekday. This holds for both the immediate market reaction, comprising the day before, the event day, and the day after, as well as the extended window spanning ten days before and after the event. This conclusion was derived from finding no statistical significance difference between the Friday and non-Friday cumulative average abnormal return over the shorter and longer window.

The rest of our study is structured as follows: In Section 2 the literature review is presented Section 3 describes the sample selection and methodology applied. Section 4 presents the results and analysis, and Section 5 discusses the findings. Lastly, Section 6 concludes the study, states the possible limitations of our study and provides suggestions for future research.

2. Literature Review

2.1 Market Reaction to New Information

The literature of finance has developed several approaches to measure how the market reacts to new information. One of the most used methods is the event study methodology. This methodology is used to calculate the abnormal return, the difference between expected and actual return, during a predefined period, commonly referred to as event window, around a news event, such as the release of a profit warning. The abnormal return of the stock price is often used to assess the market response of the event (MacKinlay, 1997). If a stock experiences abnormal returns in response to an announcement during an event window, it signals that the market did not fully incorporate the new information immediately, resulting in over or underreactions which indicates temporary market inefficiency. This approach was introduced by Ball and Brown (1968) and they demonstrated that stock prices systematically respond to earnings announcements, which laid the foundation for market reaction research. In addition to price-based studies, researchers also employ the volume of a stock price as a measure of reaction, where a sharp increase in volume typically signals more investor activity. Beaver (1968) adopted this metric early and showed that volume and return variance surges around the announcement of earnings reports.

In the past decade, researchers have extensively used the event study methodology to assess the market reaction to a wide range of corporate disclosures. One of the most frequently studied announcements are earning announcements. Research finds that they generally lead to abnormal returns in the direction of the earnings surprise (Ball & Brown, 1968; Beaver, 1968). For instance, a positive earnings surprise often leads to positive abnormal returns and vice versa. Another area of research is the market reaction to mergers and acquisition announcements. Jensen and Ruback (1983) reviewed existing empirical studies examining the market response of targets upon takeovers and found that they generally experience cumulative abnormal returns (CARs) of around +20% to +30%, during the event window which varied between 7 to +60 months after the event. Conversely, they observed that acquirer firms recorded CARs spanning between -1% to +2%, depending on the characteristics of the deal. Dividends change

announcements also generate significant market reactions. During the announcement day of increased dividends, which is generally perceived as a sign of strong financial health, Petit (1972) documented that firms stock prices experienced a significantly positive average abnormal return (AAR) of around 1% to 3% during the event window of one day prior and post the event [-1,1]. In contrast, Aharony & Swary (1980) observed a significantly negative average abnormal return of -6% to -7%, using the same event window, in response to the announcement of dividend cuts. These examples highlight the broad application of event study methodology in measuring the information content of corporate disclosures.

2.2 Foundations of Market Efficiency and Investor Behaviour

2.2.1 Efficient Market Hypothesis

The Efficient Market Hypothesis (EMH) states that stock prices fully reflect all available information at all times. According to the EMH stock prices efficiently adjusts information, both at the individual stocks level and across the stock market. Therefore, it would not be possible for investors to achieve abnormal returns through fundamental or technical analysis (Fama, 1970; Malkiel, 2003). This theory implies that when new information is disclosed to the market, such as an earnings announcement or profit warnings, the price immediately incorporates it into the stock price, making it impossible for investors to capitalize on the price-patterns of stocks (Peteros & Maleyeff, 2013).

As mentioned in the introduction, Fama (1970) categorizes the market into three levels based on how efficiently the price of a stock adjusts for new information. The different levels are: weak, semi-strong, and highly efficient. Under the weak form, all historical trading data is incorporated into stock prices and it is impossible for an investor to act on technical price patterns in order to outperform the market. The only way for an investor to earn abnormal returns under these conditions is by acting on non-disclosed information, or insider-trading. If the market is highly efficient, the assumptions of strong-form hold, which states that all information, including private information, is already incorporated in the current stock prices. Therefore, it is impossible for investors to earn excess returns (Fama, 1970).

2.2.2 Behavioural Finance

The EHM theory states that investors are rational and unbiased in their decision making (Fama, 1965a). However, empirical evidence holds a contradictory view, arguing that investors do not at all times act in ways that are predicted of them. This arises as the behavior is influenced by the surroundings, leading to irrational and emotionally driven decision making (Shive, 2010). Irrational behavior is partly explained by behavioural finance theory, which investigates the role psychological factors play on investors decision-making and influence on the dynamics of the financial markets. In comparison to traditional finance theory, this area of the literature focuses on describing how investors actually behave in the markets, instead of defining how investors ought to act (Peteros & Maleyeff, 2013).

The research in behavioral finance emerged as the academic focus began to shift from solely econometric analyses of time-series data, like prices, earnings and dividends, towards models and theories rooted in human psychology and its impact on the markets. Frankfurter and McGouns (2001) states that the reason for this shift is because researchers documented too many market anomalies which could not be explained by the theory of efficient markets.
Tversky and Kahneman (1986) describe a market anomaly as an indicator that the markets are inefficient. The literature of behavioral finance is extensive and explores a wide range of areas, such as investor psychology, market anomalies, decision-making heuristics and the impact of emotional driven behaviour.

The following section will explore the following investor behaviour concepts: Herding behaviour, loss aversion, disposition effect, confirmation bias and investor inattention. The rationale for this is based on the fact that these concepts are frequently cited in the existing literature on the Friday-effect as an explanation to the documentation of systematic deviation from rational-decision making (DellaVigna & Pollet, 2009; Louis & Sun, 2010; Michaely et al., 2016). In particular, these concepts are relevant for understanding what drives investors to underreact to corporate disclosures or overreact.

2.2.2.1 Herding Behaviour

Behavioral finance states that investors do not randomly depart from rational behaviour. Instead, they deviate systematically and in response to other market participants (Shleifer, 2000). This is commonly referred to as herding behaviour, which is when investors base their financial decisions only on the action of other investors (Bikhchandani & Sharma, 2000). This behaviour is often categorized into unintentional and intentional herding. The latter occurs when investors intentionally follow the behavior of others, while unintentional herding is present when investors act in line with publicly available information, such as an analyst report (Bikhchandani & Sharma 2000). This behaviour is amplified by the fact that investors, who act as the herd, attract other market participants to follow which in turn continues to draw new investors into the herd. In turn, stock prices exhibit systematic over and underreaction in response to new information (Fromlet, 2001).

2.2.2.2 Loss Aversion and Disposition Effect

The behavioral economists Kahneman and Tversky (1979) introduced the concept of loss aversion which suggests that investors generally dislike realizing losses more than they enjoy stock gains. This results in irrational investments decisions driven by the desire to avoid the pain of losses. This concept was built upon by Shefrin and Statman (1985) who introduced the disposition effect, after finding a behavioral pattern where investors tend to sell winning stocks too early and hold onto losing ones for too long. Shefrin and Statman (1985) argue, consistent with Kahneman and Tversky (1979), that this investor behavior is a result of investors letting emotions and biases guide their decisions. In turn this contributes to market inefficiencies and mispricing of stocks. For example, if investors hold onto a losing stock when the firm issues a profit warning, it may prevent the stock from adjusting to new levels immediately, which challenges EHM.

2.2.2.3 Confirmation Bias

Furthermore, the confirmation bias concept was first introduced in the psychology literature by Wason (1960), and was later applied to finance by Kahneman and Tversky (1974). This concept

is a cognitive bias where investors tend to remember, seek out and favor information that aligns with their existing investor beliefs, while contradicting information is ignored to a certain extent. Barberis et al. (1998) applied this concept in an investor behaviour model, showing that it significantly leads to investor overconfidence, suboptimal and irrational decisions. Over time, this contributes to market inefficiencies such as delayed response to negative news as investors are confident in their own investment beliefs (Barberis et al., 1998).

2.1.2.4 Investor Inattention

Investor inattention is another concept in behavioral finance that is particularly relevant to this study. This refers to the tendency of market participants to miss, overlook or respond with a delay to new information because of the brain's limited cognitive capacity (Hong and Stein, 1999). Today, people are bombarded with information, both at work and in their personal life, and it is impossible to process and act upon all information. Peng and Xiong (2006) describes investor attention as a scarce resource that prefers to focus on the broader market rather than firms specific information. Investor attention can become divided by competing news, time constraints or cognitive fatigue. When this happens, investors are less likely to react immediately and effectively on new market information. In turn, this results in delayed market reactions and systematic mispricing, contributing to inefficiencies in the markets (Hirshleifer & Teoh, 2003; DellaVigna & Pollet, 2009).

2.3 Profit Warnings as an Information Event

The corporate disclosure of interest in this study is profit warnings, which are press releases that companies listed on the stock market are obliged to issue to inform stakeholders that the firm's revenue or earnings will be below analysts estimates. In Sweden, profit warnings are generally disclosed via the listed firms investor relations channel and distributed through financial news services such as Nasdaq’s news distribution. The information content typically includes a revised forecast informing that revenues are expected to fall short of previous guidance or market expectations. Additionally, it tends to inform investors for the revision and if previous guidance is withdrawn or adjusted (Nasdaq, 2024b; Nasdaq, 2018). In contrast to earnings announcements,

profit warnings are unscheduled disclosures that the market cannot anticipate. As profit warnings frequently trigger sharp reactions in stock prices, they are generally considered influential corporate disclosures. Although, the severity depends on the content, investor expectations, and larger market attitude, research finds that in contrast to reporting lower earnings, profit warnings result in larger price corrections (Kasznik & Lev, 1995).

Prior research examining the market response to profit warnings shows varied results. Jackson and Madura (2003) used a sample of 245 negative profit warnings from the US market and recorded a statistically significant negative cumulative average abnormal return (CAAR) of -0.1472 over the day of the event and the day after [0,1], reflecting a negative market reaction. They also observed a statistically significant negative CAAR of 0.0458% for the five days preceding the disclosure [+1, +5), suggesting that the information content is not fully incorporated into the stock price during the day of the announcements, but unfolds over an extended period. In regards to the returns measured prior to the announcement, they found a CAAR of -0.0353 for the window [-10, -1]. They attribute this result to potential inside information leakage. When viewed collectively, their findings suggest that the U.S. market is inefficient in processing information in the context of profit warnings, especially because of the documented significant negative returns prior and after the event (Madura & Jackson, 2003).

Moreover, Bulkley and Herrerias (2005) also examined the US market with a sample size of 2013 negative profit warnings but with a longer test window of up to 18 months post-announcement, compared to Madura and Jackson (2003) 21-day event window [-10, 10]. They found that stock prices dropped approximately 20% instantly after the announcement. Differently from Madura and Jackson (2003), they documented an increase of 5% decline over the next six months, followed by a partial reversal of 18% between six and eighteen months. These findings suggest that investors initially overreact, causing prices to recover as valuations adjust, which challenges strict semi-strong EMH and supports the overreaction hypothesis in behavioral finance.

Lastly, Church and Donker (2010) examined the price reaction to profit warnings announced by a sample of 149 firms listed on the Euronext Amsterdam stock market in 2000 - 2002. They used an event study approach to measure the abnormal return around their event window of 20 days prior and after the event [+20,-20] and reported a cumulative average abnormal return (CAAR) of -0.0796 (p = 0.0) for this window. They also observed a CAAR of -0.0838 (p = 0.0) in the three-day window [+1, -1], with an AAR of -0.0612 (p = 00) during the announcement day. In terms of the measured returns prior to the event [-20, -1], they found a CAAR of -0.0189, however this was not found to be statistically significant (p = 0.09). Similarly, they found no statistically significant support for the window [+1, +20] covering the post-event window period. Their findings differ from Jackson and Madura's (2003) in terms of the absence of both price adjustments prior to and before the event, which may be explained by differences in investor behaviour and regulatory environments across the countries.

2.4 Timing Effects in Corporate Disclosures

This section examines literature on how the timing of corporate disclosures can affect the market reaction. This part of the literature is often used to assess the persistence of investor inattention in the markets which in turn is used to determine the market efficiency. For example, if a study finds that the market reaction to announcements made on summer-holidays are significantly less pronounced compared to other times of the year, one may conclude that the delayed response on the summers is attributable to investor inattention. This section will proceed by examining one of the most influential papers that explains the role of timing in corporate disclosures.

2.4.1 Competing Announcements

Hirshleifer et al. (2009) examines the market reactions of announcements that were released on the same day. They found that when multiple firms' earnings announcements compete for the attention of the investor, they receive less attention which result in a lower immediate stock price reaction, lower volume reaction and stronger post-announcement drift, which is when a stock

continues to drift in the direction of the earnings surprise (Ball and Brown, 1968). They acknowledge that their findings may be attributable to factors beyond investor distraction, such as potential reduction in the perceived informativeness of a firm's earnings surprise when several disclosures are made simultaneously. However, they argue that these explanations do not account for the documented pattern of weaker immediate price reactions in combination with a stronger post-earnings announcement drift. They highlight that the theory of investor attention is distinct as it explains this pattern by proposing that when multiple announcements compete for the attention, investors are less focused on any single announcements. In turn this softens the initial price reaction, followed by a delayed adjustment as the market reflects the information over time Hirshleifer et al. (2009).

2.4.2 The Friday effect

The Friday effect refers to the recorded observations that corporate announcements on Fridays often generate a weaker immediate market reaction and a subsequent post-announcement drift relative to announcements on other weekdays. This has been examined through several theoretical lenses. One explanation to this phenomenon stems from the rational inattention theory. This theory models investors' ability to allocate their attention across competing sources of information. In a study conducted by Bertomeu, Hu, and Liu (2023), it was shown that firms are more likely to disclose announcements during times of moderate levels of inattention. When attention is low, for example during Fridays, fewer investors follow the market and as a result news released on Fridays exhibit delayed reactions. On the contrary, if attention is very high, managers may also hold back, especially when the announcement is expected to lead to a decline in price. Similarly, other studies have shown that companies often change how and when they disclose announcements when institutional investors' attention declines, even when the liquidity of the equity remains on the same levels (Bushee, Core, Guay, & Hamm, 2010; Blankespor, deHaan, & Marinovic, 2022). These findings align with the idea that reduced attention during Fridays can yield slower price reactions in response to disclosures. Another perspective that explains the reason for the Friday effect is strategic disclosure timing. Ahern and Sosyura (2015) find that managers sometimes release negative news when investors are expected to be inattentive in order to reduce immediate impact on stock prices. In a similar study, Kasznik and

Lev (1995) show that managers exploit the timing of announcements, particularly earnings announcements, to manage investor reaction. In regards to the Friday effect, this may impose that managers could choose to announce at the end of the week to mitigate the anticipated negative reaction.

These theoretical perspectives suggest that delayed investor reactions to Friday announcements could stem from a combination of limited investor attention and managerial timing. This entails that if these theories operate in practice, market data should show patterns of delayed market reactions to corporate disclosures that are announced on Fridays. The following section reviews the empirical evidence on the Friday effect to understand whether the theories hold across different disclosure types and markets.

DellaVigna and Pollet (2009) analyzed the Friday effect using a sample of 228,651 earnings announcements. They recorded on average that the immediate abnormal return for the most positive earnings surprises is on average 15% lower for announcements reported on Fridays compared to those on other weekdays. They also found that the trading volume is 8% smaller immediately after the Friday announcements and a significantly stronger delayed response to the Friday announcements. The authors state that their results support that investors' inattention is relatively higher on Fridays, potentially because they are distracted and less engaged in the markets as the weekend nears.

Furthermore, Louis and Sun (2010) tested the inattention hypothesis within the context of one the most significant corporate events, mergers announcements. Their study analyzed a sample of 3,995 transactions, covering both small and big deals as well as acquisitions involving publicly and privately held companies. They found that the cumulative abnormal return (CAR) over the announcement day and following trading day was 55% to 69% lower for Friday announcements compared to non-Friday announcements. These differences were statistically significant, supporting the notion that inattention affects investors' information processing even in the context of larger corporate events. Consistent with DellaVigna and Pollet (2009), Louis and Sun (2010) argue that investors' distraction increases ahead of the weekend.

However, not all researchers who have examined the Friday effect have observed weaker market reactions on Fridays. In their study, Michaely et al. (2016) argue that the results of Louis and Sun (2010) and DellaVigna and Pollet (2009) papers are difficult to attribute to investor inattention because of selection bias. Specifically, they highlight that companies that disclose on Fridays may differ in observable and unobservable ways from those that are announced on other weekdays. Their study, which examines the Friday effect for earnings announcements, dividends changes, share repurchases, merger announcements, and seasoned equity offerings, addresses potential selection bias through a two-step procedure often employed in medical and natural science. This is done by first measuring the differences in market reactions using an identical methodology as Louis and Sun (2010) and DellaVigna and Pollet (2009) utilized. Then they compare the result of this comparison with the result of a second comparison made within a restricted sample of firms that have announced on both Fridays and other weekdays during the sample period. In doing this, they argue that this methodology effectively holds the firm characteristics constant, isolating the effect of timing. While Michaely et al. (2016) initial analysis revealed delayed market reactions to Fridays announcements across all five types of corporate disclosures, the second part, after correcting for selection bias, recorded no significant difference in market response between Friday and non-Fridays announcements for all five disclosure types. Based on this, Michaely et al. (2016) concluded that the Friday effect observed in previous studies, may not be driven by inattention but rather by underlying firm-level characteristics that vary with disclosure timing.

2.5 Regulatory Environment in Sweden

The regulations that govern corporate disclosures are important to consider, as it may influence how the announcement is communicated and perceived. In Sweden, firms listed on the stock markets are subject to EU Market Abuse Regulation MAR, EU No 596/2014) and the Swedish Securities Market Act Lag om värdepappersmarknaden 2007:528), which is enforced by Finansinspektionen, Sweden's Financial Supervisory Authority. These regulations require listed firms in Sweden to disclose sensitive information as soon as possible, hindering delayed and strategically timed announcements . However, the regulation recognizes that firms may require time to prepare and verify the accuracy of corporate disclosures. Therefore, a limited allowance

is given for the preparation process. The latest major change in the regulatory framework in Sweden occurred in 2016 when the Market Abuse Regulation MAR was implemented. According to Nasdaq, the implementation of MAR did not entail any drastic changes in practice, however it put more pressure on issuers to enhance documentation of information, particularly to oppose delayed corporate announcements (Finansinspektionen, 2024; Nasdaq, 2016).

2.6 Hypothesis Formulation

Given that this study investigates the Friday effect in the context of profit warnings, using data from the Swedish stock market one may expect the result to differ from previous studies finding evidence of the Friday effect. This because profit warnings are unanticipated in nature and have historically been highly price-sensitive that demands prompt reassessments. As a result, the level of investor inattention may be lower, as the severity of the news drives investors to respond immediately, regardless of the day of the week. On the contrary, Louis and Sun (2010) documented weaker reactions on Fridays in response to merger announcements, which are also generally considered significant corporate disclosures, thus it may also be viewed as an announcement that forces investors to act immediately.

Additionally, the Swedish regulatory framework covering corporate disclosures is significantly different from the legislation in the U.S. U.S listed firms that operate under the SEC's regulation which, through forum 8-k (U.S. Securities & Exchange Commission, 2023), permits up to four days for the public disclosure of price sensitive information (U.S. Securities & Exchange Commission, 2023). Thus, it is reasonable to assume that U.S firms have greater flexibility to strategically time the disclosure of negative news, whereas Swedish firms are obligated to disclose such information immediately (with allowance for preparation) under a continuous regulatory environment.

Thus, the ability for Swedish listed firms to strategically time the disclosure of negative news is limited, lowering the risk for selection bias (Michaely et al., 2016). Given the urgency of profit warnings and the strict disclosure environment in the Swedish stock market, it is plausible that the Friday effect found in other contexts may be lowered or even non-existent.

Therefore, the hypothesis of this study is:

H1: There is no statistically significant difference in market response, in regards to price reaction, to profit warnings announced on Fridays compared to those issued on other weekdays on the Swedish stock market

3. Methodology

In order to analyze the market reaction of profit warnings released on Fridays compared to other weekdays in the Swedish stock market, this study employs a quantitative methodology using an event study approach. The following section explains this methodology in detail.

3.1 Event

Event studies are applied to analyze how economic or firm-specific events affect the stock price of a company by comparing the returns prior to an event to create a standard of "normal" returns. This is based on the assumption of EMH, stating that new information is incorporated into price instanously (Fama, 1970), therefore event studies are applicable to measure the impact of company disclosures (MacKinlay, 1997). During the measurement in a short-term setting, event studies can contribute to the understanding of market reactions to events by computing the abnormal return around the event. This method has been widely used since Ball and Brown's (1968) foundational work. Generally, if the market reaction to a corporate disclosure exhibits abnormal returns it suggests that investors over or underreact in response to the disclosure which challenges the notion of EMH. Thus, by comparing the abnormal returns in response to profit warnings announced on Fridays versus non-Fridays, it is possible to assess if market participants incorporate the information content efficiently. In turn, a conclusion can be drawn regarding the magnitude of investor inattention in the Swedish market in the context of profit warnings.

3.2 Data and Selection Criteria

To gather negative profit warnings for stocks listed on the Swedish stock market, Business Retriever was used with the keyword search "vinstvarn*" in the search bar, retrieving results including terms like "vinstvarning" and "vinstvarnar" in the press releases. Additional profit warnings that did not appear in Business Retriver were sourced from Placera to ensure a more comprehensive database. Profit warnings whose announcement were accompanied by additional news, such as dividends changes, were excluded from the sample to isolate the market reaction to solely the event. This screening process led to the removal of 49 profit warnings, resulting in a

final sample of 193 profit warnings announced by 106 distinct firms that were communicated across the sample period: 2000 to 2024.

While the sample of 193 firms sill enables for insightful findings, some limitations need to be acknowledged. The sample size is relatively small compared to previous research conducted by DellaVigna & Pollet (2009) and Louis and Sun (2010). This could reduce the generalizability and statistical power of the findings. Another limitation is that some firms released profit warnings a number of times during the sample period, for example, Hexatronic announced three profit warnings in two years. This could imply firm-specific behaviour that may not be addressed by the matched subsample design. Lastly, as this study did not focus on a specific industry and used a market model that includes all listed firms, this allows for the overrepresentation of some sectors, ultimately influencing the results. However, the non-parametric tests and use of a short event window helps limit the effects of these limitations.

This period was chosen to minimize the risk of results being driven by specific market conditions and to ensure a sufficient number of observations for a robust analysis. The following illustrations show the number of profit warnings announced per year and the distribution of profit warnings by weekday.

2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
5	5	1	4	5	6	2	5	8	6
2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
2	7	5	7	10	8	7	12	10	9
2020	**2021**	**2022**	**2023**	**2024**	***Total***				
8	9	19	15	18	*193*				

Table 1: Number of Profit Warnings by Year (2000-2024)

Day	Monday	Tuesday	Wednesday	Thursday	Friday	*Total*
Count	33	31	30	30	69	*193*

Table 2: Distribution of Profit Warnings by Weekday

3.3 Event Window

The defined time frame of an event study is typically divided into three types of windows; estimation window, event window, and post-event window (Ball and Brown, 1968). These windows allow analysis for stock reaction before, during and after an event has taken place. There is no standardized event window length in event studies; researchers typically base this decision on prior literature, research objectives, and the nature of the event. In the case of this study, the aim is to compare the immediate market reaction to profit warnings announced on Fridays to those released on other weekdays. Thus, following Michaely et al. (2016), the post-announcement reaction is not the focus of this study, instead only the estimation and event window is of interest to address the research question. Specifically, this study employs a three-day window encompassing the trading day prior to the announcement (day -1), the announcement day itself (day 0) and the trading day following the disclosure (day +1) (Ball and Brown, 1968). In numerical terms, this event window is denoted as [-1, +1], and will be used moving forward (see Figure 1).

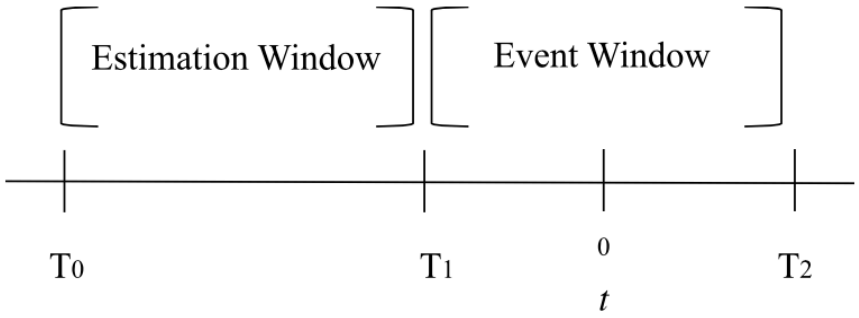

Figure 1: The Event Study Timeline

While the reasoning for using shorter event windows stems from theory and empirical studies, it is critical to acknowledge the strengths and limitations with this approach. A shorter event window, such as [-1, +1], captures the immediate market reaction, as prior studies have observed that the largest proportion of the price adjustments in response to the event occurs during the [-1, +1] window (e.g. DellaVigna & Pollet, 2009; Michaely et al., 2016). Additionally, according to MacKinlay (1997), a shorter event window ensures that the measured abnormal return is caused by the event rather than other confounding information that may be released around the same time, which is more probable for longer event windows. Although a short event window measures the immediate reaction, it is less effective to capture both delayed reactions caused by investor inattention, and whether the market has over-or-under reacted to the announcement (Hirshleifer & Teoh, 2003). To address this weakness, a supplementary analysis was conducted by expanding the window into the following windows: [-10, -1], [-5, -1], [0, +1], [+2, +5], and [+2, +10], to complement the main three-day window analysis. The rationale behind the choice of these event windows follows Jackson and Maduras (2003) event study focusing on profit warnings (Jackson & Madura, 2003). The event windows prior to the event, [-10, -1], and [-5, -1], provide insights into potential insider trading which traders may act upon. The post-event windows, [+2, +5], and [+2, +10], are used to capture potential market delays which the main [-1, +1] window may not effectively identify. The relative short length of these windows avoids including unrelated market noise (Jackson & Madura, 2003; Church & Donker, 2010). This additional analysis increases the robustness of the results and explores any inefficiencies in price adjustment before and after the event.

Moving over, the estimation window is defined as the 120 trading days prior to the event window, specifically day -121 to day -2 to the corresponding announcement day. To ensure sufficient data coverage, daily stock price closing data for each firm was gathered for a period of 250 days prior to the event. However, consistent with standard practices in event studies, only the 120 days preceding the event window was used to estimate the market model parameters (MacKinlay, 1997).

3.4 Market Model

In order to answer our hypothesis, the first computation needed is the normal return, meaning the return of the stock had the event not taken place. This is used as the benchmark to which actual returns are compared against, to calculate abnormal returns, which is the foundation for further analysis. There are different approaches that can be applied to derive the normal return such as Capital Asset Pricing Model (CAPM), Arbitrage Pricing Theory (APT), different Factor Models, Constant Mean Model. However, the market model, a one factor model, is commonly seen as the most applicable model during short-term event studies. As stated by Mackinlay (1997), the market model is the most appropriate compared to other models as it reduces the variance of abnormal returns by considering the movements in the overall market, which in turn increases the ability to detect event effects. Despite the market model being simple to interpret, it combines systematic risk by incorporating a firm's historical coefficient with the market. Therefore, the market model is considered the most applicable for the purpose of this study.

Moreover, Mackinlay (1997) mentions that the index used in the market portfolio should be a broad-based stock index that reflects the sample, which is the underlying basis for using OMX All-Share Index as the market index for this study. As the sample includes firms from both small-cap and large-cap segments, the chosen market index provides a broad representation of the sample. The tool Datastream is used to collect market and stock price data. To ensure sufficient data coverage, daily stock price closing data for each firm was gathered for a period of 250 days prior to the event. However, as mentioned in section 3.3, only the 120 days preceding the event window was used to estimate the market model parameters (MacKinlay, 1997). The market model for any stock is specified as:

$$Ri,t = \alpha i + \beta i Rm,t + \varepsilon i,t$$

Where:

- Ri,t = The return of firm i on day t
- Rm,t = The return of the market index (OMXSPI) on day t
- βi = The firm specific intercept term
- i = The systematic risk for stock i

- $\varepsilon i,t$ = The error term, representing the abnormal portion of return

3.5 Abnormal returns

After the parameters of the market model, the expected returns for each firm during the event window needs to be calculated. In this case, the event window pertains to the trading day before the announcement (-1 day), the announcement day (day 0), and the subsequent trading day (+1 day). The expected return is the anticipated return predicted by the market model used and is calculated as follows:

$$\hat{R}_{i,t} = \hat{\alpha i} + \hat{\beta i} R_{m,t}$$

Where:

- $\hat{R}_{i,t}$ = The expected return of firm i on day t
- $\hat{\alpha i}$ and $\hat{\beta i}$ = Estimated parameters from the market model
- $R_{m,t}$ = The return of the market index (OMXSPI) on day t

The abnormal return for firm i is then calculated as the difference between the actual return and the expected return (MacKinlay, 1997):

$$AR_{i,t} = R_{i,t} - \hat{R}_{i,t}$$

Where:

- $AR_{i,t}$ = The abnormal return of firm i on day t

3.6 Aggregation of Abnormal Returns

DellaVigna and Pollet (2009) and Michaely et al. (2016), who also investigate the Friday effect but in a different context, employ a two-day buy-and-hold abnormal return (BHAR) to measure and compare the price reactions during the day of the announcement and the subsequent day. The BHAR calculation differs from cumulative average abnormal return (CAAR) by compounding the return of individual stocks rather than averaging abnormal returns across firms on each day

of the event window. Although BHAR reflects the return an investor would actually earn by purchasing the stock on the event date and holding it through the event window, prior studies criticize the use of BHAR, especially in short-term window event studies. Kothari and Warner (2004) argue that BHAR is susceptible to skewness and model mis-specification which makes it a less reliable measure for short-term analysis. Similarly, Barber and Lyon (1997) state that BHAR can distort the measurement of abnormal returns as it suffers from biases, like cross-sectional dependence and benchmarking errors. Taking these factors into account, this study adopts the CAAR method to analyze the market's reaction to profit warnings, which is a widely used approach in the financial literature that is considered more statistically sound for the purpose of this study (Ball and Brown, 1968; Mackinlay, 1997).

In order to derive the Cumulative Average Abnormal Return, the Average Abnormal Return (AAR) is first computed by averaging the abnormal returns for each day in the event period and across all firms, providing a day-to-day market reaction (MacKinlay, 1997). AAR for each firm is denoted as:

$$\text{AARt} = \frac{1}{N}\sum_{i=1}^{N} \text{AR}it$$

Where:

- AARt = The average abnormal return on event day t
- N = The number of firms in the sample
- AR*it* = The abnormal return for firm i on day t

To capture the impact of the event across time, Cumulative Average Abnormal Return (CAAR) is computed. This is done by summing the AARs over the event window, allowing the detection of immediate and delayed market response. CAAR for each firm is denoted as:

$$\text{CAAR}(t_1,t_2) = \sum_{t=t1}^{t2} \text{AARt}$$

Where:

- CAAR(t_1,t_2) = The cumulative abnormal return between t1 and t2

- AARt = The average abnormal return on event day t

Following this, CAARs are grouped based on announcement day (1 = Friday and 0 = non-Friday) and the average returns for each group are then statistically compared. Consequently, it is possible to evaluate if the market responds differently to profit warnings reported on Fridays to those announced on other weekdays during the event window. The average CAAR is calculated for profit warnings disclosed on fridays and other weekdays:

$$\overline{CAAR}_{Friday} = \frac{1}{NF} \sum_{i \epsilon Friday} CAAR_i \; ; \; \overline{CAAR}_{NonFriday} = \frac{1}{NNF} \sum_{i \epsilon NonFriday} CAAR_i$$

Where:

- $\overline{CAAR}_{Friday}$ and $\overline{CAAR}_{NonFriday}$ = The average abnormal returns for each group
- *NF* and *NNF* = The number of observations in the Friday and non-Friday samples, respectively

3.7 Matched Subsample Analysis

As Michaely et al. (2016) emphasize, a key methodological concern in prior studies measuring the Friday effect, is selection bias. They argue that firms may endogenously choose when to release information based on anticipated investor reactions or other unobserved firm characteristics. This makes it difficult to derive whether the difference in market response following an announcement is explained by the timing of the announcement or by underlying firm related factors.

To address this issue, Michaely et al. (2016) propose mitigating selection bias at the research design stage, rather than relying solely on statistical controls. Therefore, the described methodology for comparing the market price reaction to Friday and non-Friday announcements will not only be performed for the full sample of profit warnings, but also for a restricted subsample of "matched firms". These are firms that have released profit warnings both at least once on Friday and at least once on non-Friday during the sample period. For example, if

Husqvarna B issued a profit warning on both a Friday and a Tuesday, both events would be included in this subsample. This matched subsample consists of 109 profit warnings announced by 44 firms. By focusing on firms that have made announcements on both Friday and non-Friday, this within-firm level design ensures that the announcements made by the same firm are compared instead of announcements across-firms. Thus, holding any time-invariant firm characteristics constant.

The following illustrations show the number of profit warnings announced per year and the distribution of profit warnings by weekday for the matched subsample group:

2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
4	1	1	3	4	4	1	2	4	4
2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
1	3	4	4	7	5	6	6	4	2
2020	**2021**	**2022**	**2023**	**2024**	***Total***				
6	4	12	6	8	*106*				

Table 3: Number of Profit Warnings by year (2000-2024) for the Matched SubSample

Day	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	***Total***
Count	8	14	15	19	50	*106*

Table 4: Distribution of Profit Warnings by Weekday for the Matched SubSample

3.8 Statistical Significance

There is a wide range of statistical tests used in the literature of event studies. In general, these can be classified into parametric and non-parametric tests. In the context of event studies, the parametric tests assume that a company's abnormal return is normally distributed, meaning that statistical conclusions rely on the properties of normal distribution, such as symmetry and defined variance (Brown & Warner, 1985; Kothari & Warner, 1997). In comparison,

nonparametric tests are distribution free and do not depend on this assumption (Corrado, 1989; Corrado & Zivney, 1992). While regressions are commonly used in studies comparing the differences in abnormal returns between two groups (Louis & Sun, 2010; DellaVigna & Pollet, 2009), this study employs two primary statistical tests for comparing the differences; two-sample t-test and Wilcoxon rank sum test. This method allows for comparing abnormal returns without imposing the parametric assumptions required by regressions, such as linearity and homoscedasticity (Kothari & Warner, 2007). In addition, this avoids introducing unnecessary complexity or risk of misspecification and aligns with standard event study methodology, where simple statistical tests provide transparent and robustness.

The two-sample t-test is commonly used during event studies to examine whether the difference in mean is statistically significant (Brown & Warner, 1985; Binder, 1998; Kothari & Warner, 1997). The test assumes that returns are independent, normally distributed, and that the group variances are equal. As these assumptions are considered appropriate in short-term event studies, especially with a large enough sample, caution is still warranted when applying parametric tests like t-test (Brown & Warner, 1985). To ensure robustness of the statistical tests, the t-tests are complemented by the non-parametric Wilcoxon rank-sum test. Unlike the t-test, this test does not assume normal distribution and is based on ranks rather than actual values.This allows for verifying whether differences in distribution exist, without parametric assumptions (Corrado, 1989; Corrado & Zivney, 1992).

4. Results and Analysis

This chapter presents the empirical results of the study. A significance level of 0.05 was used throughout the analysis. We begin with the results for the full sample, followed by the matched subsample. Finally we examine return patterns in event windows spanning the periods before and after the event.

4.1 Full Sample Analysis

Figure 2 shows the development of cumulative average abnormal returns (CAAR) from Day -1 to +1 for the full sample, comparing profit warnings announced on Fridays and non-Fridays. The

one-sample t-tests show that CAARs over this window are statistically significant for both groups: -9.42% for the Friday announcements ($t = -5.20$, $p < 0.001$) and -10.31% for non-Friday announcements ($t = -8.01$, $p < 0.001$) (see Appendix 1). This indicates that profit warnings on the Swedish market trigger prompt and negative market reactions, regardless whether they are released on a Friday or another weekday.

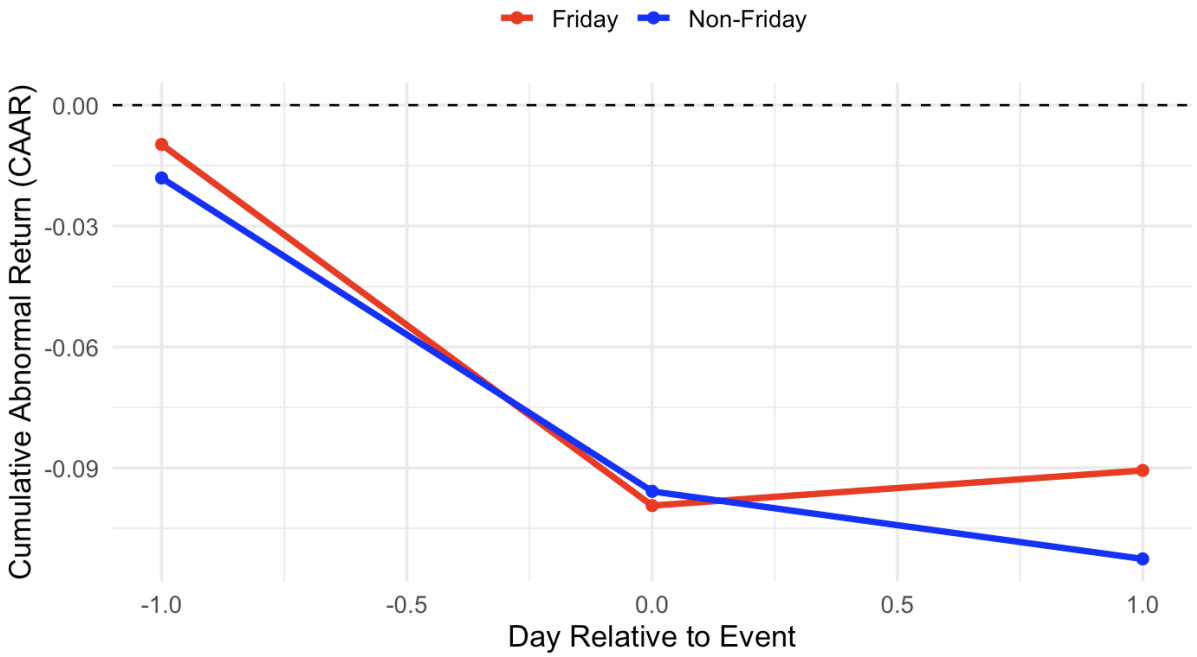

Figure 2: Cumulative Average Abnormal Return (CAAR) for the Full Sample over the [-1, +1] Event Window

Although the three-day CAAR is 9.4 percentage points lower for Friday announcements, this difference in CAAR is not statistically significant, according to the two-sample t-test and Wilcoxon rank sum test ($p = 0.67$ and $p = 0.18$, respectively) (see Appendix 2). This suggests no meaningful difference in immediate market response between Friday and non-Friday announcements.

These results deviate from research covering the U.S. market, such as DellaVigna and Pollet (2009), who recorded approximately 15% lower immediate response over the [0, +1] window and 70% higher delayed responses to announcements made on Fridays compared to other weekdays in the same window. Continuing, Louis and Sun (2010) reported a 55% to 69% lower

cumulative abnormal returns (CARs) for Friday merger announcements than for non-Friday announcements within the [-1,+1] window, which the authors argue is caused by investor inattention. In contrast to these findings, the Swedish data indicates a more consistent response to profit warnings regardless of the weekday. This contradicts the notion that the Friday effect is a generalizable anomaly and instead implies a more context-based phenomenon, created by the content of disclosure and market structure.

The table presented in Appendix 3 further supports this conclusion by presenting average abnormal returns (AARs) for the [-10, +10] window. Although Figure 2 visually displays a sharper drop on Day 0 and a small rebound on Day +1 for Friday announcements, these differences, both in the daily AARs and in the overall CAAR, are not statistically significant when comparing the two groups. The lack of a delayed reaction strengthens the view that the Swedish market is not significantly sensitive to the timing of disclosure, further deviating from the evidence of timing effect in larger, more divided markets such as the U.S stock market.

4.2 Matched Subsample Analysis

To address selection bias, we perform a subsample analysis using only profit warnings announced by firms that have issued at least one profit warning on a Friday and at least one on another weekday during the sample period. Figure 3 displays the development of CAAR from Day -1 to +1 for the subsample, comparing Friday and non-Friday announced profit warnings. Further, both Friday and non-Friday announcements in the subsample are followed by independently statistically significant negative CAARs over the [-1, +1] window (see Appendix 4). The Friday announcements yield a -9.61% CAAR ($t = -4.58$, $p < 0.001$), while the non-Friday ones produced a -9.97% CAAR ($t = -4.74$, $p < 0.001$). This implies that the immediate market response to profit warnings remains strong and negative when controlling for firm-specific effects.

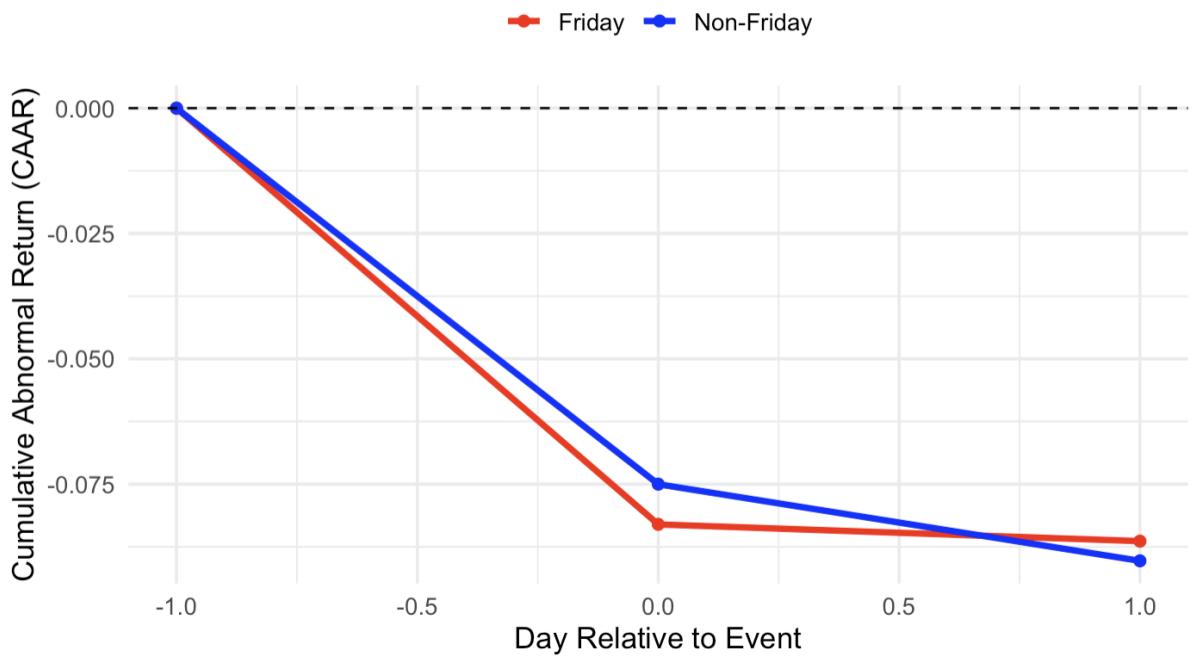

Figure 3: Cumulative Average Abnormal Return (CAAR) for the Full Sample over the [-1, +1] Event Window

As in the full sample, the 3.7 percentage point difference in CAARs between Friday and non-Friday announcements for the matched subsample is not statistically significant. Appendix 5 presents the results from both a two-sample t-test ($p = 0.90$) and a Wilcoxon rank sum test ($p = 0.51$). This supports the absence of a systematic "Friday effect" in the matched subsample. Additional evidence is provided from Appendix 6, which reports average abnormal returns (AARs) for the [-10, +10] window. While Figure 3 suggests a more pronounced drop on Day 0 for the Friday group, the differences between Friday and non-Friday AARs over the [-10, +10] window is not statistically significantly different (see Appendix 6).

These results imply that even after addressing selection bias through firm-fixed effects, there is no evidence that the timing of profit warnings, Friday versus non-Fridays, produce different immediate market reactions in the Swedish market. Furthermore, the findings are inconsistent with the results from those of DellaVigna and Pollet (2009) and Louis and Sun (2010), and instead align with the conclusions and insights reached by Michaely et al. (2016), who reported no significant Friday effect after correcting for selection bias. This implies that recorded

observations of reduced reactions to Friday announcements in earlier studies could be distorted by firm-level characteristics, or through differences in announcement regulation and investor composition between markets.

4.3 Event Window Comparison

To further examine whether the absence of a Friday effect holds across different event windows, the analysis is extended by comparing CAARs for Friday and non-Friday profit warnings over five windows: [-10, -1], [-5, -1], [0, +1], [+2, +5], and [+2, +10]. Table 5 summarizes the results for the full sample. While non-Friday announcements appear to exhibit slightly larger negative returns before and after the announcements, none of the differences between the groups are statistically siginficant. Across all windows, the two-sample t-tests and Wilcoxon rank sum tests consistently fail to reject the null hypothesis of equal CAARs between Friday and non-Friday announcements.

Window	Friday Mean	Non-Friday Mean	Two-sample-test p-value	Wilcoxon p-value
[-10, -1]	-0.0233	-0.0038	0.0920	0.0833
[-5, -1]	-0.0194	-0.0125	0.4462	0.3195
[0, +1]	-0.0852	-0.0900	0.8292	0.0845
[+2, +5]	-0.0107	-0.0004	0.2216	0.4806
[+2, +10]	-0.0177	-0.0013	0.4351	0.9646

Table 5: CAARs for the Full Sample with Corresponding p-values from t-tests and Wilcoxon Rank-Sum Tests Across Pre- and Post-Event Windows

The results from the full sample stays consistent with previous findings of this study. Table 5 shows that under the [0, +1] window, the Friday disclosures exhibited a CAAR of -8.52% compared to the -9.00% of the non-Fridays, although insignificant difference (p-value = 0.8292). Within the pre-announcement period the [-10, -1] window recorded a Friday CAAR of -2.33% and -0.38% for the non-Friday, however no statistical difference was found (p = 0.092). The [-5,

-1] window had a similar result where the Friday (non-Friday) announcements CAAR was -0.0194 (-0.0125), whilst with an insignificant difference (p-value = 0.4462). After the event, the post event windows of [+2, +5] and [+2, +10], presented no significant difference between Friday and non-Friday groups. This suggests that there are no meaningful information leakages nor delayed price adjustments occurring for both groups, which supports the view that the Swedish market processes and incorporates new information consistent with the semi-strong form of effieicency, rendering timing of announcement non-influential.

Window	Friday Mean	Non-Friday Mean	Two-sample-test p-value	Wilcoxon p-value
[-10, -1]	-0.0205	-0.0095	0.4819	0.3551
[-5, -1]	-0.0243	-0.0142	0.4612	0.1465
[0, +1]	-0.0825	-0.0849	0.9346	0.2711
[+2, +5]	-0.0089	-0.0049	0.6200	0.9879
[+2, +10]	-0.0017	-0.0116	0.3048	0.2218

Table 6: CAARs for the Matched SubSample with Corresponding p-values from t-tests and Wilcoxon Rank-Sum Tests Across Pre- and Post-Event Windows

As reported in Table 6, the results from the matched subsample also supports the overall findings of this study, reinforcing the absence of a timing effect in the Swedish market found in the full sample. The window covering the event and the following trading day [0, +1] shows the Friday (non-Friday) announcement CAAR being -8.25% (-8.49%). The difference not being significant can be seen through the two-sample t-test (p-value = 0.9346) and the Wilcoxon test (p-value = 0.2711). The window before the event [-10, -1] and [-5, -1] also exhibit insignificant difference between the Friday and non-Friday groups, where the [-10, -1] windows Friday (non-Friday) announcements showcase a CAAR of -2.05% (-0.95%) connected to a p-value greater than 5% (p-value = 0.4819) , whilst the [-5, -1] window revealed a Friday (non-Friday) CAAR of -2.43% (-1.42%) also with a p-value demonstrating insignificant differences (p-value = 0.4612). The windows covering the post announcement reaction [+2, +5] and [+2, +10] presented no

statistically significant differences, where the Friday CAAR of windows [+2, +5] and [+2, +10] was -0.89% and -0.17%, whilst the non-Friday respectively exhibited CAARs of -0.49% and -1.16% (p-value = 0.6200 and p-value = 0.3048).

It can be implied, through the lack of significant difference between groups across all windows, that the Swedish market efficiently reacts to profit warnings, without any significant inside trading leading up to the announcement, nor delayed price adjustments after the event, even after correcting for firm-fixed effects. This aligns with the notion of the semi-strong form of EMH (Fama, 1970), and suggests that the timing effect, Friday versus non-Friday, fails to significantly affect Swedish investors. The findings from the pre- and post-window analysis, within both the full and matched subsample, is inconsistent with DellaVigna and Pollet (2009), who reported that 60% of the total price response to Friday earnings announcements occurred after the day of the announcement, compared to only 40% for non-Friday announcements. They attributed the increased post-announcement drift observed on Fridays to investor inattention.

5. Discussion

The results from both the full and matched subsample analysis clearly and consistently address the research question "*Is there evidence of the Friday effect in the Swedish market in the context of profit warnings?*" Taking everything into account, the results depict the same narrative; No, there is no statistical difference across all measures between profit warnings released on Fridays compared to those announced on other weekdays, suggesting that the Friday effect is not present in the Swedish market. Despite exhibiting variations in the cumulative average abnormal returns (CAARs), the difference holds no statistical support across, nor when expanding the event window. In addition, this supports the null hypothesis (H1), which states that there is no statistical difference in market response, in regards to price reactions, to profit warnings announced on Fridays compared to those issued on other weekdays on the Swedish stock market. Notably, these insights remain consistent even after correcting for firm-specific effects through the matched subsample, mirroring Michaely et al. (2016). These results indicate that the Friday effect does not hold in the Swedish stock market, ultimately suggesting that the timing of disclosures does not significantly affect the short-term Swedish investors. This naturally raises the question why the Friday effect does not appear in the Swedish market, but has been documented in the U.S. market (DellaVigna & Pollet, 2009; Louis & Sun, 2010).

5.1 Market Size and Information Flow

One plausible explanation for the absence of the Friday effect in Sweden lies in the structural differences of the Swedish and U.S. stock markets, specifically their size. As of 2024, approximately 740 firms are listed on the Swedish stock exchanges (Nasdaq, 2024a), compared to around 5500 firms listed on the U.S. exchanges (McFarlane, 2024). This substantial difference influences the volume of corporate disclosures released to investors. In a smaller market like Sweden, investors are exposed to a more limited flow of corporate information, which reduces the likelihood of information overload, enabling investors to effectively process each individual announcement, regardless of the day of the disclosure. Conversely, the significantly higher volumes of information produced in the U.S. market is more likely to overwhelm investors' cognitive ability to process this information. This reasoning is consistent with Hirshleifer et al.

(2009) who found that competing earnings announcements dilute investors' attention which leads to weaker immediate reactions and post-earnings announcement drift. Therefore, it is plausible that such attention constraints are less prevalent in smaller markets like Sweden. The lower amount of corporate disclosures that investors in the Swedish market are exposed to are less likely to face information overload. This allows them to be attentive and process each announcement, irrespective of its timing, which may partly explain the absence of the Friday effect in Sweden.

5.2 Regulatory Environment

Sweden not reporting a Friday effect can have deeper explanations that overrides behavioral patterns seen in markets like the U.S. One likely reason is the regulatory landscape, where Sweden is regulated by EU's Market Abuse Regulation (MAR) and the Financial Supervisory Authority's (Finansinspektionen) ruling, demanding price sensitive information to be released as soon as possible to the public (Finansinspektionen, 2024). The U.S. However, have their Forum 8-K (U.S. Securities & Exchange Commission, 2023) allowing firms a four-day window for disclosing information, potentially enabling companies to strategically time their disclosures. As Michaely et al. (2016) states, the timing anomalies are not only explained by investor inattention, but that other explanations can be possible such as firm based disclosure choices, which also are shaped by regulation. Moreover, profit warnings, natural unscheduled announcements and negative perception may have prompted investors to be aware regardless of the day of the week. This mirrors the findings of Church and Donker (2010), who found that in the Dutch market, profit warnings led to significant immediate price responses whilst revealing no post-announcement drift.

5.3 Pre and Post market

The difference between the magnitude of Friday effect in the U.S. and Sweden could be partly attributed to Sweden not having pre and post-market trading could reinforce immediate responses. In contrast to markets such as the U.S., where post market trading allows for flexible

reactions to disclosures (Finra, 2024), Swedish investors must trade during open hours of the market. This is especially relevant on Friday, as announcements are then followed by two days with no trading. This lack of extended trading hours could put time pressure on processing and reacting to new information before the market closes, minimizing delayed adjustments. Importantly, given that this constraint applies on all weekdays, it does not fully explain the absence of the Friday effect. Instead, this and other institutional features, such as regulation and investor composition, together support reactions in line with market efficiency theory.

6. Conclusion

In this chapter, we first summarize our main findings. We then discuss how the study contributes to previous research. Lastly, we consider the limitations of our thesis and provide suggestions for further research.

6.1 Summary of main findings

In this study an event study has been conducted to compare whether there is a difference in reaction to profit warnings announced on Fridays to those released on other weekdays in the Swedish stock market. This is done to gain a deeper understanding of the extent to which investor inattention is present in the Swedish market and its potential influence on investor behaviour. To achieve this, the cumulative average abnormal returns (CAAR) of the Friday and non-Friday profit warnings were compared over the three-day [-1, +1] window. This identical analysis was applied for a subsample of profit warnings that consisted of firms that had announced a profit warning both at least on a Friday and a non-Friday, in order to exclude selection bias from the equation. To complement the main analysis, the abnormal returns for Friday and non-Friday announcements were compared across various pre- and post-event windows, extending up to ten days from the event. This was done to identify potential differences in market reactions occurring before and after the disclosure.

To begin with, the results from the CAAR analysis over the [-1, +1] window shows no statistically significant differences in results between Friday and non-Friday announcements, both for the full sample and matched-subsample analysis. Similarly, the results from the pre- and post-event windows analysis reveal that the Swedish market effectively incorporates the information content, without significant inside trading nor post-announcement drift, both during Friday and non-Friday announcements, with no recorded statistically significant difference found between the groups across all the windows and for both samples. When viewed collectively, the findings from this paper provide evidence against the presence of a Friday effect in the context of profit warnings. This implies that market participants in the Swedish market incorporate information efficiently, both in regards to the immediate market reaction within the [-1, +1]

window, the absence of information leakage in the days prior to the event, and the lack of price adjustments following the announcement.

6.2 Contributions

This study extends the present literature on investor inattention by addressing a gap in the research on the so-called Friday effect. While previous research in this area has primarily been conducted using U.S. market data and in the context of scheduled corporate disclosures. This study does the opposite, by examining the Friday effect in the Swedish market in relation to profit warnings.The finding of no significant Friday effect in either the full sample or the matched subsample suggests that previously documented timing anomalies, such as those reported in DellaVigna and Pollet (2009) and Louise and Sun (2010), may be context-dependent rather than a behavioural bias that applies universally. To better understand this context dependency, we explore potential factors that may influence the absence of a Friday effect in the Swedish market by discussing the implications of a smaller market size, a stricter regulatory environment, and the lack of pre- and post-market trading.

While not the primary objective, this study also contributes to the literature on market efficiency in the Swedish market. The recorded immediate price reaction on the day of the announcement and the lack of abnormal return in the days leading up to, as well as after the event, indicate that the market efficiently processes and incorporates profit warnings into price under the semi-strong form (Fama, 1970).

6.3 Limitations and suggestions for future research

In interpreting the findings of this paper it's important to understand several underlying limitations. An important limitation is that the study does not account for the time of the day at which the Friday profit warnings are released, thereby ignoring potential variations in investor attentiveness within the trading day. Recognizing this distinction may be important, as profit warnings issued in the afternoon could receive less immediate attention compared to those announced in the morning, which could lead to differences in market response which our data

does not capture. In addition, the fact that the focus exclusively focuses on profit warnings may also be viewed as a limitation. While this provides a clear context, it restricts the generalizability of the findings to other forms of disclosures. For instance, Michaely et al. (2016) examined a wide range of announcements, such as earnings, dividends, mergers and seasoned equity offerings, rendering their findings more broadly applicable.

Furthermore, it is important to underscore that the sample of 193 events used in this study is substantially smaller than those employed in prior similar studies. For example, DellaVigna and Pollet (2009) analyzed over 200,000 events, while Louis and Sun (2010) examined 3,995 merger announcements. Also, some firms in the sample such as Hexatronic, announced profit warnings 3 times in two years. For these companies, the market participants may anticipate this pattern of profit warning which may yield a weaker market reaction. However, according to Kothari and Warner (2004), common econometric and inference problems that tend to complicate long-term event studies are mostly avoided in shorter-event windows with narrow windows. Therefore, the aforementioned limitations are not believed to dramatically influence the findings and insights from this paper.

Building on this, future research could examine the potential effects of intra-day timing following profit warnings. This would be interesting as it could reveal insightful nuances in which the present study and the current literature in the Friday effect line of research does not address through the closing price stock price data. Specifically, by including intraday stock data a more comprehensive understanding of investor inattention could potentially be achieved, and inform whether the contrastrains are more granular than expected.In addition, it would be interesting to investigate whether the Friday effect varies across different corporate disclosures in the Swedish market. For example, one could analyze the Friday effect in the context of earnings announcements, dividend changes, seasonal equity offerings, with more. This allows for the assessment of whether the lack of a Friday effect in the Swedish stock market is evident in different types of corporate disclosures. This could be developed further by comparing the persistence of Friday-effect for profit warnings involving larger profit cuts versus those with smaller cuts. This could be performed by for instance comparing the market reaction on Friday compared to non-Fridays between a sample of profit warnings divided by high and low severity

defined by a certain threshold. The results of this examination could reveal more insights into how investor inattention may by influenced by the information content and degree of profit cut of the announcement. Through focusing on both the timing and type of disclosure, future research advances the understanding of how investor inattention and market efficiency behave under varying conditions.

7. References

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8. Appendix

Appendix 1: Full Sample: CAAR one sample t-tests (Friday and non-Friday)

	Friday	non-Friday
Mean	-0.094	-0.103
P-value	0.0000061	0.00000000000096
T-statistic	-5.20	-8.0152

Appendix 2: Full Sample: Two Sample t-test with Friday and non-Friday CAARs

	Friday	non-Friday
Mean	-0.094	-0.103
P-value	0.679	0.679
Wilcoxon p-value	0.182	0.182

Appendix 3: Full sample: Two sample t-test AAR per day between Friday and non-Friday

Relative Day to Event	AAR non-Friday	AAR Friday	T-statistic	P-value
-10	0.0029	-0.0002	0.80	0.42
-9	-0.000024	-0.0034	0.86	0.38
-8	-0.0011	-0.001	0.65	0.51
-7	0.0043	0.00098	0.65	0.51
-6	0.0026	-0.0027	0.82	0.42
-5	0.0025	0.001	0.140	0.89
-4	0.0016	-0.0056	1.41	0.15
-3	-0.0084	-0.007	1.98	0.051
-2	-0.0081	0.002	-1.29	0.19
-1	-0.018	-0.0097	-1.04	0.29

0	-0.077	-0.089	0.53	0.59
+1	-0.016	0.089	0.53	0.59
+2	0.0046	-0.021	0.77	0.41
+3	0.0088	-0.012	2.89	0.065
+4	-0.0029	0.004	-0.554	0.58
+5	-0.00064	0.002	-0.7	0.48
+6	-0.0035	0.0043	-1.70	0.07
+7	0.0039	0.0061	-0.42	0.66
+8	-0.0010	-0.01	1.03	0.31
+9	-0.0014	-0.014	1.02	0.35
+10	0.00028	-0.015	0.99	0.32

Appendix 4: Matched Subsample: CAAR one sample t-tests (Friday and non-Friday)

	Friday	non-Friday
Mean	-0.0961	-0.0997
P-value	0.00002	0.00001
T-statistic	-4.58	-4.74

Appendix 5: Matched Subsample: Two Sample t-test with Friday and non-Friday CAARs

	Friday	non-Friday
Mean	-0.0961	-0.0997
P-value	0.904	0.904
Wilcoxon p-value	0.514	0.514

Appendix 6: Matched Subsample: Two sample t-test AAR per day between Friday and non-Friday

Relative Day to Event	AAR non-Friday	AAR Friday	T-statistic	P-value
-10	0.0034	-0.0011	0.81	0.42
-9	-0.004	-0.0002	-0.03	0.97
-8	-0.005	0.002	-0.66	0.50
-7	0.0026	0.0034	-0.12	0.90
-6	0.0013	-0.0007	0.38	0.73
-5	0.0049	-0.0021	0.42	0.60
-4	0.0043	-0.0030	1.2	0.23
-3	-0.003	-0.003	0.58	0.56
-2	-0.0062	-0.0041	-0.279	0.78
-1	-0.017	-0.014	-0.30	0.75
0	-0.074	-0.082	0.28	0.77
+1	-0.015	-0.003	-0.99	0.40
+2	-0.009	-0.010	-0.82	0.38
+3	0.0013	-0.11	3.7	0.059
+4	-0.0054	-0.0018	-0.0055	0.95
+5	-0.0063	0.0032	-1.87	0.065
+6	-0.0081	0.0015	-2.06	0.062
+7	-0.0015	0.0079	-1.46	0.14
+8	0.0058	0.0027	0.579	0.6
+9	-0.0002	0.018	-0.12	0.082
+10	-0.0096	-0.002	-1.17	0.25

AI Transparency

Chat GPT was primarily used for this assignment to help with text coherence and understanding of articles. Further, AI was used to clarify the arguments and text, this prompt shows how AI was used for this purpose: “(inserted a paragraph) is this text cohesive and congruent? If not, highlight the areas that could need improvements.” We also used Chat GPT to receive critical feedback on our methodology and specific computations issues that we faced. For example, we experienced an error with our data when trying to merge two datasets, Chat GPT helped us to understand what such errors stemmed from. In addition, we also used generative AI to structure a correct references list, which was also manually cross-checked. However, throughout the thesis we did acknowledge the limitations of using generative AI, such as generating inaccurate information which lacks coherences and structure with remaining information. Therefore, everything that Chat GPT supported us with was manually and carefully reviewed.

Moreover, we found that AI is a powerful tool to revise information through highlighting any unclarity within the text, it is easy to lose the focus and delve into a smaller part of the text- which AI then can highlight. We also found it useful specifically during the computations parts in order to handle coding errors. Lastly, AI is also valuable in finding connections that one might have missed or not emphasised enough, although it often mentions insights that seem useful at first but lack foundational basis. This problem is particularly amplified when the AI lacks contextual information, such as not outlining what the intended output should be.