Helmi Kallio

Corporate social responsibility and retail investor attention around M&A announcements

School of Accounting and Finance
Master's thesis in Finance
Master's Degree Programme in Finance

Vaasa 2022

UNIVERSITY OF VAASA
School of Accounting and Finance
Author: Helmi Kallio
Title of the Thesis: Corporate social responsibility and retail investor attention around M&A announcements
Degree: Master of Science in Economics and Business Administration
Programme: Master's Degree Programme in Finance
Supervisor: Vanja Piljak
Year: 2022 **Pages:** 89

ABSTRACT:
In recent years, corporate social responsibility (CSR) and its impact on firm value and investors' decisions have gained popularity in finance research. Furthermore, high level of CSR has been found to explain high abnormal returns around M&A announcements, a type of event which is still an unresolved anomaly. Another stream of research that has gained popularity relates to investor attention and its impact on stock returns. Investor attention has also been detected to have a role in abnormal announcement returns. However, until this day, it has not been studied whether investor attention is driven by CSR and how they jointly influence merger announcement returns.

This event study uses 86 public U.S. mergers conducted between the years 2010 and 2020 to investigate whether investor attention to a firm involved in a merger depends on the acquiror firm's CSR level. Furthermore, it is examined if acquiror's CSR level and investor attention have an impact on the abnormal announcement returns. Based on prior research, the used proxy for investor attention is Google search volume index which measures the search frequency of firm stock tickers around M&A announcements. In addition, the used proxy for acquiror firm's CSR level is the ESG score retrieved from Thomson Reuters. Prior research suggests that high CSR firms should gain more investor attention since they seem to value sustainability and that both high CSR firms and firms that gain high investor attention should earn higher abnormal returns.

Based on the results, investors pay more attention to high CSR acquirors in relation to low CSR acquirors. This is in line with prior research, suggesting that investors do not only take financial gains into account but also value sustainability in decision-making. However, high CSR acquirors or targets acquired by high CSR firms are not observed to gain higher returns compared to low CSR firms. When it comes to investor attention, high investor attention is discovered to result in higher abnormal returns for targets, which is consistent with prior research. The impact is observed to be opposite for acquirors. These findings of the mixed impact of investor attention on acquiror and target firm returns are interesting and require more research. All in all, however, these findings suggest that investor attention affects stock market reactions. Finally, investor attention is detected to be higher for targets than acquirors and the attention also persists comparably high on the days following M&A announcements, supporting some prior research indicating that retail investor attention is not immediate.

KEYWORDS: M&A announcement, CSR, investor attention

VAASAN YLIOPISTO
Laskentatoimen ja rahoituksen yksikkö
Tekijä: Helmi Kallio
Tutkielman nimi: Corporate social responsibility and retail investor attention around M&A announcements
Tutkinto: Kauppatieteiden maisteri
Oppiaine: Rahoitus
Työn ohjaaja: Vanja Piljak
Valmistumisvuosi: 2022 **Sivumäärä:** 89

TIIVISTELMÄ:
Viime vuosina yrityksen yhteiskuntavastuu ja sen vaikutus niin yrityksen arvostukseen kuin sijoittajien päätöksentekoon on kerännyt tutkijoiden huomiota. Yrityksen korkean yhteiskuntavastuun on todettu selittävän muun muassa osaksi myös yrityksen tuottamia ylituottoja yrityskauppailmoitusten yhteydessä, joka on monista tutkimuksista huolimatta vieläkin osin selittämätön anomalia rahoitusmarkkinoilla. Toinen huomiota saanut tutkimussuunta viime vuosina on sijoittajien huomio ja osakkeet, jotka kiinnittävät sijoittajien huomion, ja näiden vaikutus osakkeen hintojen muutoksiin. Sijoittajien huomiolla on myös tutkitusti vaikutus yrityskauppailmoitusten ympärillä havaittujen ylituottojen syntyyn. Vielä ei ole kuitenkaan tutkittu sitä, onko yrityksen yhteiskuntavastuulla yhteyttä sijoittajien mielenkiintoon yhtiötä kohtaan ja selittääkö sijoittajien huomio ja yhtiön korkea yhteiskuntavastuu sen yrityskauppailmoitusta ympäröiviä ylituottoja.

Tässä tapahtumatutkimuksessa tutkitaan vuosien 2010 ja 2020 välillä suoritettujen 86 yhdysvaltalaisten yrityskauppojen avulla riippuuko sijoittajien huomio yrityskaupan osapuolia kohtaan ostajayrityksen yhteiskuntavastuun tasosta sekä sitä onko ostajayrityksen yhteiskuntavastuun tasolla ja sijoittajien huomiolla yhteyttä osakkeiden ylituottoihin yrityskauppailmoituksen ympärillä. Sijoittajien huomiota mitataan aikaisempaa kirjallisuutta seuraten yrityksen osaketunnuksen Google-hakumäärillä yrityskauppailmoituksen ympärillä. Ostajayrityksen vastuullisuutta mitataan sillä, kuinka korkean ESG-pisteytyksen se on saanut Thomson Reutersilta.

Tutkimuksen tulosten mukaan ostajayrityksen korkea yhteiskuntavastuu selittää sijoittajien huomiota ostajayritystä kohtaan. Mitä korkeampi ESG-pisteytys, sitä enemmän sijoittajien huomiota ostajayritys saa osakseen. Tämä viittaa siihen, että sijoittajat ovat enemmän kiinnostuneita vastuullisista yrityksistä ja ottavat tämän myös huomioon päätöksenteossaan, mikä tukee aikaisempaa kirjallisuutta. Ostajayrityksen ESG-pisteytyksellä ei kuitenkaan havaita merkittävää vaikutusta kohdeyrityksen saamaan huomioon. Regressioanalyysin perusteella ostajayrityksen vastuullisuus ei myöskään selitä ostaja- ja kohdeyrityksen ylituottoja, mikä ei vastaa aiempien tutkimusten tuloksia. Tulosten mukaan korkealla sijoittajien huomiolla on kuitenkin merkittävä negatiivinen vaikutus ostajayrityksen ylituottoihin ja merkittävä positiivinen vaikutus kohdeyrityksen tuottoihin. Sijoittajien huomiolla on siis ristiriitainen vaikutus yrityksen ylituottoihin yrityskauppailmoitusten ympärillä, riippuen onko kyseessä ostaja- vai kohdeyritys. Nämä tulokset tukevat aikaisempia tutkimuksia, joiden mukaan sijoittajien huomiolla on vaikutusta osakehintojen muutoksiin. Viimeiseksi tulokset osoittavat kohdeyritysten saavan keskimäärin enemmän sijoittajien huomiota kuin ostajayritykset, mutta molemmilla osapuolilla sijoittajien huomion taso on yleisesti korkea tapahtumaikkunan aikana.

AVAINSANAT: Yrityskauppa, yrityksen yhteiskuntavastuu, CSR, sijoittajan huomio

Contents

Figures

Tables

1 Introduction

During the last decade, corporate social responsibility (CSR) has become an essential part of firms' operations and strategy (Deng et al., 2013). Companies are participating more and more in activities that enhance their stakeholders' welfare such as providing employee benefits and taking part in fairtrade (Liang & Renneboog, 2017). In addition, the growing popularity of socially responsible investing (SRI) shows that the demand for responsibility in business context is increasing rapidly among investors (Barber et al., 2021). Simultaneously, this trend has attracted academic attention as a number of previous studies have focused on exploring the reasons behind firms' CSR decisions, whether CSR is profitable for firms, and whether investors value responsible companies more (Barber et al, 2021; Deng et al. 2013). Some studies have also investigated the role of CSR in explaining abnormal returns around M&A announcements which is still an unresolved anomaly (Deng et al., 2013).

Another research topic that has gained popularity in finance literature in recent years is related to investor attention and its role in price reactions. This is an important theme as it has been shown that investor attention contributes to the process how new information can be incorporated into asset prices through trading (Ben-Rephael et al., 2017). However, attention is simultaneously a limited cognitive resource (Kahneman, 1973). These limitations arise from factors such as the enormous amount of information available in the environment and due to limits of human information processing power. Because attention is limited, it affects investors' behavior and market prices in many ways. For example, investors' decision biases coupled with under- and overreactions to news are most likely a result from limited attention and processing power. (Hirshleifer & Teoh, 2003). Several recent studies have examined investor attention and its relationship with market price reactions by using Google search volumes (e.g., Da et al., 2011; Liu & Krystyniak, 2021; Reyes, 2018). Some studies have also investigated the impact of investor attention on M&A announcement returns (Liu & Krystyniak, 2021; Reyes, 2018).

Overall, the findings of prior research on investor attention and CSR challenge the classical view in finance, which holds that the information is immediately incorporated into prices (Merton, 1987) and that firm's only goal is to maximize their shareholders' return (Benabou & Tirole, 2010). However, even though different studies have investigated both the effect of CSR and investor attention on abnormal returns following M&A announcements, there is no evidence how they jointly impact the surrounding returns as these studies have been conducted separately. Also, despite the growing number of studies in investor attention and corporate social responsibility, there is little and mixed evidence of the financial effect of attention to sustainable issues (Ouadghiri et al., 2021). Therefore, it is not clear whether more responsible and green companies appear desirable to investors and attract more attention.

1.1 Purpose of the study

The purpose of this study is to examine the possible relationship between retail investor attention and CSR in the M&A setting. Moreover, it is investigated whether retail investor attention and CSR can at least partially explain the M&A announcement effect bias. This thesis focuses on mergers for different reasons. First, CSR and investor attention have both been studied in the context of M&A before but not much. Furthermore, mergers are among the most important corporate investment decisions (Deng et al., 2013) and can be worth hundreds of millions of dollars and may determine the fortunes of the firms included for following years (Reyes, 2018). Mergers can also significantly affect shareholders' wealth and have a huge impact on firm's stakeholders (Deng et al., 2013). Moreover, although much research has been done, many issues concerning M&A remain contentious, and it remains ambiguous what generates the announcement effect bias (Reyes, 2018).

1.2 Research hypotheses

The first main question of this research focuses on understanding the role of investor attention in explaining abnormal announcement returns. Based on prior research, this

relationship is mixed, and two alternative results are suggested as a result. First, retail investors may be the net buyers of attention-grabbing stocks. According to Barber and Odean (2008), retail investors buy stocks that have caught their attention which leads to a temporary price pressure and price drift. This theory has also gained support from other papers such as Reyes (2018) and Ben-Rephael et al. (2017), expecting that high investor attention leads to higher announcement returns.

On the other hand, the findings of DellaVigna and Pollet (2009), Hirshleifer et al. (2009) and Drake et al. (2012) argue that investors pay attention in order to reach information which in turn produces faster information incorporation into prices and higher market efficiency. Thus, their results suggest that when there is investor attention, there is no price drift since the new information incorporates into prices fast. As a result, this theory rather supports the view that high investor attention leads to lower announcement returns. Moreover, the theory also suggests that the observed price drift is a consequence of certain behavioral bias such as conservatism, overconfidence, disposition effect or limited attention, that results in investors' underreaction to the announcement, and a price drift following the announcement day *t* (Ben-Rephael et al., 2017). The findings of Ben-Rephael's et al. (2017) and Reyes (2018) further show that underreaction to new information is an important source of price drift. However, they argue that instead of retail investor attention, the attention of institutional or more sophisticated investors is more linked to fast information incorporation. Therefore, a lack of institutional investor attention may lead to an observable price drift.

Based on the aforementioned research, the following hypotheses can therefore be formed:

$H_{0(1)}$: There is no relationship between investor attention and abnormal announcement returns.

$H_{1(1)}$: There is a relationship between investor attention and abnormal announcement returns.

The second main issue this thesis concentrates on is the question whether being sustainable is profitable for a company or not. According to the prior research, there are two alternative views on this, the shareholder-value maximization view and stakeholder-value maximization view (Deng et al., 2013). The classical view in finance is in line with the shareholder-value maximization view, proposing that the company's only purpose is to maximize its shareholders value so adapting CSR activities is not pursued. Since implementing CSR initiatives requires resources and time it is seen costly for the company and its shareholders. (Benabou & Tirole, 2010; Liang & Renneboog, 2017). Based on this view, high CSR companies are expected to receive lower announcement returns than low CSR companies. On the contrary, based on the stakeholder-value maximization view, CSR activities promote stakeholders' value which is followed by their support for the company and eventually leads to higher profit (Deng et al., 2013). In line with this view, companies with high CSR activities are observed to receive higher M&A announcement returns compared to companies with low CSR activities (Deng et al., 2013; Aktas et al., 2011).

Based on these two opposite views, the following hypothesis is formulated:

$H_{0(2)}$: There is no relationship between the level of acquiror's CSR and abnormal announcement returns.

$H_{1(2)}$: There is a relationship between the level of acquiror's CSR and abnormal announcement returns.

The third main topic in this study is related to the relationship between firms' CSR activity and investor attention in the context of M&A announcements. According to literature, the results may appear somewhat unclear in this case as well. On the one hand, as high CSR companies tend to be more profitable, their deals take less time to complete (Deng et al., 2013) and they have low deal uncertainty (Arouri et al., 2019), they may seem more attractive for investors to follow compared to low CSR firms. Furthermore, there is evidence that firms with high public awareness benefit from CSR

(Servaes & Tamayo, 2013) and that CSR score has an impact on market value only for high attention firms (Aouadi & Marsat, 2018). Similarly, Durand et al. (2019) discover that especially more sophisticated market participants pay more attention to CSR-oriented firms over time. These findings indicate that mergers performed by high CSR firms attract more attention.

On the other hand, CSR activities can also have a negative effect on the firm profitability (Waddock & Graves, 1997) and adopting CSR activities requires time and other resources. Based on this view, high CSR acquirors realize lower merger announcement returns in proportion to low CSR acquirors (Deng et al., 2013). This indicates that mergers done by high CSR firms may not be as attractive to follow and do not evoke investor attention. As a consequence, the following hypotheses are formulated:

$H_{0(3)}$: The level of acquirors' CSR does not influence investor attention in mergers.
$H_{1(3)}$: The level of acquirors' CSR influences investor attention in mergers.

1.3 Structure of the thesis

The next section introduces the relevant underlying theoretical background by discussing the classical finance theories and literature related to this thesis. The third section reviews the prior studies on CSR, investor attention and M&A. After the theoretical part, the data and methodology are introduced in section 4 and empirical results in section 5. Finally, the conclusions and suggestions for future research are discussed in section 6.

1.4 Contribution

This thesis is an addition to CSR, investor attention and M&A literature and makes important contributions to the previous literature on the relationship between investor attention to CSR issues and stock market performance. Until this day, there is not much

prior literature on how investor attention or firm's CSR activities impact the capital market response to M&A announcements. Moreover, because the possible link between CSR and investor attention has not been investigated, this thesis provides new insight into information incorporation and price reaction around M&A announcements by low and high CSR acquirors. The main question lies in whether level of CSR impacts the magnitude of investor attention and whether it contributes to the price reaction around M&A announcements.

2 Theoretical background

This section discusses the main theories around CSR, investor attention and mergers and acquisitions. Furthermore, the classical views in finance concerning the stock markets and asset pricing are also considered to form a strong basis for the research.

2.1 Efficient market hypothesis

The efficient market hypothesis was first introduced by Fama (1970). It is widely accepted by academic financial economists (Malkiel, 2003) and has had an enormous impact on the research and theories in finance. According to efficient market hypothesis (EMH), the security prices in the efficient markets fully reflect all available information at any time (Fama, 1970). In order for the price to fully reflect all available information, the markets must meet three conditions: there are no transactions costs in trading securities, all information is available for all market participants with no costs, and all participants are rational. This means that investors agree on the effects of current information for the price now and in the future (Fama, 1970.) However, even though these circumstances cannot always be met, the markets can still be efficient. Fama (1970) states that for markets to be efficient, it is enough if enough investors have access to the available information. What makes markets inefficient is that if investors can consistently make better assessments of available information than what is implied in market prices.

2.1.1 Three forms of efficient market hypothesis

Fama (1970) divides market efficiency into three different forms: weak, semi-strong, and strong. The market efficiency is weak when the prices follow a random walk and only reflect historic information. In semi-strong markets, the market prices reflect all publicly available information in addition to historic information. The publicly available information includes information such as annual reports, announcements of stock splits and issuances of new securities. Finally, strong market efficiency contains prices

that reflect all information available, including private information. Thus, there is no group of investors or managers of mutual funds that have monopolistic access to any information regarding the price formation. (Fama, 1970.)

In his later work, Fama (1991) has updated the Efficient Market Hypothesis based on the findings of newer literature and to better fit reality. Fama (1991) states that the extreme version of the market efficiency hypothesis is false, because of the existence of trading costs. He also includes tests for future predictability to the weak-form tests, which indicates that it should be impossible to predict future prices based on the past, making technical analysis useless.

2.1.2 Criticism against efficient market hypothesis

Efficient market hypothesis has faced much criticism. For example, behavioral finance (DeBondt & Thaler, 1985; Thaler, 2005; Kahneman & Tversky, 1979; Brav & Heaton, 2002) have challenged the assumptions of investor rationality and that price changes are in fact random. According to behavioral finance, humans are often irrational, and their decision making is often affected by cognitive biases (Thaler, 2005). Research in behavioral finance includes examining financial anomalies i.e., an observed pattern of price behavior that is inconsistent with the expectations of the efficient market theory (Brav & Heaton, 2002). Anomalies are presented to be a result from investors over-and underreaction to news (DeBondt & Thaler, 1985; Jegadeesh & Titman, 1993). All in all, even though many studies have provided efficient market hypothesis incorrect, it has had a huge impact on research, theories, and discussion in Finance until today.

2.2 Capital asset pricing model

The capital asset pricing model (CAPM) has been developed in 1960s by Lintner (1965), Mossin (1966), and Sharpe (1964). Before CAPM, little was known about risk when predicting the behavior of capital markets (Sharpe, 1964). The theory had been mainly

focusing in describing decision-making under uncertainty (e.g., see von Neumann & Morgenstern, 1944) and portfolio theory (Markowitz, 1952).

CAPM can be used to relate the expected return from an asset to the risk of the return. The risk in the return is divided into systematic risk and non-systematic risk. While systematic risk cannot be diversified away because it is related to the market return, non-systematic risk is unique to the asset and therefore can be diversified away with a large portfolio of different assets. CAPM holds that the return should depends only on systematic risk. The CAPM formula is following:

$$r_E = r_f + \beta\left[E(r_M) - r_f\right], \quad (1)$$

where r_E is the expected return from an asset, r_f is the market risk-free rate of interest, β is a firm-specific risk measure, and $E(r_M)$ is the expected return on the market portfolio. Furthermore, CAPM is based on many assumptions. These include the assumption that investors care only about the expected return and standard deviation of the return from an asset over a single period, tax does not affect investment decisions, investors can borrow and lend at the same risk-free rate, and all investors make the same estimates of expected returns, standard deviations of returns and correlations between returns. (Lintner, 1965; Mossin, 1966; Sharpe, 1964). While CAPM has been widely used because of its implementational simplicity, it has also faced much criticism and later additions to the model (Fama & French, 2004). Fama and French (2004) argue that the empirical problems related to the CAPM may arise from its theoretical failings, a result from its many unrealistic assumptions and from difficulties in applying valid tests of the model. Despite the empirical problems relating to the CAPM, it is still widely used especially in event studies. Like in many other event studies (e.g., Deng et al., 2013; Liu & Krystyniak, 2021), CAPM is utilized in this thesis to calculate the cumulative abnormal returns (CAR) around the M&A announcement.

2.3 Post-announcement drift anomaly

Many studies have observed abnormal returns following different types of corporate events such as M&A announcements (e.g., Ben-Rephael et al., 2017; Liu & Krystyniak, 2021; Reyes, 2018), in addition to stock splits and bond ratings changes (e.g., Desai & Jain, 1997). However, post-earning announcement drift (PEAD) can be considered as the most well-known, first introduced by Ball and Brown in 1968. The observed price drift following the announcement implies that the new information is slowly incorporated to the price, contrary to the Efficient Market Hypothesis.

According to research, there are different possible explanations proposed for PEAD. These are for example risk-adjustment models (e.g., Ball et al., 1993; Kim & Kim, 2003), in addition to transaction costs and liquidity (Ng et al., 2008; Zhang et al., 2013; Chen et al., 2017). However, according to Ball et al. (1993) only a small portion of changes can be attributed to change in risk. Furthermore, Kim and Kim (2003) enlarge the Fama and French (1993) three-factor risk-model to four-factor model with additional risk-factor related to unexpected earnings surprise. With this improvement, the model's explanation power enhances, but can still explain PEAD returns only partially. When it comes to transaction costs, based on Ng et al. (2008), firms with higher transaction costs provide higher PEAD, which is in line with Zhang et al. (2013) findings. According to their results, firms with less public information and more private information, i.e., higher information risk, hold higher transaction costs, which explains partially PEAD. Furthermore, it is also found that liquidity risk can explain PEAD (Chen et al., 2017).

Many explanations for PEAD rely on investor irrationality, posing a challenge to the Efficient Market Hypothesis. Furthermore, recent studies suggest that behavioral biases may lead to PEAD and it originates from investor underreaction to the announcements. According to the behavioral finance, there are different possible reasons for investor underreaction to the new information. These possible reasons are discussed next.

2.4 Behavioral finance

According to prior studies in behavioral finance, underreaction may result from conservatism (Barberis et al., 1998), overconfidence (Daniel et al., 1998), disposition effect (Frazzini, 2006), and limited attention (e.g., Hirshleifer et al., 2009). Even though these all can explain post-announcement drift, recent research has focused specially on exploring the role of limited attention (e.g., Ben-Rephael et al., 2017; Da et al., 2011; Liu & Krystyniak, 2021; Reyes, 2018). This section analyses the behavioral finance theories that explain underreaction to the announcements and how they are connected to limited attention, which sheds light to the market reactions around M&A-announcements as well.

2.4.1 Conservatism

According to conservatism heuristic, people are slow to change their beliefs when they face new evidence, which leads to underreaction to new information. Because of this heuristic, individuals might not consider the whole information content of e.g., an earnings announcement, since they believe that it includes a large temporary component. As a result, individuals hold onto to their prior estimates of earnings and adjust their valuation only slightly in response to the announcement and new information. (Barberis et al., 1998; Brav & Heaton, 2002.) Moreover, according to Barberis et al. (1998), people tend to overweight their previously formed opinion relative to the new useful evidence. On the other hand, they might be overconfident about their prior information. Because of conservatism heuristic, investors may underreact to new information which results in slow information incorporation to prices and leads to price drift around the announcement (Ben-Rephael et al., 2017).

2.4.2 Representativeness

According to the representativeness heuristic, people tend to see patterns in random events, which leads to overreaction to new information (Tversky & Kahneman, 1973). For example, if a company has a steady earnings growth over several years, investors

might consider that the past is representative of an underlying growth potential. Although a consistent pattern of growth might be random and unlikely would recur, investors affected by representativeness want to see there a repeating pattern and overvalue the company thinking that the earnings growth will continue. (Barberis et al., 1998.) Moreover, in representativeness heuristic, investors tend to underweight the prior data and evidence and overweight the recent information and payoffs to make estimates of the future return (Brav & Heaton, 2002). In some sense, representativeness can be seen as the opposite of the conservatism heuristic. According to Hirshleifer and Teoh (2003), representativeness can be also seen as an indirect consequence of limited attention or processing power.

2.4.3 Overconfidence

Another possible reason for underreaction to new information is investor's overconfidence. Humans are prone to be overconfident about their knowledge, abilities, and prospects (Barber & Odean, 2001). Research has shown that overconfidence is greatest especially in tasks that are difficult, in forecasts with low predictability, and in situations that lack clear and fast feedback (e.g., Fischhoff et al., 1977; Griffin & Tversky, 1992). Since stock selection and financial markets fit this description, investors can be overconfident, which leads to greater trading and to lower expected utility (Odean, 1998).

Moreover, because of biased self-attribution, investors that gain wealth through successful investments become more overconfident (Daniel et al. 1998). This results from attribution theory (e.g., Feather & Simon, 1971; Miller & Ross, 1975) which holds that individuals attribute success to personal skills and failures to external factors. In fact, overconfident investors overestimate their returns and hold riskier portfolios than rational investors (Odean, 1998) and underestimate their forecast error variance (Daniel et al., 1998; Fischhoff et al., 1977). Furthermore, according to Daniel et al. (1998), overconfident investors overestimate the accuracy of their private information and underestimate the publicly available information. As a result, the stock price first

overreacts and when more public information arrives on the following days, the price moves closer to the full-information value. Daniel et al. (1998) state that previous could also explain post-event long-run abnormal returns. In addition, according to Hirshleifer and Teoh (2003), overconfidence may often be a source of limited attention, because it may affect the degree of attention dedicated to investment decisions. Moreover, Hirshleifer and Teoh (2003) find that investors who overestimate their abilities and understanding of economic environment might understate details and end up with inferior analysis.

2.4.4 Disposition effect

Disposition effect is the tendency of investors to realize gains early and ride losses (Frazzini, 2006; Shefrin & Statman, 1985) and it has strongly been reported among retail investors (e.g., Locke & Mann, 2000; Shapira & Venezia, 2001). While many researchers accept the existence of disposition, it is not clear where it originates. However, all the theories upon the same fundamental model, which holds that while good news increase the value of the stock, the value decreases when disposition investors sell the stock. This causes a downward pressure on the stock price, resulting in a smaller initial price impact. Similarly, bad news will decrease the value of the stock, but when disposition investors keep the stock and not sell, the full impact of the news to the price is prevented. (Birru, 2015.) Therefore, disposition effect slows the incorporation of news into prices and causes underreaction to the new information (Frazzini, 2006).

One possible driver of the disposition effect is the prospect theory formed by Kahneman and Tversky (1979). Prospect theory is a descriptive model of decision making under risk and suggests that individuals become more risk averse after experiencing gains, and risk seeking after experiencing losses. Moreover, Shefrin and Statman (1985) state that prospect theory cannot itself explain disposition effect in different situations. Therefore, they propose that disposition effect arises from several behavioral biases, including mental accounting and regret aversion besides prospect

theory. According to mental accounting, decision makers tend to isolate different kind of gambles faced into separate accounts. In addition, a new mental account is opened when the stock is purchased and selling stock at loss is avoided, because individuals do not want to close mental account at loss. Furthermore, because of regret aversion, individuals might avoid realization of losses because it would prove that they have made a mistake. (Shefrin & Statman, 1985.)

Even though prospect theory has gained popularity among researchers as the driver of disposition effect, it has also faced criticism by recent studies. For example, Kaustia (2010) in addition to Barberis and Xiong (2009) find prospect theory insufficient in explaining the disposition effect. Moreover, Barberis and Xiong (2009) propose that utility form realized gains and losses drives disposition effect. Kaustia's (2010) study shows that the propensity to sell a stock does not as gain or losses increase. He also points out the investor heterogeneity and that there are disposition investors in addition to rational investors in the markets. Furthermore, there might be different drivers for disposition effect depending on the investor.

2.4.5 Limited attention

According to recent literature, limited investor attention can cause market underreactions and offers a possible explanation for the post-announcement price drift (Hirshleifer et al., 2009; Reyes, 2018). Unlike traditional asset pricing models assume, attention is a scarce cognitive resource. It is limited, selective and requires effort. Furthermore, even though attention is divisible, it becomes nearly unitary at high levels of task load. (Kahneman, 1973.)

Based on prior literature, there are multiple possible factors that drive attention. According to Hirshleifer et al. (2009), distraction plays an important role in limited attention. For instance, when valuing a given firm, investors can be distracted by the earnings announcements and news by other firms. As a result, the market reaction to the earnings surprise weakens. Furthermore, attention is usually drawn to stimuli that

stand out and if the stimuli are not vivid enough, investors may fail to pay attention to them (Hirshleifer & Teoh, 2003). What also affects individuals' attention is availability heuristic, which refers to the tendency to direct attention to information that is easily recalled when assessing the frequency or likelihood of a phenomenon. Therefore, availability heuristic can lead to bias beliefs, since individuals tend to overweight information, that is vivid and recent. (Tversky & Kahneman, 1973.) There are also evidence suggesting that the salience and format with which public signals are presented affects investors' evaluations. Schrand and Walther (2000) show that when announcing earnings, managers strategically mention prior-period special gains rather than special losses to impact investors' assessments. Moreover, individuals tend to use information in the form it is presented rather than modifying it properly, following limited information processing capacity (Hirshleifer & Teoh, 2003).

There are two alternative theories about how attention affects financial performance. Based on Barber and Odean (2008), investors buy stocks that catch their attention, resulting in a temporary positive price pressure. According to the study, retail investors' attention is prone to be captured by salient news or events and increased attention leads to overevaluation of stocks and higher announcement returns. On the contrary, DellaVigna and Pollet (2009), Ben-Rephael et al. (2017), Hirhsleifer et al. (2009) suggest that increased attention imply faster information incorporation. According to their findings, investors pay attention to achieve information, which improves faster information discovery and produces higher market efficiency. Thus, higher attention on announcement results in lower announcement returns and less overvaluation.

2.5 Corporate social responsibility

In research, corporate social responsibility (CSR) is used for a group of different concepts and its meaning differs depending on the study. Thus, this section presents different definitions for CSR used in prior literature and introduces the two alternative theories about the influence of CSR on the firm value. Furthermore, the possible challenges of studying CSR are also discussed.

2.5.1 CSR definitions

According to Benabou and Tirole (2010), CSR is about sacrificing profits in the social interest. They state that firm must voluntarily exceed its legal and contractual obligations to make these sacrifices. CSR contains a wide range of behaviours, such as mindful of ethics, employee- and environment-friendly, caring about investors, and respectful of communities where the firm's plants are located. (Benabou & Tirole, 2010.) Based on Liang and Renneboog (2017), CSR includes activities that improve other stakeholder's welfare, such as investing in environment-friendly production processes, providing employee benefits, selecting suppliers with good working conditions and that avoid the use of child labor, and organizing projects to help the poor in developing countries. Furthermore, CSR activities can also include shared beliefs, civic engagement, and disposition towards co-operation between firm and its stakeholders (Lins et al., 2017). However, one commonly used definition is from the World Business Council for Sustainable Development (2000), which states that CSR "is the commitment of business to contribute to sustainable economic development, working with employees, their families, the local community and society at large to improve their quality of life." Moreover, they include human rights, employee rights, environmental protection, community involvement, and supplier relations as the key issues in CSR (Holme et al., 2000.) All of these different definitions demonstrate how dimensional CSR is.

Despite the increasing importance of corporate social responsibility and green values, it has been unclear how CSR affects firms' value. Until this day, there are two opposite theories about CSR and its impact on firm profitability proposed in the literature. The shareholder value maximization theory is based on the neoclassical economics' view, which states that CSR activities destroy shareholder's value (e.g., Waddock & Graves, 1997). On the contrary, according to stakeholder value maximization theory, CSR supports financial performance and has a positive link to the firm value (Deng et al., 2013). These two theories are discussed in the next subsections to achieve better

understanding of the possible effects of CSR not only to the firm's value, but also shareholders', and stakeholders' value.

2.5.2 Shareholder-value maximization theory

The traditional view in finance has stressed the shareholder value approach, which views shareholders as well as other market participants as rational and self-interested profit-maximisers. (Benabou & Tirole, 2010; Liang & Renneboog, 2017). Moreover, as firm's only goal is to maximize their shareholder value, CSR is only seen as distraction and costly for the firm. Adapting CSR activities requires resources, which might put the firm in a competitive disadvantage and reduce firm's profitability and shareholder wealth. For example, adapting pollution control equipment while other competitors do not would be costly for the firm. In addition, the benefits of responsible behavior are difficult to measure. (Waddock & Graves, 1997.) Because socially responsible behavior is costly for the companies, it is government's duty to protect other stakeholders with regulation and contracts and bear the costs (Waddock & Graves, 1997; Benabou & Tirole, 2010). Furthermore, since investors are seen as profit-maximisers, their only interest is to generate wealth. Therefore, they do not accept lower expected financial return in exchange of societal externalities in utility. (Barber, et al., 2021.)

2.5.3 Stakeholder-value maximization theory

According to stakeholder-value maximization theory, firm's CSR activities increase the shareholder wealth, since focusing on the other stakeholders' interests enhances their trust and support to the firm's operation (Deng et al., 2013; Lins et al., 2017). Deng et al. (2013) findings support the stakeholder-value maximization theory and suggest that firms that take various stakeholders into account in their business operations, commit investments activities that improve their long-term profitability and efficiency. These eventually lead to increased shareholder value. Similarly, Edmans (2012) finds out that job satisfaction is positively correlated with shareholder return in the long run. Furthermore, Lins et al. (2017) show how the importance of CSR and trust between the

firm and its stakeholders increase during a crisis. During the 2008–2009 crisis, high CSR experienced higher profitability, growth and stock returns compared to low CSR firms. These findings also support the stakeholder-value maximization theory. When it comes to the investors' interests, Hartzmark and Sussman's (2019) findings suggest that investors value sustainability and view it as a positive company attribute. Similarly, Barber et al. (2021) show that investors are willing to pay for non-financial characteristics of investments and accept lower returns from responsible investments. These results suggest that investors do not only value wealth but also investments with positive external impacts, which is in line with stakeholder-value maximization theory.

2.5.4 Challenges in studying CSR

The stakeholder-value maximization theory has gained support especially from recent studies (e.g., Aktas et al., 2011; Deng et al., 2013; Lins et al., 2017). However, due to the mixed results, it is still unclear whether CSR-activities increase the firm's financial performance or decrease it. One reason for the mixed results is that the link between CSR and firm performance is difficult to measure (Waddock & Graves, 1997). Measuring CSR is challenging because it is complex, and its activities vary and occur with different characteristics depending on the industry (Waddock & Graves, 1997). Liang and Renneboog (2017) note that even though CSR is a multidimensional construct and externality-driven, most studies usually take only one perspective on CSR, such as environmental protection (Dowell et al., 2000), employee satisfaction (Edmans, 2012), or consumer satisfaction (Servaes & Tamayo, 2013). Furthermore, CSR has been generally studied only in one country, usually USA. However, based on Liang and Renneboog's (2017) findings, CSR is in fact related to the legal origin of a country and reflects social preferences for good corporate behavior and a stakeholder orientation, which are more embedded in civil law countries than common law countries.

Furthermore, the direction of causality is still unsettled in the relationship between CSR and financial performance (Liang & Renneboog, 2017; Waddock & Graves, 1997). Waddock and Graves (1997) argue that firms that are doing well financially may have

more resources to invest in CSR-activities. Similarly, Hong et al., (2012) show that financial constrains are an important driver of CSR and that firms are more likely to do good when they do well. Waddock and Graves (1997) also consider the impact of good management on the firm's CSR-activities. They state that good management results in good stakeholder relations such as good employee relations, which enhances productivity and eventually leads to better financial performance. All in all, because of these challenges and unresolved issues, more research is needed.

2.6 Mergers and acquisitions

While mergers are one of the most studied areas in Finance, some issues remain unresolved. Although M&A construct is multidimensional, the research has been largely one-dimensional resulting in only partial understanding of the phenomenon. In Finance, most studies surrounding mergers and acquisitions have focused on value creation for shareholders. Based on the results, the impact of M&A to the firm value has mixed evidence. This section focuses on discussing the prior research and theories about mergers and acquisitions and their impact on firm value.

One of the most immediate and dramatic way to expand company's size and make an impact to market structure is to purchase another company. Indeed, mergers occur when two or more independent companies come under the control of a single company. What differs mergers from acquisitions is that acquisitions happen when one company buys another. Acquisitions can be hostile takeovers, when management of the target company resists being purchased by the acquiring company. However, when two companies merger, they become a single new company. (See e.g., V. Tremblay & C. Tremblay, 2012, p. 521.)

The prior literature categorizes mergers into following three types: horizontal, vertical, and conglomerate mergers. V. Tremblay and H. Tremblay (2012, p. 521) present that horizontal merger include companies that compete in the same market. For example, a merger including two companies in the same industry is a horizontal merger.

Furthermore, vertical mergers include companies that have a buyer-seller relationship. Thus, a manufacturer buying one of its suppliers is considered as a vertical merger. Conglomerate mergers include all those mergers that are not horizontal nor vertical. These mergers can include companies buying other companies that produce unrelated products. These products may be totally different (a pure conglomerate merger) or similar (an impure conglomerate merger) if the goal of the merger is product extension. (V. Tremblay & H. Tremblay, 2012.)

2.6.1 Value theories

There is mixed evidence whether M&A destroys value, creates value, or preserves value. Furthermore, there are two schools of thoughts with opposite views whether mergers decrease or increase value. These schools are value increasing, efficient market school and value decreasing, agency schools. These value increasing and decreasing theories are presented next.

Value increasing theories suggest that mergers benefit both parties and increase value. Value increasing theories include e.g., theory of efficiency, market power theory, and theory of corporate control, that all suggest increasing value from different aspects. According to theory of efficiency, mergers are undertaken to generate net gains through synergies for both target and acquiror (Hellgren et al., 2011). Furthermore, market power theory suggests that mergers lead to increased market power as a result of allocative synergy gains (see Feinberg, 1985). This view is supported for by e.g., Cefis et al. (2008) and Sapienza (2002), which both observe increased profits and decreased sales after mergers. On the other hand, according to Manne (1965), mergers increase value because of more capable managers replacing the managers of the underperforming target company. This view is called the theory of corporate control, and it suggests that after the change of management, the new managers offer higher value to the owners. Studies by Golubov et al. (2015) and Delis et al. (2022) support this view.

Despite the fact that the main goal of mergers is to achieve increased value and generate net gains, the impacts of mergers and acquisitions to the acquiring firm are usually negative (see e.g., Andrade et al., 2001; Delis et al., 2022; Hackbarth & Morellec, 2008; Moeller et al., 2004; Mulherin & Boone, 2000). Thereby, various value decreasing theories has been presented to explain the negative returns of mergers. These theories include e.g., theory of managerial hubris (Roll, 1986), managerial discretion (Jensen, 1986) managerial entrenchment (Shleifer & Vishny, 1989) and theory of empire building (Marris, 1963). These theories suggest that the failure results from managers' wrong decisions.

According to Roll (1986), theory of managerial hubris refers to the managers' tendency of being overconfident about their skills to increase a firm's value, which leads to over-estimations and finally to failure. Moreover, theory of managerial discretion, proposed by Jensen (1986), states that high levels of liquidity increase managerial discretion, which leads to poor acquisitions. Further, Shleifer and Vishny (1989) suggest that the failure of mergers is due to managers' selfish decisions that aim to increase their own value to the firm and not shareholder's value. Finally, the theory of empire-building (Marris, 1963), suggests that managers are motivated to invest in the growth of their firm's sales to achieve power and fame. The last two mentioned theories proposed by Shleifer and Vishny (1989) and Marris (1963) result from agency problems that arise from self-serving managers (Jensen, 2005).

2.6.2 Method of payment

According to prior research, the method of payment can affect stock returns after the M&A announcement. Different theories have been proposed to explain why managers choose to pay with cash, stocks, or a mix of them and further what signals does the method of payment send to the shareholders (Mateev, 2017). For example, Myers and Majluf (1984) propose the signaling hypothesis of information asymmetry, which holds that the acquiror has more information about the true value of the target. Thus, the method of payment signals information about the true value of the target. According

to the signaling theory, cash is used as a method of payment when the target firm is assumed to be undervalued to maintain all the gains for the current shareholders. On the contrary, stock is used as a method of payment when the target is assumed to be overvalued. This way the risk and losses of the acquisition are being shared with the current shareholders and the target's shareholders. In conclusion, cash as a method of payment is perceived as a positive signal and stock as a negative signal about the target firm value by the market participants. This also suggests that cash-offer acquisitions gain more than stock-offer acquisitions (Travlos, 1987).

2.6.3 Industry relatedness

There are two opposing theories about whether industry diversification increases value or decreases it. Thus, whether acquiring a target company from related industry or unrelated industry leads to abnormal positive returns or negative returns. According to Lewellen (1971), industry diversification leads to an insurance effect because of more stable cash flows, which suggests that industry diversification leads to increased value. Similarly, Stein (1997) presents that diversified companies benefit from a reduced dependence on external financing. However, other studies suggest that diversification is costly to firms. For example, Rajan et al. (2000) suggest that internal capital markets of diversified firms are less efficient, which results in increased costs. Martynova and Renneboog (2006) also state that diversification destroys value and is driven by manager's personal goals. This suggests that companies acquiring targets from a related industry may gain more abnormal returns than companies that aim to diversify and acquire targets from unrelated industries.

2.6.4 Merger waves

Mergers and acquisitions tend to cluster in time and occur in waves. Nelson (1959) points out that mergers are highly concentrated in time and that they cluster during periods of high stock market valuations. There has been observed four merger waves in the U.S. during 1895-2005 with different characteristics (V. Tremblay & H. Tremblay,

2012, p.522–523). Shleifer and Vishny (2003) state that in the late 1990s a large wave of mergers typically included firms in the same industry and the method of payment was generally stock, like in the merger wave in the 1960s. On the contrary, the "conglomerate" wave in the 1960s involved mergers with firms from different industries. In addition, Shleifer and Vishny (2003) characterize the 1980's wave as a hostile takeover wave while it contained financier acquirors and the method of payment being often cash rather than stock.

Furthermore, it is still not clear why mergers occur in waves. The debate about the reason behind the merger waves includes managerial timing of market overvaluations (Rhodes-Kropf & Viswanathan, 2004; Shleifer & Vishny, 2003) and shocks to an industry's environment (Mitchell & Mulherin, 1996). These competing explanations can be categorized into behavioral and neoclassical groups. According to the neoclassical view, mergers are seen as an efficiency-improving reaction to various industry shocks and is driven by fundamental factors. Mitchell and Mulherin (1996) argue that industry assets are reallocated through mergers as a response to the changes brought by economic shocks. The economic shocks include changes in input costs, deregulation, and innovations in financing technology. Mitchell and Mulherin (1996) suggest that the merger waves occur because industry structure adapts to a changing economy. The neoclassical view is supported by Harford (2005) and Maksimovic and Phillips (2001). However, according to Shleifer and Vishny (2003), the neoclassical theory is incomplete, because it only focuses on industry-specific shocks. Furthermore, the neoclassical theory predicts that mergers result in increased profitability, which is not the case in most mergers as discussed earlier.

Behavioral theory assumes that the mergers are driven by stock market valuations and that over- and undervaluation occur as a consequence of market inefficiency. Shleifer and Vishny's (2003) model suggests that rational managers take advantage of the market inefficiencies and use overvalued stocks to buy real assets of undervalued targets through mergers. According to their model, the wave-like clustering in time

results from overvaluation combined or in certain industries. Moreover, Rhodes-Kropf and Viswanathan (2004) model suggests that targets will accept more offers from overvalued acquirors during market valuation peaks because they overestimate synergies during these periods, which leads to merger waves. This model differs from Shleifer and Vishny's (2003) because it assumes that the imperfect information about the synergies leads to targets' managers accepting the overvalued equity.

3 Literature review

This section presents the prior literature and its main findings in CSR, limited attention, and post-announcement price drift to gain deeper understanding of the subjects and how prior research has approached the matter. Furthermore, the used data and methodology are also introduced as they have motivated this thesis and impacted the chosen data and methodology. Because prior literature has not investigated CSR, investor attention or M&A announcement returns together before, all these subjects are discussed separately. Furthermore, the prior studies on financial impact of attention to sustainability issues is also considered since the results provide information about how investors consider sustainable issues and whether it has impact on stock returns as well.

3.1 Corporate social responsibility

CSR elements in mergers and acquisitions have been studied by Deng et al. (2013), Aktas et al. (2011) and Arouri et al. (2019). Deng et al. (2013) use a great number of completed U.S. mergers in 1992-2007 to investigate whether CSR creates value for acquiring firm's shareholders and therefore support the stakeholder value maximization view. Their firms' CSR performance data is obtained from the KLD Research & Analytics, Inc. (KLD) STATS database and the mergers data from Thomson Financial's Securities Data Company (SDC) Platinum database. The univariate tests include comparing the CARs from high CSR acquirors and low CSR acquirors. The regression analysis consists of cross-sectional regression analysis to better understand the cross-sectional variation in acquiror CARs and two-stage least squares (2SLS) regressions to examine the relation between a firm's CSR activity and merger outcome variables. Furthermore, Deng et al. (2013) also use the four-factor model (Fama & French, 1993) to examine the long-term post-merger stock returns.

Based on Deng et al. (2013) findings, they strongly support the stakeholder value maximization theory. High CSR acquirors have higher merger announcement stock

returns, better long-term operating performance and take less time to complete than low CSR acquirors. In addition, they also find other positive impacts on the wealth of other stakeholders, such as suppliers and customers, around merger announcements. For example, there seems to be less layoffs by high CSR acquirors compared to low CSR acquirors, that tend to restructure the staff of the merged firm more.

In the international study, Arouri et al. (2019) investigate whether the acquirors' CSR impacts mergers and acquisitions completion uncertainty. They use arbitrage spreads following the M&A announcements as an estimate of deal uncertainty. The data consists of international bids announced in 2004-2016, retrieved from Thomson Financial's Securities Data Company (SDC) Platinum database. The CSR data used is provided by ASSET4 Thomson Reuters ESG Research Data. In Arouri et al. (2019) regression model, the dependent variable is the arbitrage spread, and the independent variable is the acquiror CSR level. According to their results, the arbitrage spread and the acquiror's CSR are negatively related. This suggests that strong CSR is associated with narrower arbitrage spreads and lower uncertainty. Furthermore, their findings also suggest that CSR is an important determinant of the observed risk surrounding M&A operations.

Unlike the studies presented above, Aktas et al. (2011) focus on examining how the markets react to the target's responsibility around M&A announcements. Thus, they research whether target's SRI practices have a positive or negative impact on merger announcement returns. Their environmental and social performance data is retrieved from Innovest Strategic Value Advisors (Innovest). They use Intangible Value Assessment (IVA) as a measure for responsibility, which includes 120 performance factors. Moreover, their M&A sample is extracted from the Thomson Securities Data Company (SDC) Mergers and Acquisitions database from 1997 to 2007. The multivariate regressions include target CAR as the dependent variable and its Innovest rating as the independent variable. Based on the results, the markets reward targets for being responsible and making environmentally and socially responsible investments.

Furthermore, the findings also show that the acquiror's environmental and social performance increased after the acquisition of a responsible target. This suggests that acquirors can learn from responsible targets and become more responsible themselves as well.

3.2 Investor attention

When examining investor attention, prior literature has focused on investigating retail investor attention rather than institutional investor attention to news. Retail investor attention has been studied mainly using search frequency in Google (Search Volume Index (SVI)). This direct measure of retail investor attention is proposed by Da et al. (2011). Their study contains Russell 3000 stocks from 2004 to 2008. To capture attention paid towards particular stock, they investigate the SVI for stock ticker symbols. Their main variable is ASVI, abnormal SVI, which is defined as the log SVI during the current week minus the log median SVI during the previous eight weeks. Based on their findings, SVI captures retail investors' attention. Furthermore, an increase in SVI for Russell 3000 stocks predicts higher prices in the coming few weeks and an eventual price reversal within the year. In line with Barber and Odean (2008), Da et al. (2011) show how SVI contributes to the temporary positive price pressure and long-run underperformance for a sample of IPO stocks.

Investor inattention has also been studied in M&A-settings. Liu and Krystyniak (2021) and Reyes (2018) use SVI in their studies to analyse retail investor attention around merger announcements and its impact on price reactions. In Liu and Krystyniak (2021), the price reaction around the announcement is measured by CAR and the sample includes 1906 deals retrieved from Thomason Financial's Securities Data Company Platinum database and 2 878 582 firm-weekday observations. Based on their findings, investor attention to target firms increases significantly before merger announcement day. Furthermore, on the announcement day, the attention increases for both targets and acquirors, but is stronger for targets and large deals. Similarly, when investor

attention is high, the stock return response and abnormal trading volume are observed to be stronger for target firms.

Furthermore, using SVI, merger agreements from public U.S. firms between 2004–2011 and M&A news articles, Reyes (2018) finds out that investors' attention to a merging company increases as the announcement date approaches, reaches its highest point on the announcement day, and remains high for following few days. The abnormal announcement returns are defined by buy-and-hold abnormal returns, which includes three different portfolios for robustness: A market portfolio, an industry portfolio, and a firm characteristics-portfolio. According to the results, when there is abnormal attention around M&A announcements and no news coverage about the merger, the relationship between investor attention and post-announcement abnormal returns is negative. On the contrary, the relationship between investor attention and the abnormal announcement returns is observed to be positive when there is news coverage. According to Reyes (2018), the negative relationship results from the anticipation of more sophisticated investors, which leads to the information faster incorporation. On the other hand, Reyes (2018) suggests that the positive relationship between investor attention and the abnormal announcement returns results from retail investor attention that is provoked by the news. These results are in line with Barber and Odean (2008).

When it comes to previous studies on institutional investor attention, Ben-Rephael et al. (2017) introduce a direct measure of abnormal institutional attention (AIA) using news searching and reading activity for specific stocks on Bloomberg terminals. Bloomberg terminal users consists of institutional investors, such as portfolio managers, analysts and traders that work in the financial industries such as banking, asset management and institutional financial services. (Ben-Rephael et al. 2017). Compared to retail investor attention, institutional investor attention responds more quickly to major news events and facilitates permanent price adjustments. Based on their study on abnormal institutional attention and price reactions to earnings announcements,

the documented price drifts following the announcements are driven by announcements which institutional investors fail to pay attention. These results are in line with Reyes's (2018) findings.

3.3 The financial effect of public attention to sustainability issues

The previous studies on the financial effect of public attention to sustainability issues have examined the issue in variable ways. For example, Capelle-Blancard and Petit (2019) examine the stock market reaction to 33000 ESG news from 2002 to 2010 and to what features of the news or the target firm does the market react. Theis results suggest that shareholders mainly react to negative ESG news and the firm value changes around 0,1% around the publication. In addition, Servaes and Tamayo (2013) examine the impact of CSR activities of high public attention awareness firms and low public awareness firms. By using firm's advertising expenditures as a measure for attention and customer awareness, they find out that high public awareness firms benefit from CSR but are also more penalized when there is CSR concerns. On the other hand, the impact of CSR activities to the firm value of low public awareness firms is either insignificant or negative.

When it comes to the SVI, both Ouadghiri et al. (2021) and Aouadi and Marsat (2018) utilize it in their research to measure attention. Ouadghiri et al. (2021) investigate the media coverage and SVI attention impacts on the returns of sustainability stock indices, FTSE4Good USA index and DJSI US Index. The used keywords in Google search are" pollution" and "climate change". Based on their results, the returns of sustainable indices are positively related to the SVI for climate change and pollution, to media attention, and to the timing of natural disasters. In the international study conducted by Aouadi and Marsat (2018), the used measure for attention is the Google search volume of the firm names. The purpose of their study is to investigate the relationship between CSR and firm value. Their results suggest that CSR score has an impact on market value only for high attention firms, that are larger, perform better, and are more searched on Internet, which is also in line with Servaes and Tamayo's (2013) results.

3.4 M&A announcement drift

Like most empirical research on mergers, this thesis focuses on daily stock returns surrounding announcement dates. Short-term profitability of mergers has been studied by e.g., Andrade et al. (2001), Hackbarth and Morellec (2008), Moeller et al. (2004), Mulherin and Boone (2000), and more recently by Delis et al. (2022). Most of the literature report that the shareholders of target companies receive positive abnormal returns while acquiring firms earn low or negative returns around the announcement date. This evidence suggests that mergers create value especially for the targets. Moreover, the most used event window is the 3-day $(-1, +1)$ period surrounding the merger announcement date (see Andrade et al., 2001; Hackbarth & Morellec, 2008; Mulherin & Boone, 2000).

Hackbarth and Morellec (2008) use a sample of 1086 takeovers of publicly traded U.S. firms in period 1985–2002 to investigate the behavior of stock returns in mergers and acquisitions. According to their results, the 3-day cumulative abnormal returns centered on the announcement date indicate that target CARs are 24.97% while acquiror CARs are -0.52%. Mulherin and Boone (2000), Andrade et al. (2001) and Delis et al. (2022) findings are similar with varying sample periods from 1980 to 2016. Furthermore, Mulherin and Boone's (2000) study also suggests that the acquiror returns are sensitive to the event window and report positive 0.65% but insignificant returns for the acquiror for $(-42, +1)$ period around the announcement. On the other hand, Andrade's et al. (2001) results suggest that mergers do create value for the shareholders on average, since the combined CARs over 3-day event window is 1.8% on average at 5% significance level. Furthermore, the average 3-day abnormal return for target firms is 16%, which is also reported as significant at 5% level. However, the 3-day CARs for acquirors are stated to be -0.7% and not statistically significant. According to newer research, the findings are similar. Delis et al. (2022) also find high 3-day CARs (25.6%) for targets and low (1.3%) for acquirors on average. They suggest that the low returns for acquirors results from the fact that acquirors are either extremely good or bad performers, which is in line with Golubov et al. (2015).

According to the prior literature, some merger characteristics do play a role in abnormal returns around the merger announcement. There is evidence that for example the method of payment, firm size and diversifying transactions affect the abnormal returns. Moreover, Andrade's et al. (2001) findings suggest that target firm shareholders do better when there is no equity financing. Their results indicate that the reported 3-day average abnormal return for stock-financed target firms is 13% and for no-stock financed target firms is 20.1%. Furthermore, the combined 3-day abnormal returns for mergers financed without stock are 3.6%, while combined returns for stock-financed mergers are slightly positive but not statistically significant. These findings are also supported by Moeller et al. (2004), that observe higher CARs for targets related to transactions paid for with cash than with equity.

In addition, Moeller et al. (2004) results also suggest that large firms have lower announcement abnormal returns than small firms. The 3-day CARs for small firms exceed the 3-day CARs for large firms by 2.24 percentage points. This result is statistically significant at the 1% level. According to Moeller et al. (2004), large firms offer larger acquisition premiums than small firms, which suggests that managerial hubris plays a role in merger decisions of large firms. In addition, Moeller et al. (2004) find out that small firms are more likely to make diversifying acquisitions than large firms.

The prior literature has also studied the long-term abnormal returns following merger announcements. Furthermore, these long-term event studies have reported negative abnormal returns over three to five years following the merger announcement (see Loughran & Vijh, 1997; Rau & Vermaelen, 1998). According to these studies, investors are not able to quickly assess the full impact of the announcement to the wealth. Thus, the conclusions based on the announcement-period event window are biased. However, many studies have stated methodological concerns regarding long-term event studies (Andrade et al., 2001; Mitchell & Stafford, 2000). According to Andrade et

al. (2001), the model of expected results is not crucial in short-window event studies, but rather in event studies that cover multiyear horizons. Andrade et al (2001) also point out that depending on the used model, three-year expected returns may easily vary from 30% to 65%. In conclusion, the reported results of long-term event studies should be analyzed with caution.

4 Data and methodology

This section presents the used data and methodology. The following subsection focuses on describing the main data sources and explains the used variables for CSR and investor attention. After discussing these two important proxies, the section continues by presenting the used methodology, including univariate tests and regression models.

4.1 Data

The primary data consists of M&A announcements retrieved from Thomson Reuters M&A database. The sample is restricted to public and completed mergers in the U.S. between the years 2010 and 2020, to acquirors with ESG data available in Refinitiv, and further to M&A announcements where targets and acquirors have daily adjusted stock data available in Datastream. Furthermore, the sample only includes those firms that have attention data accessible in Google Trends, proxied by stock tickers. Overall, accounting for all these requirements restricts the data to a total of 86 M&A announcements that have all needed data jointly available. This joint sample of 86 acquirors and targets are later used to conduct the regression tests. However, if observed separately, ESG data is available for 625 acquirors, and investor attention data for 470 acquirors and 328 targets, respectively. Furthermore, the cumulative abnormal returns (CARs) are available for 603 acquirors and 271 targets. Because the sample size varies depending on the data availability of the variables, and in order to draw more robust results using all available data, there are different sample sizes used in the subsequent empirical analysis.

The time period in this thesis spans from 2010 through 2020 due to two main reasons. First, during that decade, Google has become one of the most used information searching tool in internet. Second, both investors and firms have become more concerned about the social impact of their own and others' actions during last decade, which also affects their decision making. Moreover, the disclosure of ESG information

has increased dramatically during the last two decades and firms' ESG data is becoming more available to investors (Christensen et al., 2022).

4.1.1 CSR data

A firm's ESG score is used as a proxy to measure its involvement in CSR activities. The involved ESG scores in this thesis are Thomson Reuters ESG scores which cover 6000 public companies globally, measuring a firm's relative ESG performance across 10 main categories such as innovation, emissions, management, shareholders and human rights (Refinitiv, 2021). More specifically, the selected type of ESG rating is *Thomson Reuters ESG Score*, which is an overall company score based on the self-reported information in the environment, social and corporate governance pillars. This ESG score is a weighted average of the underlying 10 category scores. These category scores and their weights are presented in Table 1.

Table 1. ESG score constituents.

Pillar	Category	Indicators in rating	Weights
Environmental	Resource use	20	11%
	Emissions	22	12%
	Innovation	19	11%
Social	Workforce	29	16%
	Human rights	8	4.50%
	Community	14	8%
	Product responsibility	12	7%
Governance	Management	34	19%
	Shareholders	12	7%
	CSR Strategy	8	4.50%
Total		178	100%

In principle, the ESG score is computed by giving higher weights to categories that encompass a higher number of topics relative to other categories, meaning that the weighting is equal, but the score is driven by the size of each category. The resulting ESG score varies between 0 to 100 which is comparable between companies for which the score is available. (Refinitiv, 2021). In this thesis, ESG score over 70 is considered as

high ESG and ESG score lower than 30 is considered as low ESG. Furthermore, the used score is the last available ESG score for the acquiror before the M&A announcement date.

There are a few important issues to consider when assessing the used ESG scores and results, however. First, the ESG score is based on the company's self-reported information. Since the companies have freedom to choose what ESG issues to report and publish, it may affect the ESG rating the agency has given to it. Second, it is to be noted that despite the increasing use of ESG scores, it is not clear for rating agencies what rating to give to individual firms. For instance, Christensen et al. (2022) find that greater ESG disclosure leads to greater ESG rating disagreement between ESG rating agencies. Their study analyzes data from three of the largest providers of ESG ratings to investors, including are Thomson and Reuters, MSCI, and Sustainalytics. According to their results, it appears that data providers are more likely to agree on the level of ESG scores and their inputs in the absence of ESG disclosures. This may result from the fact that they use same kind of computation techniques and rule of thumbs in such cases. A higher level of ESG disclosures in turn seems to increase the possibility of disagreement since the agencies may use different metrics or weighting to evaluate the firm ESG performance when more ESG-related information is available. (Christensen et al., 2022.)

Furthermore, Christensen et al. (2022) propose that since the ESG data is less formalized and systematized compared to financial data, it may be the reason why agencies might analyze the ESG data in less structured way, resulting in biases. For instance, prior ESG data may affect the way the analyzer views other ESG data produced by the same company (Christensen et al. 2022). In order to make ESG ratings more reliable, Christensen et al. (2022) suggest that there should be tighter rules and a more normalized process should be developed to determine what indicates a good ESG performance. All in all, these findings should be considered when assessing the used ESG ratings and results.

4.1.2 Investor attention

Following recent literature, daily Search Volume Index (SVI) data sourced from Google Trends is used to proxy for retail investor attention to merging companies. SVI data is publicly available from Google Trends, and it reflects searches people make on daily basis on Google. SVI is a suitable proxy for attention, given that Google is a widely used search tool to gather information and the measure captures fluctuations in search trends. Google Trends also normalizes search data to make comparisons between search terms easier. More formally, SVI is calculated as follows

$$SVI_t^j = \frac{Searches_t^j}{Total\ Searches_t * Constant^j}, \quad (2)$$

where $Searches_t^j$ is the number of searches for search term *j* in the chosen geographic area in period t, $Total\ Searches_t$ is the total number of searches in period *t,* and $Constant^j$ is a scaling constant. The searched terms are scaled based on the topic's search volume in proportion to the total number of searches on all topics so that the values of SVI_t^j range between 0 and 100. (Google Trends, 2021.) One drawback of this calculation logic is, however, that Google Trends favors popular searches in a sense that if a search term receives relatively small amount of interest, the SVI may remain rather small or zero even if the attention to this term increases since the measure is always scaled. (Google Trends, 2021).

Google Trends allows the user to select a custom period and geographic area for the SVI results. Since this study concentrates on the public U.S. mergers done from 2010 to 2020, the SVI data is limited to only include the search volume of acquirors and targets around the announced mergers in the U.S. Following Reyes (2018), daily SVI data is extracted using stock ticker symbols as a proxy for attention to firms during M&A announcements. As explained in Reyes (2018), using company names is problematic since there may be different variations of the company name, whereas stock tickers are similar in form. In addition, people may search for company names due to different

reasons which may not be as related to investing compared to using stock tickers which are more generally used to search for financial information about a given company.

In similar fashion to Reyes (2018) and Liu and Krystyniak (2021), as certain stock tickers can have too generic or multiple meanings, such tickers are omitted from the sample since they may not so accurately be tied to measure investor attention. This means that ticker symbols such as “FACT” for Facet Biotech Corp, or “ET” for ExactTarget Corp are dropped from the sample to make the data more reliable in this regard. In addition, ticker symbols with only one letter are also dropped from the sample. The extracted SVI data is then further modified to capture abnormal search volumes around M&A announcements. To achieve this, this thesis follows Liu and Krystyniak (2021) who measure abnormal attention as follows

$$ASVI_t^j = \frac{SVI_{i,t} - Average\ SVI_{i,(t-360,\ t-31)}}{Average\ SVI_{i,(t-360,\ t-31)}}, \quad (3)$$

where $ASVI$ is the difference between a stock ticker’s daily SVI and its average starting from day –360 until day –31 prior to the M&A announcement, scaled by the average. The weekends are excluded from the calculations. When it comes to the possible spillover effects in attention, the most recent month is also excluded from the calculations. Virtually, the resulting measure is interpreted so that a value over zero signals abnormal attention in relation to the past year’s average. (Liu & Krystyniak, 2021).

4.2 Methodology

The methodology of this study is mainly based on the event study methodology and analysis performed in Liu and Krystyniak (2021), Deng et al. (2013), and Reyes (2018). The used methodology includes univariate tests for both investor attention and cumulative abnormal returns (CARs) around the sample M&A announcements. Furthermore, regression models are used to study the potential drivers of investor

attention and to further examine the relationship between CAR, investor attention and acquirors' ESG score around the M&A announcements.

4.2.1 Univariate tests

The univariate tests include examining the investor attention and the stock price reactions around the M&A announcements. The investor attention univariate tests are based on Reyes (2018) but modified to take the ESG score into account. Consequently, the development and magnitude of abnormal investor attention (ASVI) from day –5 to day 5 relative to the merger announcement date (day 0) is compared between high ESG and low ESG deals, and further between targets and acquirors. The test of difference is carried out for both means and medians. High and low ESG deals refer to M&A deals where the acquiror party is defined as an entity with high or low ESG.

Based on Deng et al. (2013), to examine the total impact of an event, the cumulative abnormal returns (CARs) are calculated for acquirors and targets around M&A announcement windows [–1, 1], [–2, 2], [–5, 5]. The abnormal stock return is calculated using the market model as a basis, which includes regressing stock returns of a given company on market returns. The market model is used to define the predicted stock returns, and the equation of the market model is as follows

$$r_{it} = \alpha_i + \beta_i r_{Mt} \tag{4}$$

where r_{it} presents the stock return on day t while r_{Mt} presents the market return on day t. Both α_i and β_i are coefficients that are estimated by running a standard OLS regression over the estimation window. As for market returns, this thesis follows general convention by using S&P500 returns as a proxy for the market performance, and the used estimation window is 252 trading days. Finally, the abnormal return is defined to be the difference between the actual stock return and the predicted stock return on each day. After this, the cumulative abnormal returns (CARs) are calculated as the sum of the abnormal returns during the event window. The CARs are calculated

for [–1, 1], [–2, 2], [-5, 5] windows for 603 acquirors and 271 targets and separately to high ESG and low ESG deal subsamples for which mean differences is also tested.

4.2.2 Regression models

The used regression models are presented next. The Equation 5 investigates what firm and deal characteristics drive the investor attention and it is used to test the third hypothesis, that is, whether acquirors' CSR level affects the level of attention investors pay to M&A announcements. The regression model is based on Liu and Krystyniak (2021) but modified to take acquirors' ESG scores into account, given that Liu and Krystyniak (2021) do not consider CSR aspect in their model. The inclusion of ESG is further motivated by prior CSR literature as many studies have either used company CSR scores or adjusted CSR scores as a proxy (e.g., see Deng et al., 2013; Arouri et al., 2019) or have constructed high ESG and low ESG portfolios based on firm ESG scores (Derwall et al., 2005). Motivated particularly by this division to high ESG and low ESG companies, the same kind of division is used in this thesis, however in the form of high ESG and low ESG dummy variables. Along with the data availability, the dummy variables are constructed as they capture well the relative extreme percentiles of the used distribution. These considerations lead to the following regression model

$$LASVI_{i,0} = \beta_0 + \beta_1 HighESG + \beta_2 LowESG + \beta_3 Acquiror\ characteristics_i + \beta_4 Target\ characteristics_i + \beta_5 Deal\ characteristics_i + \varepsilon, \quad (5)$$

where the dependent variable is $LASVI_{i,0}$ which is a logarithm of firm ASVI on the announcement day 0, $\log(1 + ASVI_{i,0})$, introduced in Liu and Krystyniak (2021). $LASVI_{i,0}$ is used to ensure that its distribution is closer to a normal distribution. The variables $HighESG$ and $LowESG$ are dummy variables that indicate whether the acquiror entity of the merger has a high ESG score or low ESG score as discussed earlier. If the ESG score is over 70, the $HighESG$ dummy variable takes a value of 1 and 0 otherwise. Similarly, if the ESG score of the acquiror is below 30, the $LowESG$ dummy variable takes a value of 1 and 0 otherwise. These thresholds are used both because

they are generally used and, accounting for the sample size, to ensure that the groups are more representative.

Acquiror and target characteristics include a high-tech dummy, firm size, Tobin's Q, and book-to-market ratio which are all retrieved from Thomson Reuters. Prior studies show that investor attention to firm news vary depending on these firm characterizes (DellaVigna & Pollet, 2009; Liu & Krystyniak, 2021). The high-tech dummy, firm size and book-to-market ratio are included in Liu and Krystyniak's regression model (2021). However, because Reyes (2018) also includes Tobin's Q in his study when investigating what affects investor attention, it is also included in Equation 5. The high-tech dummy takes a value of 1 if the firm is a high-tech firm based on the M&A macro industry classification and 0 otherwise. Firm size is the natural logarithm of market capitalization and Tobin's Q is the ratio of market value of assets to book value of assets, based on Reyes (2018). The deal characteristics include offer premium, diversifying dummy, tender offer dummy and an all-cash deal dummy all sourced from Thomson Reuters M&A database. These deal characteristics are also included in Liu and Krystyniak (2021) regression model. Following their study, offer premium is defined as the difference between initial offer price and target's stock price one day before announcement divided by target's stock price one day before announcement. Diversifying dummy takes a value of 1 if the target's primary SIC code is distinct from its acquiror. Tender offer dummy takes a value of 1 if merger is a tender offer and 0 otherwise. Finally, all-cash deal dummy takes a value of 1 if the merger is financed with only cash and 0 otherwise.

The second regression model presented in Equation 6 is used to examine the relationship between abnormal investor attention, ESG and abnormal returns. It tests the hypothesis 1 and 2 to see whether investor attention or CSR have an effect on the M&A announcement returns. In the spirit of the first regression model, the second model is also based on Liu and Krystyniak (2021) but is augmented with ESG dummy variables as follows

$$CAR_{0,1}^{c} = \alpha + \beta_1 HighESG + \beta_2 LowESG + \beta_3 HighAttention_0^c + C^c + FE^c, \quad (6)$$

where $CAR_{0,1}$ is the cumulative abnormal return of company *c* on the announcement day and a day after. $HighAttention_0^c$ indicates the abnormal attention on the announcement day, where following Liu and Krystyniak (2021), it is a dummy variable that takes a value of 1 if the $ASVI_{i,t}$ of the company belongs to the top quartile according to the attention they receive and 0 otherwise. $HighESG$ and $LowESG$ are dummy variables that are based on the ESG score of the acquiror as in the Equation 5. The control variables included, C^c, are firm and deal characteristic variables, which are firm size, high-tech dummy, Tobin's Q, book-to-market ratio, offer premium, diversifying dummy, tender offer dummy, and the all-cash deal dummy, same as in Equation 5. Furthermore, year fixed effects, FE^c , are also included in the model.

Furthermore, related to the first and second hypothesis, to further test whether the abnormal performance depends on the joint effect of investor attention and $HighESG$ ($LowESG$) the next regression model is run:

$$CAR_{0,1}^{c} = \alpha + \beta_1 HighESG + \beta_2 LowESG + \beta_3 HighAttention_0^c + \beta_4 HighESG \times HighAttention + \beta_5 LowESG \times HighAttention + C^c + FE^c, \quad (7)$$

where $HighESGxHighAttention$ is the interaction term between $HighESG$ and $HighAttention_0^c$ and $LowESGxHighAttention$ is the interaction term between $LowESG$ and $HighAttention_0^c$. The other variables are same as in Equation 6.

5 Empirical results

This section presents the empirical results of this thesis. The first subsection focuses on summary statistics which is subsequently followed by univariate tests. Finally, the results for the regression analysis are reported.

5.1 Summary statistics

The sample distribution by acquiror industry and year is presented in Table 2. The sample consists of 625 acquirors. The most common three industries out of the total 11 groups are financials, healthcare, and high technology, with 23% of the acquirors belonging to the financials, 17% to healthcare and 16% to high technology industries.

Table 2. Acquirors' industry distribution.

	Year											
Industry	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Energy	6	6	2	0	7	3	7	5	11	6	10	63
Financials	6	4	2	3	1	3	16	32	37	28	13	145
Government	0	0	0	0	0	1	0	0	0	0	0	1
Healthcare	13	3	6	9	6	8	16	9	13	12	10	105
High-tech	13	3	9	7	6	12	18	7	10	13	2	100
Industrials	12	7	2	2	2	4	8	11	11	3	0	62
Materials	1	3	1	2	3	2	3	1	4	1	0	21
Media	1	0	1	2	2	3	2	4	4	2	1	22
Real estate	0	2	2	1	2	0	7	4	8	5	2	33
Retail	3	4	5	5	6	8	5	10	4	4	4	58
Telecom	0	1	2	1	1	2	3	2	2	0	1	15
Total	55	33	32	32	36	46	85	85	104	74	43	625

Table 2 also shows how the merger frequency changes over the years. The number of mergers shows an increasing trend from years 2014 to 2018 but decreases after this, which supports the evidence that mergers occur in waves. Deng et al (2013) also find similar evidence in their study which concentrates in U.S. mergers conducted between the years 1992 and 2007.

Figure 1 presents the distribution of the acquirors based on their ESG scores in the sample, including 625 acquirors. Based on the data, the lowest ESG score that occurs in the sample is 1.45 while the highest is 92.88. Most of the firms in the sample appear to have ESG scores between 21 and 40. The largest ESG group, totaling 135 acquirors, ranges from 31 to 40, whereas the second largest group consisting of 109 acquirors ranges between 21 and 30, and the third largest group of 86 acquirors between 41 and 50, respectively. The sample ESG scores are otherwise rather uniformly distributed, except for the most extreme deciles. Slightly less than two third of the acquirors have an ESG score that is less or equal to 50.

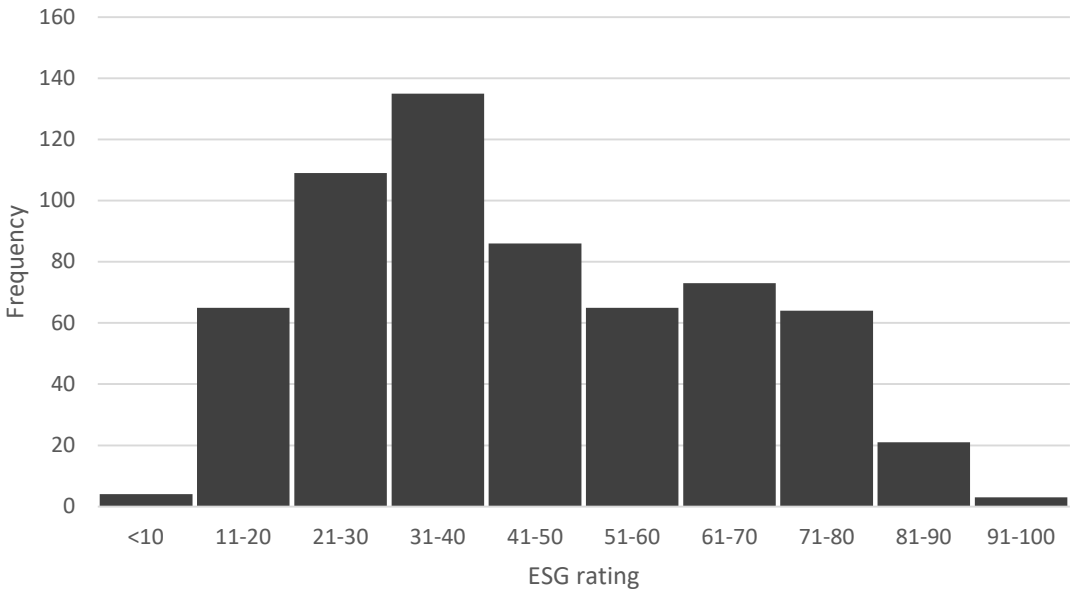

Figure 1. Acquirors' ESG distribution.

The summary statistics for the sample are presented in Table 3 below. The full sample consists of all 625 mergers, but the sample size varies depending on the data availability. Similar to Deng et al. (2013), the measured variables include deal value, acquiror total assets, acquiror net sales, target total assets, and target net sales. These values are presented in millions of U.S. dollars. Furthermore, following Deng et al. (2013) and Reyes (2018), the included dummy variables are high-tech dummy,

diversifying dummy, all-cash deal dummy, and tender offer dummy, as discussed before. Finally, the ESG scores representing the acquirors as well as acquiror and target ASVI on the announcement day (day 0) are also reported.

Table 3. Full sample descriptive statistics.

Variable	Count	Mean	Median
ESG score	625	43.90	40.00
Acquiror ASVI (%)	470	72.53	18.50
Target ASVI (%)	328	215.50	36.06
Deal value ($ mln)	623	3,909.73	976.49
Acquiror total assets ($ mln)	598	30,668.61	8,536.10
Acquiror net sales ($ mln)	623	14,696.52	3,155.69
Target total assets ($ mln)	234	4,324.38	938.85
Target net sales ($ mln)	561	2,247.73	428.78
Acquiror high-tech (dummy)	625	0.16	0.00
Target high-tech (dummy)	625	0.18	0.00
Diversifying merger (dummy)	625	0.52	1.00
All-cash deal (dummy)	625	0.44	0.00
Tender offer (dummy)	625	0.16	0.00

Based on Table 3, certain observations can be made. First, both acquirors and targets seem to receive relatively high investor attention during the sample announcement days. On average, acquirors have received around 70% higher attention compared to the average attention, while targets have received over 200% higher attention in proportion to the average level. The corresponding median figures are expectedly lower but remain high. Second, it can be observed that, on average, the attention of targets is notably higher than those of acquirors. Third, and last, targets tend to be significantly smaller than acquirors both based on net sales (around 6.5 times smaller) and net assets (around 7 times smaller). In all cases, the results are consistent with Liu and Krystyniak (2021).

Next, Table 4 presents the summary statistics for the subsample of high ESG mergers, which includes mergers done by acquirors with an ESG score of over 70, resulting in 88 mergers. Table 4 also includes the summary statistics for the subsample of low ESG mergers, which refers to mergers done by acquirors with an ESG score of lower than 30, resulting in 178 mergers. Table 5 further reports the mean differences between high and low ESG mergers. In both summarizations, the measured variables are the same as in Table 3. Statistical significance at the 10%, 5%, and 1% levels is indicated by *, **, ***, respectively.

Table 4. Summary statistics for high ESG and low ESG deals.

	High ESG			Low ESG		
Variable	Count	Mean	Median	Count	Mean	Median
ESG score	88	77.34	75.61	178	21.55	22.44
Acquiror ASVI	88	68.46	21.24	115	93.48	17.85
Target ASVI	52	340.06	73.36	90	148.36	36.66
Deal value ($ mln)	88	9,187.13	3,767.67	177	2,440.22	734.39
Acquiror total assets ($ mln)	85	74,012.96	47,884.50	169	7,397.70	4,207.76
Acquiror net sales ($ mln)	88	41,304.67	24,125.85	177	2,959.68	933.15
Target total assets ($ mln)	33	10,136.25	948.13	62	2,629.41	831.85
Target net sales ($ mln)	86	3,847.04	774.14	157	1,854.47	381.85
Acquiror high-tech (dummy)	88	0.22	0.00	178	0.13	0.00
Target high-tech (dummy)	88	0.25	0.00	178	0.16	0.00
Diversifying merger (dummy)	88	0.63	1.00	178	0.51	1.00
All-cash deal (dummy)	88	0.70	1.00	178	0.31	0.00
Tender offer (dummy)	88	0.26	0.00	178	0.08	0.00

According to Table 4 and Table 5, the following can be noted. First, investor attention on the announcement day is higher for targets acquired by high ESG firms than low ESG firms. This difference is around double in magnitude and statistically significant at the 5% level. This suggests that investors are more interested in targets that are acquired by high ESG firms than low ESG firms and search information about the target company on the announcement day. However, the attention is still large for targets acquired by

low ESG firms as well. Moreover, it appears that the ASVI is higher for targets than for acquirors on average. The difference remains similar regardless of whether the acquiror firm has high or low ESG. These results are in line both with Table 3 and Liu and Krystyniak (2021), similarly suggesting that the investor attention is higher for the target firms around the M&A announcements compared to the acquiror.

Table 5. Difference between high and low ESG deals.

	DIF(High-Low ESG)	
Variable	Mean	Median
ESG score	55.79***	53.18***
Acquiror ASVI	-25.02	3.39
Target ASVI	192.00**	37.00**
Deal value ($ mln)	6,746.91***	3,033.28***
Acquiror total assets ($ mln)	66,615.27***	43,676.75***
Acquiror net sales ($ mln)	38,344.99***	23,192.70***
Target total assets ($ mln)	7,506.83**	116.29
Target net sales ($ mln)	1,992.57	392.29**
Acquiror high-tech (dummy)	0.08*	0.00
Target high-tech (dummy)	0.09*	0.00
Diversifying merger (dummy)	0.11*	0.00
All-cash deal (dummy)	0.40***	1.00***
Tender offer (dummy)	0.18***	0.00***

Second, mergers done by high ESG acquirors are larger than mergers done by low ESG acquirors measured by the deal value. The effect is significant at the 1% level and the average deal value of high ESG mergers is around 3.7 times the deal value of low ESG mergers. This may be related to the fact that the acquirors with high ESG tend to also be larger in size compared to low ESG acquirors since they have significantly higher total assets and net sales, both being significant at 1% level. These results support the theory that high ESG firms have more resources than low ESG firms. Third, compared to firms with low ESG score, acquirors with high ESG scores tend to operate in high technology industries more often as the difference is significant at 10% level. The

results also show some evidence that firms with high ESG prefer to acquire targets in high technology industries, compared to firms with lower ESG. On the other hand, the results also suggest that, on average, high ESG acquirors make more diversifying mergers than low ESG firms, that is, acquire firms from different industries. All these results support Deng et al. (2013) findings.

Finally, high ESG acquirors are more likely to finance the mergers with cash only, compared to low ESG firms. Thus, high ESG acquirors may acquire undervalued targets more often than low ESG acquirors because high ESG acquirors use all cash-deals more often, which could be perceived as a positive signal about the target firm value by the market participants (e.g., see Myers & Majluf, 1984). Furthermore, compared to mergers done by low ESG firms, mergers done by high ESG acquiror firms are more likely to be tender offers, at 1% significance level.

5.2 Univariate tests

The purpose of the following univariate tests is to capture the distribution of abnormal investor attention and abnormal return around the merger announcement for high ESG and low ESG mergers, and similarly for targets and acquirors. The analysis starts with exploring the investor attention and then continues to study the cumulative abnormal returns around the M&A announcements.

5.2.1 Investor attention

Figure 2 presents the daily average ASVI around merger announcement for mergers with high ESG acquiror and for mergers with low ESG acquiror. The graph plots the ASVI from day –5 to day 5 relative to the announcement day. In total, the high ESG data consists of 140 mergers with high ESG acquirors and their targets, whereas the low ESG data consists of 205 mergers with low ESG acquirors and their targets. Overall, the full sample includes 798 companies.

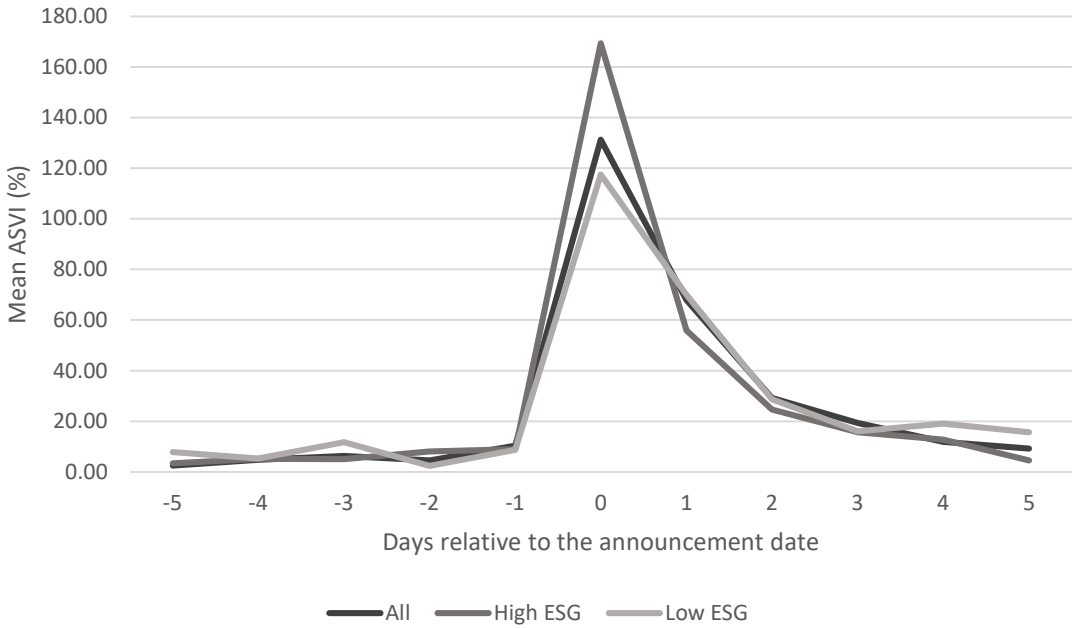

Figure 2. Daily average ASVI for high and low ESG mergers.

According to Figure 2, investors' attention begins to increase from day –2 and peaks on the announcement day (day 0). Furthermore, even though the attention decreases after the announcement day, it remains high and forms a drift in the following days. These findings are consistent with Reyes (2018) and Liu and Krystyniak (2021), indicating that investors pay attention to firms before the actual announcement and continue searching for information after the announcement. This is in contrast to some of the previous literature, which assumes that the attention to new information is immediate.

Table 6. ASVI for high ESG and low ESG deals around the announcement.

Deal type	Pre-event [-5, -1]	Event day [0]	Post-event [1, 5]
All	5.73	131.29	27.53
High ESG	6.15	169.34	22.69
Low ESG	7.22	117.57	29.88
DIF(High-Low ESG)	-1.07	51.77	-7.20

Table 6 aggregates the daily average ASVI figures and presents the average abnormal investor attention during the pre-event window [–5, –1], the announcement day [0] and the post-event window [1, 5]. The attention is presented in percentages and *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels. According to the results, there is no material ASVI differences during the pre-event window [–5, –1] when comparing the investor attention between high ESG and low ESG mergers. On the announcement day, the average abnormal investor attention peaks at a higher point for high ESG mergers (169.34%) relative to low ESG mergers (117.57%) but the difference is not significant. However, the displayed attention is high from an overall viewpoint. Finally, there is also no noticeable difference between the attention to high ESG mergers during the post-announcement window [1, 5] compared to low ESG mergers. In sum, these findings indicate that high ESG and low ESG mergers do not differ statistically in the magnitude of investor attention during the used event window.

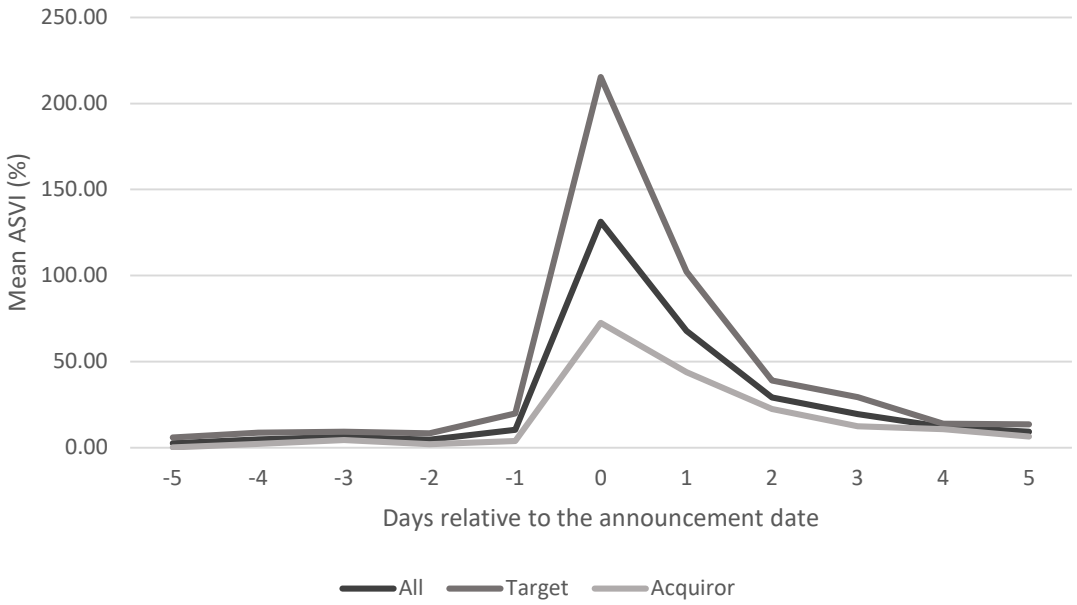

Figure 3. Average ASVI by deal role.

In similar fashion to Figure 2, Figure 3 captures the abnormal investor attention around the M&A announcements but focuses on illustrating the daily development of ASVI

differences between targets and acquirors instead. In total, the data includes 470 acquirors and 328 targets. Overall, it can be seen that the abnormal investor attention is higher to targets than to acquirors surrounding the M&A announcement days, as suggested earlier in the summary statistics and in Liu and Krystyniak (2021). The graph also displays a minor upward drift in attention one day prior to the announcement day and this drift seems to be higher for targets to some extent. These findings are supported by Liu and Krystyniak (2021) that also record higher pre-event attention to targets. They suggest that this might result from information leakage and news speculation, which interestingly does not affect investor attention to acquirors. On the announcement day, the attention peaks higher for targets than for acquirors and persists higher on average for the following few days.

Table 7. ASVI for targets and acquirors around the event window.

Role	Pre-event [-5, -1]	Event day [0]	Post-event [1, 5]
All	5.73	131.29	27.53
Target	10.38	215.50	39.56
Acquiror	2.48	72.53	19.14
DIF(Target-Acquiror)	7.90**	142.98***	20.42***

In the spirit of Liu and Krystyniak (2021), Table 7 aggregates the daily average ASVI figures and presents the average abnormal investor attention to targets and acquirors on the pre-event window, on the event day and on the post-event window. The attention is presented in percentages, and *, ** and *** indicate statistical significance at the 10%, 5%, and 1% levels. Consistent with the intuition shown in Figure 3, Table 7 further confirms that the differences in average ASVI between targets and acquirors are significant. During the pre-event window, the difference equals to 7.90 % on average, and is significant at the 5% level. When it comes to event day and post-event window, the differences are significant at the 1% level in both cases, with the average ASVI being around 140%-points and 20%-points higher for targets compared to acquirors, respectively. These results are in line with prior studies and the results reported earlier,

suggesting that investors are generally more interested in target companies around the M&A announcements.

Table 8. ASVI quartiles for targets and acquirors during the announcement day.

Role	Min	P25	P50	P75	Max
Target	-67.95	-0.81	36.06	206.56	2792.16
Acquiror	-100.00	-4.66	18.50	75.41	1820.26

Finally, Table 8 compares the minimum, maximum, and the quartiles of ASVI to both acquiror and target companies on the announcement day. The values are presented in percentages and include 328 target companies and 470 acquiror companies. In sum, the results are similar to Liu and Krystyniak (2021) who find a large difference in ASVI between targets and acquirors as well as show that the first quartile of ASVI is negative for both target and acquiror companies.

5.2.2 Announcement returns

This section focuses on examining the potential abnormal performance around M&A announcements. Following Deng et al. (2013), Table 9 presents the acquiror CARs around M&A announcements for the total sample of 603 acquirors that have CAR data available and for the subsamples of mergers with high ESG acquirors and low ESG acquirors, respectively. The values are presented in percentages and *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

Table 9. Acquiror CARs around M&A announcements.

	Full sample (N=603)		High ESG (N=83)		Low ESG (N=175)		DIF(High-Low ESG)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
CAR [–1, 1]	-1.37	-0.63	-1.30	-0.24	-1.65	-0.76	0.34	0.52
CAR [–2, 2]	-1.34	-0.64	-1.22	-0.52	-1.88	-0.64	0.66	0.12
CAR [–5, 5]	-1.36	-0.69	-1.26	-0.77	-1.69	-0.58	0.43	-0.20

According to the results, the mean CAR [–1, 1], CAR [–2, 2], and CAR [–5, 5] are negative for the total sample as well as for both subsamples. In terms of high ESG acquirors, the CAR [–1, 1], CAR [–2, 2], and CAR [–5, 5] are respectively –1.30%, –1.22% and –1.26% on average. The mean CARs for low ESG acquirors are –1.65%, –1.88% and –1.69% which are slightly higher than for high ESG acquirors. However, according to the results, there is no significant difference in the mean CARs between high ESG and low ESG acquirors, suggesting that both high ESG and low ESG acquiror shareholders may expect negative returns. This is in contrast with Deng et al. (2013) since they report higher returns for high ESG acquiror shareholders relative to low ESG acquiror shareholders. On the other hand, the observed negative acquiror CARs in the sample are consistent with other studies (e.g., see Mulherin & Boone, 2000; Andrade et al., 2001; Delis et al., 2022). These studies find negative or very low announcement returns for acquirors.

Table 10 presents the target CARs around M&A announcements similarly for the total sample of 271 targets having the CAR data available and for the subsamples of targets acquired by high ESG acquirors and low ESG acquirors, respectively. Furthermore, *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels. The values are presented in percentages.

Table 10. Target CARs around M&A announcements.

	Full sample (N=271)		High ESG (N=35)		Low ESG (N=74)		DIF(High-Low ESG)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
CAR [–1, 1]	22.58	17.52	29.91	24.20	19.92	15.59	9.99*	8.61
CAR [–2, 2]	22.95	18.58	30.71	25.45	19.08	14.71	11.63**	10.74
CAR [–5, 5]	24.29	19.95	33.21	26.37	20.12	16.19	13.09**	10.18*

The findings display large and positive CARs for all observed windows, including [–1, 1], [–2, 2] and [–5, 5] and the effects persist across all used samples. Furthermore, the findings show that the mean CAR [–1, 1], CAR [–2, 2], and CAR [–5, 5] are significantly different between the subsamples. The mean CAR [–1, 1] for targets acquired by high

ESG acquirors is 29.91%, while the corresponding mean for targets with low ESG acquirors is 19.92%, and the difference (9.99%) is significant at the 10% level. The statistical differences for the windows [–2, 2] and [–5, 5], in turn, are both significant at the 5% level. The difference between the high ESG and low ESG mergers is the largest, 13.09%, using the longest window and the standalone CARs (33.21% and 20.12%) are also the highest for both subsamples using this window. When measured by using the window [–2, 2], the corresponding difference is 11.63% and the standalone CARs for high and low ESG mergers are 30.71% and 19.08%. These results demonstrate that targets acquired by high ESG acquirors tend to generate higher announcement returns compared with targets acquired by low ESG acquirors, which supports the stakeholder value maximization view and is in line with Deng et al. (2013) results. Furthermore, the total sample mean CARs for targets are similar to the results reported in prior studies (e.g., Mulherin & Boone, 2000; Andrade et al., 2001; Delis et al, 2022), implying that target shareholders earn abnormal returns around M&A announcements.

5.3 Regression analysis

The next analysis includes running three different regression models, as specified in section 4. The first regression model focuses on investigating the LASVI, $\log(1 + ASVI_{i,t})$, introduced by Liu and Krystyniak (2021) and presented in Equation 5. The results of this regression model are reported in Table 11 below. After discussing these results, the analysis continues to study whether an acquiror's ESG score and investor attention on the announcement day influence a firm's cumulative abnormal return. This discussion relates to Equation 6 and Equation 7, and the results are presented in Table 12 and Table 13.

5.3.1 LASVI

Table 11 presents the regression results for 86 acquirors and targets using the model described in Equation 5. Using the acquiror and target LASVI as the corresponding dependent variables, the purpose of the model is to investigate the relationship

between acquiror's CSR level, proxied by ESG dummy variables, and investor attention and to further test the hypothesis 3 set out earlier. The t-statistics are reported in parentheses and are adjusted for heteroskedasticity by using White's (1980) standard errors. Statistical significance at the 10%, 5%, and 1% levels is denoted by *, ** and ***.

Table 11. Cross-section of investor attention to targets and acquirors.

Dependent variable: LASVI	Acquiror	Target
High ESG (dummy)	0.418*	0.290
	(1.88)	(0.88)
Low ESG (dummy)	-0.182	0.034
	(-0.71)	(0.10)
Acquiror characteristics		
Acquiror high-tech (dummy)	0.544	0.226
	(1.30)	(0.28)
Acquiror size	-0.180**	-0.170
	(-2.42)	(-1.37)
Acquiror Tobin's Q	0.121	0.154
	(1.66)	(1.35)
Acquiror B/M	-0.320	0.323
	(-1.14)	(0.76)
Target characteristics		
Target high-tech (dummy)	-0.079	0.085
	(-0.17)	(0.10)
Target size	0.184**	0.420***
	(2.38)	(4.57)
Target Tobin's Q	0.032**	0.065**
	(2.02)	(2.50)
Target B/M	0.249	-0.205
	(1.36)	(-0.70)
Deal characteristics		
Offer premium	0.002	0.001
	(1.64)	(0.33)
Diversifying merger (dummy)	-0.131	0.062
	(-0.73)	(0.24)
Tender offer (dummy)	0.165	0.047
	(0.72)	(0.16)
All-cash deal (dummy)	-0.360*	0.149
	(-1.75)	(0.47)
Year fixed effect	Yes	Yes
N	86	86
Adjusted R^2	0.15	0.13

Beginning the analysis with the results for acquirors, Table 11 shows that acquiror's high ESG dummy is positive and statistically significant at 10% level, while the corresponding low ESG dummy is negative but not statistically significant. These results suggest that the null hypothesis of the hypothesis 3 can be partially rejected. This suggests that the higher the acquiror's ESG score is, the more investors pay attention to the acquiring firm. In other words, a higher ESG score of the acquiror tends to be positively related to a higher acquiror's Google search volume around the M&A announcements. These results are also supported by the univariate tests and findings presented in Figure 2 and Table 6. Investors may pay more attention to the high ESG acquiror firms because they produce higher announcement returns and better long-term operating performance than low ESG acquirors (Deng et al., 2013). However, the high ESG acquirors are not observed to produce higher announcement returns in this thesis.

Other possible explanation is that high ESG firms are observed to be less risky (Arouri et al., 2019), which may be the reason investors pay more attention to them. Furthermore, since investors value sustainability (Hartzmark & Sussman, 2019) and do not necessarily only make investment decisions based on the financial gain objectives but also based on the societal impacts (Barber et al., 2021), high ESG acquirors may attract investor interest and attention around M&A announcements. These findings are in line with the results presented in Table 11.

When it comes to acquiror characteristics, acquiror size is negative and significant at 5% level, which implies that investors pay more attention to smaller acquirors. This is in contrast to Liu and Krystyniak (2021). Their findings indicate that bigger acquirors gain more investor attention than smaller acquirors, since they gain more media coverage and are more known. However, smaller acquirors may gain more investor attention because of information asymmetry. When a firm is less known, investors may pay more attention to it to gain more information. Other acquiror characteristics are not

statistically significant and do not predict investor attention to acquirors, which is in line with Liu and Krystyniak (2021).

The results regarding the target characteristics reveal that target's size and Tobin's Q are both positive and statistically significant at 5% level, proposing that bigger targets and targets' higher Tobin's Q lead to higher investor attention to their acquirors. This may result from the fact that mergers including bigger, well-known firms are more likely to receive media coverage. However, according to Liu and Krystyniak (2021), they do not find any of the included targets' characteristics significant.

Furthermore, based on the results, all-cash deal dummy is negative and statistically significant at 10% level. This suggests that mergers financed with cash-only predict lower investor attention to the acquiror, which is surprising considering that mergers financed with cash are observed to predict higher gains for the shareholders (Travlos, 1987). Moreover, according to the results, other deal characteristics are not statistically significant. In Liu and Krystyniak's (2021) study, they do not find any deal characteristics to have a significant impact on the investor attention to acquirors.

The results from regression model with target's LASVI as the dependent variable differ from the above-mentioned results. Neither of the ESG variables, high ESG dummy and low ESG dummy, are statistically significant. Thus, it seems that the ESG rating of the acquiror does not affect the investors' attention to its target. In addition, acquiror's characteristics such as size or Tobin's Q are not statistically significant. This is in support with Liu and Krystyniak (2021) since they do not find acquiror's characteristics statistically significant either when investigating investor attention to targets on the announcement day.

According to the results, some target characteristics are statistically significant. These are target size and Tobin's Q, which are both positive and statistically significant: target size at 1% level, and target Tobin's Q at 5% level. Target size is also positive and

statistically significant in Liu and Krystyniak (2021), proposing that bigger targets lead to higher investor attention to the target. Furthermore, the results suggest that the included deal characteristics have no statistically significant effect on target LASVI. This is further supported by Liu and Krystyniak (2021).

All in all, it seems that the null hypothesis related to the third hypothesis can be partially rejected since the results suggest that high ESG score results in higher investor attention to acquirors at 10% significance level. However, the results imply that the investor attention to targets is not driven by the ESG level of the acquiring company.

5.3.2 CAR

Next, the regression results based on Equation 6 are discussed. The regression model is aimed to test the hypotheses 1 and 2, examining whether acquiror's ESG rating and investor attention to a given firm have an effect on the firm's cumulative abnormal return on the announcement day and a day after. Both acquiror CAR [0, 1] and target CAR [0, 1] are presented in Table 12. The t-statistics are reported in parentheses and are adjusted for heteroskedasticity by using White's (1980) standard errors. Statistical significance at 10%, 5%, and 1% levels are denoted by *, ** and ***, respectively.

Table 12 includes 86 targets and acquirors. According to the results, acquiror CAR [0, 1] is not affected by acquiror's ESG level, given that neither the high ESG dummy or low ESG dummy are significant. This result is in line with the univariate tests reported in Table 9, which show no significant difference between the announcement returns of high ESG and low ESG acquirors. However, these results differ from Deng et al. (2013), who report positive and significant impact of the acquiror's CSR measure on their cumulative returns around M&A announcements. In light of these results, the null hypothesis of the hypothesis 2 is accepted, suggesting that there is no relationship between acquiror's CSR level and their abnormal announcement returns.

Table 12. Abnormal performance determinants.

Dependent variable: CAR [0, 1]	Acquiror	Target
High ESG (dummy)	-0.021	-0.040
	(-1.36)	(-0.70)
Low ESG (dummy)	-0.036	0.077
	(-1.47)	(1.02)
High attention (dummy)	-0.032**	0.084*
	(-2.22)	(1.86)
Acquiror characteristics		
Acquiror high-tech (dummy)	0.025	0.060
	(1.05)	(0.48)
Acquiror size	0.005	0.056***
	(0.81)	(2.85)
Acquiror Tobin's Q	-0.005	0.001
	(-0.75)	(0.07)
Acquiror B/M	-0.003	0.020
	(-0.12)	(0.23)
Target characteristics		
Target high-tech (dummy)	-0.037	-0.217
	(-1.42)	(-1.53)
Target size	-0.012**	-0.057***
	(-2.12)	(-2.79)
Target Tobin's Q	-0.002*	-0.007
	(-1.77)	(-1.38)
Target B/M	-0.015	-0.083
	(-0.91)	(-1.48)
Deal characteristics		
Offer premium	0.000	0.001
	(-0.13)	(0.78)
Diversifying merger (dummy)	-0.021	-0.057
	(-1.02)	(1.26)
Tender offer (dummy)	0.000	-0.046
	(-0.00)	(-0.62)
All-cash deal (dummy)	0.035**	0.179**
	(2.43)	(2.56)
Year fixed effect	Yes	Yes
N	86	86
Adjusted R^2	0.17	0.34

Furthermore, the results indicate that the investor attention has a negative and significant influence on the acquirors' cumulative abnormal returns. The high attention dummy is significant at 5% level, which indicates that higher investor attention to the acquiror company leads to lower abnormal cumulative returns. Thus, the null

hypothesis 1 is rejected at 5% level. This result is supportive to the intuition presented in Liu and Krystyniak's (2021). They show that although investor attention is not found to have a significant impact on acquiror's announcement returns in their regressions, the univariate tests demonstrate a significant negative relationship between the investor attention and the CARs for acquirors, indicating that when attention is high, acquirors are more likely to generate negative returns.

The results show that acquiror's characteristics do not have significant impact on the acquiror's CAR [0, 1] which is also in line with Liu and Krystyniak (2021). When it comes to the targets' characteristics, Table 12 suggests that target's size and Tobin's Q are negative and significant at 5% and 10% level. Thus, firms that acquire smaller targets or targets with lower Tobin's Q, tend to gain higher announcement returns. Liu and Krystyniak's (2021) results are the opposite. They show that acquirors with bigger target firms obtain higher cumulative abnormal returns around the announcement. However, according to prior research (e.g., see Moeller et al., 2004) firm size is reported to have a negative relation with announcement returns.

Furthermore, Table 12 shows that the all-cash dummy is positive and significant at 5% level, proposing that mergers financed with cash-only lead to higher CARs for the acquiror. This is in line with prior research (e.g., see Travlos, 1987), which suggests that mergers financed with cash result in higher gains. Similarly, Liu and Krystyniak (2021) also find all-cash deals to have a positive and significant impact on acquiror's announcement returns. Their findings additionally suggest that a higher offer premium leads to higher announcement returns for the acquiring firm, whereas Table 12 suggests that other deal characteristics do not have significant influence on acquiror's announcement returns.

When it comes to results including target CAR [0, 1] as the dependent variable, neither of the ESG dummies are significant. Based on the results, it seems that acquirors' ESG level does not affect targets' cumulative abnormal returns around the M&A

announcements. In Deng et al. (2013), they do not examine target CAR in their regression model, but cumulative abnormal return of value-weighted portfolios of the acquiror and the target. Their results suggest that CSR measure has a positive and significant impact on the CARs, supporting the stakeholder value-maximization theory. In similar fashion to acquirors, these results suggest that the null hypothesis of the hypothesis 2 is accepted and that there is no significant relationship between acquiror's ESG level and target's abnormal announcement returns.

According to the results, high attention dummy has a positive and significant influence on target's cumulative abnormal returns at 10% significance level. Thus, a higher Google search volume of the target's stock ticker leads to higher abnormal returns for target around the announcements. This suggests that the null hypothesis 1 is rejected at 10% level. These results further support Liu and Krystyniak's (2021) study, who demonstrate that high investor attention to target leads to increased cumulative abnormal returns for target. Consequently, these results suggest that investor attention leads to a positive price pressure around the announcement for targets.

In terms of acquiror characteristics, acquiror size has a significant effect on target's CAR, as according to Table 12, acquiror size is positive and significant at 1% level. This implies that target announcement returns are higher when it is acquired by a larger company. Other acquiror characteristics are not found to have any significant influence on target's returns. Prior research (e.g., see Liu & Krystyniak, 2021) also presents that acquiror characteristics do not have significant effect on target announcement returns.

Considering target characteristics, also target size is found to be significant at 1% level. However, Table 12 shows that it is negatively related to the target announcement returns. Thus, smaller targets tend to generate higher cumulative abnormal returns around the announcements than larger targets. This is in line with Moeller et al. (2004) and with Liu and Krystyniak's (2021) results since they also find target size to have a negative and significant impact on target announcement returns. Although Liu and

Krystyniak (2021) also find high-tech targets to achieve higher returns, Table 12 shows that other target characteristics do not have any significant influence on the target announcement results.

When it comes to deal characteristics, all-cash dummy is positive and significant at 5% level. Other deal characteristics, however, do not influence the target's announcement returns significantly. These findings are similar to the regression results for acquirors. Liu and Krystyniak (2021) also find all-cash deals to have a positive and significant impact on target's cumulative abnormal returns around the announcement. In addition, their study documents that higher offer premium increases the target firm's announcement returns.

In conclusion, the null hypothesis of the second hypothesis is accepted since the ESG variables do not have a significant influence on the abnormal announcement returns for acquirors or targets. However, the null hypothesis of the first hypothesis is rejected since investor attention is observed to have a significant negative effect on acquirors' and positive effect on targets' abnormal announcement returns. Interestingly, the effect is opposite for the acquirors compared to the targets. One possible explanation may be provided by Reyes (2018) who studies the linkage of investor attention to merging firms, suggesting that the relationship is positive if there is news coverage for the merging firm, and negative if there is not news coverage. Reyes (2018) further proposes that firms with news coverage may attract more retail investor attention, leading to price overreaction, and firms without news coverage may in turn attract more sophisticated investor attention that promotes faster information incorporation to prices. Although beyond the scope of this thesis, concluding Reyes (2018) results and Table 12 results, acquirors may attract more sophisticated investor attention while targets on the other hand may attract retail investor attention. This would explain the two opposite impact of the attention to the announcement returns.

Table 13. Abnormal performance determinants with interaction effects.

Dependent variable: CAR [0, 1]	Acquiror	Target
High ESG (dummy)	-0.018	-0.085
	(-0.99)	(-1.20)
Low ESG (dummy)	-0.039	0.104
	(-1.47)	(1.20)
High attention (dummy)	-0.032	0.074
	(-1.51)	(1.14)
High ESG x High attention	-0.007	0.144
	(-0.26)	(1.21)
Low ESG x High attention	0.010	-0.127
	(0.22)	(-1.10)
Acquiror characteristics		
Acquiror high-tech (dummy)	0.027	0.050
	(0.94)	(0.41)
Acquiror size	0.005	0.053***
	(0.79)	(2.75)
Acquiror Tobin's Q	-0.005	0.007
	(-0.77)	(0.37)
Acquiror B/M	-0.004	0.068
	(-0.15)	(0.71)
Target characteristics		
Target high-tech (dummy)	-0.038	-0.205
	(-1.27)	(-1.51)
Target size	-0.012**	-0.060***
	(-2.10)	(-2.82)
Target Tobin's Q	-0.002	-0.007
	(-1.65)	(-1.57)
Target B/M	-0.014	-0.112*
	(-0.85)	(-1.74)
Deal characteristics		
Offer premium	0.000	0.001
	(-0.09)	(0.65)
Diversifying merger (dummy)	-0.021	-0.048
	(-1.013)	(-1.04)
Tender offer (dummy)	0.001	-0.034
	(0.05)	(-0.48)
All-cash deal (dummy)	0.034**	0.179**
	(2.35)	(2.61)
Year fixed effect	Yes	Yes
N	86	86
Adjusted R^2	0.14	0.35

Table 13 presents the results of regression model described in Equation 7, using the same sample set of 86 targets and acquirors as earlier. This model is similar to Equation 6 but also includes the interaction terms of the high investor attention dummy and the ESG dummies to further investigate whether the effect of high investor attention on the announcement returns depends on the acquiror's ESG level. Regression results for both targets and acquirors are shown in the Table 13. The t-statistics are reported in parentheses and are adjusted for heteroskedasticity by using White's (1980) standard errors. Moreover, statistical significance at 10%, 5%, and 1% levels are denoted by *, ** and ***, respectively.

Based on Table 13, it can be observed that both interaction terms are statistically insignificant, suggesting that when the investor attention is high, its effect on acquiror CARs and target CARs is not dependent on the acquiror's ESG level. When it comes to other factors, acquiror, target and deal characteristics have similar impact on the target and acquiror announcement returns as stated in Table 12. There are only few differences in the results. According to the Table 13, the acquiror characteristics have insignificant impact on acquiror's CAR around the announcement. However, the results show that while other acquiror characteristics are insignificant, the acquiror size is positive and significant at 1% level for target announcement returns. These results are in line with Table 12. When it comes to the target characteristics, Table 13 suggests that target size is negative and significant for both acquiror and target announcement returns at 5% and 10% levels, respectively. The same impact is also reported in Table 12, showing that target's Tobin's Q to have a negative and significant effect on acquiror's announcement returns. This is distinct from Table 13 which reports that insignificant target's Tobin's Q. However, Table 13 results show that target's book-to-market value has a negative and significant impact on target returns at 10% level. The observed impact of included deal characteristics on target and acquiror CARs is similar between Table 12 and Table 13 records. Thus, while other deal characteristics are insignificant, cash-dummy has a positive and significant effect on both target and acquiror announcement returns at 5% significance level.

5.4 Limitations and suggestions for future research

Considering the limited scope of this thesis, several possibilities for future research arise. These possibilities are especially related to the used key variables considering CSR and investor attention, and to the used type of corporate event, M&A announcement. Furthermore, certain limitations may arise from the used sample and the used methodology in calculating the abnormal announcement returns.

Since the companies' ESG activities are challenging to measure, more research is needed. The ESG rating for a company may vary depending on the ESG data provider, which implies that the results of the research might differ depending on the used ESG ratings. For example, using MSCI or Sustainalytics's ESG ratings could result in a different outcome. Therefore, future research could combine ESG ratings from different data providers to overcome this issue. Alternatively, a new type of variable that proxies for the ESG activities in more reliable way could be developed. However, until there are no adequate rules and norms to determine what characterizes good ESG performance, measuring ESG remains rather challenging.

Another feature of the ESG issues is that they have become more and more important for both investors and companies who may at least to some extent make decisions based on their societal impacts. As this trend will most likely to continue growing in the future as well, it would be fruitful to replicate this research in the future or to include greater time period to investigate whether the change in attitude towards ESG issues affects the investor attention to high CSR and low CSR companies. In addition, since the used ESG rating is related to the acquiror, it would also be interesting to examine whether the target's ESG rating affects the investor attention to the target or acquiror around M&A announcements and would it have an impact on the announcement returns.

Another feature that characterizes CSR is that both investors' and firms' attitude towards ESG issues depends on the surrounding society and its characteristics. Furthermore, some countries and cultures are observed to have stronger community belief in the importance of ESG issues than others (e.g., see Dyck et al., 2018). Since social norms do affect investors, it would be beneficial to extend the investigation to global markets and compare the results across countries.

Furthermore, another possible direction for future research would be to investigate the institutional investor attention to high CSR and low CSR companies. This would be interesting for two reasons. First, it is studied that institutional attention reacts more quickly to major news events, leads to more trading and is less constrained compared to retail attention (Ben-Rephael et al., 2017; Reyes, 2018). Second, some research (see Dyck et al., 2019) shows that institutional shareholders drive the environmental and social performance and pressure the environmental and social improvement. This suggests that institutional investors may be more interested in CSR and pay more attention to it compared to retail investors.

The investor attention is typically studied in M&A settings. Since mergers differ from other corporate events, it would be worthwhile to study investor attention to high CSR and low CSR companies in other situations such as around earnings announcements. Because earnings announcements occur regularly, the results might differ. Another interesting types of events to examine could include events such as initial public offerings, dividend cuts, and analyst recommendation changes (Ben-Rephael et al., 2017).

Furthermore, the price reaction around the M&A announcement is measured by CAR, which has its own limitations. Because CAR may lead to more biased test statistics, Barber and Lyon (1997) suggest using buy-and-hold abnormal returns, which refers to the compound return on the firm minus the compound return on the reference portfolio. To overcome the challenges related to CAR, Reyes (2018) is following the buy-

and-hold method to calculate the abnormal announcement returns in his study. Using buy-and-hold abnormal returns instead of regular CAR could be a useful extension to the study to add robustness as well. Another suggestion for the future research would be to utilize different regression models. This thesis mainly follows Liu and Krystyniak's (2021) regression models with ESG score additions, also leaving room for other possibilities. Since the investor attention and CSR have not been studied jointly before, there might be different regression models that fit the purpose of the study as well.

Finally, the certain limitations arise from the used sample and its characteristics. The sample in the regression models includes observations from 86 targets and acquirors. Although the regression results are mainly supported by prior research, the used sample size is relatively small. This might increase the margin of error. Therefore, more research is needed to examine the issue with larger sample size.

6 Conclusions

Prior research has extensively investigated different types of corporate events, including M&A announcements. Despite the received attention, it is still unclear what completely explains the documented abnormal returns that have been associated with this event. Recently, two other streams of research have also gained popularity. The first stream relates to the increasing role of corporate social responsibility (CSR) in business and financial markets. These studies have mainly focused on the effect of CSR on firm value, but it has also been shown to influence investors' decisions. The second stream is related to investor attention in different kinds of environments. In M&A setting, both CSR and investor attention have been observed to have a role in explaining abnormal announcements returns. More specifically, higher announcement returns have been positively linked to both high CSR and high investor attention. However, previous studies in this regard have been conducted separately.

Motivated by these findings, this thesis combines CSR and investor attention in the context of M&A announcements by collecting data of all public U.S. mergers between the years 2010 and 2020 and by using Thomson Reuters ESG scores of the acquiring firm and Google search volume index (SVI) data to proxy for CSR and retail investor attention, respectively. The purpose of this study is two-folded. First, although CSR issues have become more and more important for both investors and firms, it has not been investigated whether investors pay more attention to mergers done by high CSR firms compared to low CSR firms and further whether that has an impact on the merger returns. This thesis aims to shed light on this issue by investigating whether retail investor attention depends on the ESG level of the acquiror firm. Second, the role of investor attention and ESG in explaining abnormal returns around M&A announcements is examined to further enrich existing literature.

According to the results, the following can be observed. First, it is found that high ESG scores lead to higher investor attention to acquiring firms around M&A announcements. Consistent with prior research, this suggests that investors pay more

attention to acquiror firms that are more responsible. In contrast, it seems that the ESG level of the acquiror does not have a significant effect on the investor attention to the target company.

Second, when it comes to measuring the magnitude of investor attention in general, both acquirors and targets tend to attract abnormal investor attention around M&A announcements regardless of the ESG level of the acquiring firm, however targets are observed with higher abnormal investor attention compared to acquirors throughout the used event window. Overall, based on the observed attention trend, the attention peaks on the announcement day but also remains high during the days following the announcement day in both cases. This is in line with some of the prior research, implying that investor attention may not be immediate.

Third, turning to investigating the announcement returns measured by cumulative abnormal returns (CARs) around M&A announcements, the results are somewhat mixed. The regression tests show that when the investor attention is high, it has a significant effect on the CARs of both acquirors and targets, but the effect is negative for acquirors and positive for targets. While more research is needed, these findings are generally supported by literature, and imply that investor attention affects stock market reactions and has an important role in explaining M&A performance. However, in terms of ESG level of the acquiring firm, it is not found to have a significant impact on either acquiror CARs or target CARs. Furthermore, the relationship between high investor attention and acquiror CARs (target CARs) is not dependent on the ESG level of the acquiring firm.

Finally, regarding the overall observed magnitude of CARs, it is discovered that targets show superior performance to acquirors, generating large positive returns compared to acquirors which on average generate negative returns. Moreover, when the M&A deals are distinguished based on if the acquiror has a high ESG score or a low ESG score, no significant differences are documented for acquirors. However, targets acquired by

acquirors with high ESG tend to generate statistically larger CARs compared to targets acquired by low ESG acquirors.

Several interesting themes arise for future research. For example, since this study focuses on retail investor attention, future research could investigate the linkage between institutional investor attention and company's CSR activities as institutional investor attention is observed to drive company's CSR decisions. Furthermore, future research could use a different proxy for company's CSR activities than in this study because companies' ESG ratings are discovered to differ between rating agencies. In addition, since the findings also suggest that investors pay more attention to target companies, it could be interesting to investigate how the target's ESG rating affects the investor attention. Altogether, all these possible additions to the research would be beneficial to achieve a more detailed view about the topic and its connections to other research areas as well.

References

Aktas, N, Bodt, E., & Cousin, J.G. (2011). Do financial markets care about SRI? Evidence from mergers and acquisitions. *Journal of Banking & Finance*, *35*(7), 1753–1761. https://doi.org/10.1016/j.jbankfin.2010.12.006

Andrade, G., Mitchell, M., & Stafford, E. (2001). New evidence and perspectives on mergers. *Journal of Economic Perspectives, 15*(2), 103–120. https://doi.org/10.1257/jep.15.2.103

Aouadi, A., & Marsat, S. (2018). Do ESG controversies matter for firm value? Evidence from international data. *Journal of Business Ethics, 151,* 1027–1047. https://doi.org/10.1007/s10551-016-3213-8

Arouri, M., Gomes, M., & Pukthuanthong, K. (2019). Corporate social responsibility and M&A uncertainty. *Journal of Corporate Finance*, *56*, 76–198. https://doi.org/10.1016/j.jcorpfin.2019.02.002

Ball, R., & Brown, P. (1968). An empirical evaluation of accounting income numbers. *Journal of Accounting Research, 62*(2), 159–178. https://doi.org/10.2307/2490232

Ball., R., Kothari, S. P., & Watts, R. L. (1993). Economic determinants of the relation between earnings changes and stock returns. *The Accounting Review, 68*(3), 622–638. https://www.proquest.com/scholarly-journals/economic-determinants-relation-between-earnings/docview/218569320/se-2?accountid=14797

Barber, B., & Lyon, J. (1997) Detecting long-run abnormal stock returns: The empirical power and specification of test statistics. *Journal of Financial Economics, 43*(3), 341–372. https://doi.org/10.1016/S0304-405X(96)00890-2

Barber, B., Morse, A., & Yasuda, A. (2021). Impact investing. *Journal of Financial Economics, 139(*1), 162–185. https://doi.org/10.1016/j.jfineco.2020.07.008

Barber, B., & Odean, T. (2001). Boys will be boys: Gender, overconfidence, and common stock investment. *Quarterly Journal of Economics, 116*(1), 261–292. https://doi.org/10.1162/003355301556400

Barber, B., & Odean, T. (2008). All that glitters: The effect of attention and news on the buying behavior of individual and institutional investors. *Review of Financial Studies, 21*(2), 785–818. https://doi.org/10.1093/rfs/hhm07

Barberis, N., Shleifer, A., & Vishny, R. (1998). A model of investor sentiment. *Journal of Financial Economics, 49(*3), 307–343. https://doi.org/10.1016/S0304-405X(98)00027-0

Barberis, N., & Xiong, W. (2009). What drivers the disposition effect? An analysis of a long-standing preference-based explanation. *Journal of Finance, 64*(2), 751–784. https://doi.org/10.1111/j.1540-6261.2009.01448.x

Benabou, R., & Tirole, J. (2010). Individual and corporate social responsibility. *Economica*, *77*(305), 1–19. https://doi.org/10.1111/j.1468-0335.2009.00843.x

Ben-Rephael, A., Da, Z., & Israelsen, R.D. (2017). It depends where you search: Institutional investor attention and underreaction to news. *Review of Financial Studies*, *30*(9), 3009–3047. https://doi.org/10.1093/rfs/hhx031

Birru, J. (2015). Confusion of confusion: A test of the disposition effect and momentum. *Review of Financial Studies, 28*(7), 1849–1873. https://doi.org/10.1093/rfs/hhv007

Brav, A., & Heaton, J.B. (2002). Competing theories of financial anomalies. *Review of Financial Studies*, 15(2), 575–606. https://doi.org/10.1093/rfs/15.2.575

Capelle-Blancard, G., & Petit, A. (2019). Every little helps? ESG news and stock market reaction. *Journal of Business Ethics, 157*(2), 543–565. https://doi.org/10.1007/s10551-017-3667-3

Cefis, E., Rosenkranz, S. & Weitzel, U. (2008). Effects of coordinated strategies on product and process R&D. *Journal of Economics, 96*(3), 193–222. https://doi.org/10.1007/S00712-008-0041-Z

Chen, J.Z., Lobo, G.J., & Zhang, J.H. (2017). Accounting quality, liquidity risk, and post-earnings-announcement drift. *Contemporary Accounting Research, 34*(3), 1649–1680. https://doi.org/10.1111/1911-3846.12310

Christensen, D., Serafeim, G., & Sikochi, A. (2022). Why is corporate virtue in the eye of the beholder? The case of ESG ratings. *Accounting Review, 97*(1), 147–175. https://doi.org/10.2308/TAR-2019-0506

Da, Z., Engelberg, J., & Gao, P. (2011). In search of attention. *Journal of Finance, 66*(5), 1461–1499. https://doi.org/10.1111/j.1540-6261.2011.01679.x

Daniel, K., Hirshleifer, D., & Subrahmanyam, A. (1998). Investor psychology and security market under-and overreactions. *Journal of Finance, 53*(6), 1839–1885. https://doi.org/10.1111/0022-1082.00077

DeBondt, W.F.M., & Thaler, R. (1985). Does the stock market overreact? *Journal of Finance, 40*(3), 793–805. https://doi.org/10.1111/j.1540-6261.1985.tb05004.x

Delis, M., Iosifidi, M., Kazakis, P., Ongena, S., & Tsionas, M. (2022). Management practices and M&A success. *Journal of Banking and Finance, 134.* https://doi.org/10.1016/j.jbankfin.2021.106355

DellaVigna, S., & Polle, J. (2009). Investor inattention and Friday earnings announcements. *Journal of Finance, 64*(2), 709–749. https://doi.org/10.1111/j.1540-6261.2009.01447.x

Deng, X., Kang, J., & Low, B. (2013) Corporate social responsibility and stakeholder value maximization: Evidence from mergers. *Journal of Financial Economics*, *110*(1), 87–109. https://doi.org/10.1016/j.jfineco.2013.04.014

Derwall, J., Guenster, N., Bauer, R., & Koedijk, K. (2005). Then eco-efficiency premium puzzle. *Financial Analysts Journal, 61*(2). https://doi.org/10.2469/faj.v61.n2.2716

Desai, H., & Jain, P.C. (1997). Long-run common stock returns following stock splits and reverse splits. *Journal of Business, 70*(3), 409–433. https://doi.org/10.1086/209724

Dowell, G., Hart, S., & Yeung, B. (2000). Do corporate global environmental standards create or destroy market value? *Management Science, 46*(8), 1059–1074. https://doi.org/10.1287/mnsc.46.8.1059.12030

Drake, M., Roulstone, D., & Thornock, J. (2012). Investor information demand: Evidence from Google Searches around earnings announcements*. Journal of Accounting Research, 50*(4). https://doi.org/10.1111/j.1475-679X.2012.00443.x

Durand, R., Paugam, L., & Stolowy, H. (2019). Do investors actually value sustainability indices? Replication, development, and new evidence on CSR visibility.

Strategic Management Journal, 40(9), 1471–1490. https://doi.org/10.1002/smj.3035

Dyck, A., Lins, K., Roth, L., & Wagner, H. (2019). Do institutional investors drive corporate social responsibility? International evidence. *Journal of Financial Economics, 131*(3), 693–714. https://doi.org/10.1016/j.fineco.2018.08.013

Edmans, A. (2012). The link between job satisfaction and firm value, with implications for corporate social responsibility. *Academy of Management Perspectives, 26*(4), 1–19. http://doi.org/10.2139/ssrn.2054066

Fama, E. (1970). Efficient capital markets: A review of theory and empirical work. *Journal of Finance, 25*(2), 383–417. https://doi.org/10.1111/j.1540-6261.1970.tb00518.x

Fama, E. (1991). Efficient capital markets: II. *Journal of Finance, 56*(5), 1575–1617. https://doi.org/10.1111/j.1540-6261.1991.tb04636.x

Fama, E., & French, K. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics, 33*(1), 3–56. https://doi.org/10.1016/0304-405X(93)90023-5

Fama, E., & French, K. (2004). The capital asset pricing model: Theory and evidence. *Journal of Economic Perspectives, 18*(3), 25–46. https://doi.org/10.1257/0895330042162430

Feather, N. T., & Simon, J. G. (1971). Attribution of responsibility and valence of outcome in relation to initial confidence and success and failure of self and other. *Journal of Personality and Social Psychology, 18*(2), 173–188. https://doi.org/10.1037/h0030845

Feinberg, R.M. (1985). Sales at risk: A test of the mutual forbearance theory of conglomerate behaviour. *Journal of Business, 58*(2), 225–241. https://doi.org/10.1086/296293

Fischhoff, B., Slovic, P., & Lichtenstein, S. (1977). Knowing with certainty: The appropriateness of extreme confidence. *Journal of Experimental Psychology: Human Perception and Performance, 3*(4), 552–564. https://doi.org/10.1037/0096-1523.3.4.552

Frazzini, A. (2006). The disposition effect and underreaction to news. *Journal of Finance, 61*(4), 2017—2046. https://doi.org/10.1111/j.1540-6261.2006.00896.x

Golubov, A., Yawson, A., & Zhang, H. (2015). Extraordinary acquirers. *Journal of Financial Economics, 116*(2), 314–330. https://doi.org/10.1016/j.jfineco.2015.02.005

Google Trends (2021). *FAQ about Google Trends data*. Retrieved December 6, 2021, from https://trends.google.com/trends/

Griffin, D., & Tversky, A. (1992). The weighing of evidence and the determinants of overconfidence. *Cognitive Psychology, 24*(3), 411–435. https://doi.org/10.1016/0010-0285(92)90013-R

Hackbarth, D., & Morellec, E. (2008). Stock returns in mergers and acquisitions. *Journal of Finance, 63*(3), 1213–1252. https://doi.org/10.1111/j.1540-6261.2008.01356.x

Harford, J. (2005). What drives merger waves? *Journal of Financial Economics, 77*(3), 529–560. https://doi.org/10.1016/j.jfineco.2004.05.004

Hartzmark, S., & Sussman, A. (2019). Do investors value sustainability? A natural experiment examining ranking and fund flows. *Journal of Finance, (74)*6, 2789–2837. https://doi.org/10.1111/jofi.12841

Hellgren, B., Löwstedt, J., & Werr, A. (2011). The reproduction of efficiency theory: The construction of the AstraZeneca merger in the public discourse. *International Journal of Business and Management, 6*(5), 16–27. https://doi.org/10.5539/ijbm.v6n5p16

Hirshleifer, D., Lim, S., & Teoh, S. (2009). Driven to distraction: Extraneous events and underreaction to earnings news. *Journal of finance, 64*(5), 2289–2325. https://doi.org/10.1111/j.1540-6261.2009.01501.x

Hirshleifer, D., & Teoh, S.H. (2003). Limited attention, information disclosure, and financial reporting. *Journal of Accounting and Economics*, *36*(1), 337–386. https://doi.org/10.1016/j.jacceco.2003.10.002

Holme, R., Tinto, R., & Watts, P. World Business Council for Sustainable Development. (2000). *Corporate social responsibility: Making good business sense.* Conches-Geneva WBCSD.

Hong, H., Kubik, J., & Scheinkman, J. (2012). *Financial constraints on corporate goodness*. (NBER Working Paper No. 18476). National Bureau of Economic Research. https://doi.org/10.3386/w18476

Jegadeesh, N., & Titman, S. (1993). Returns to buying winner and selling losers: Implications for stock market efficiency. *Journal of Finance, 48*(1), 65–91. https://doi.org/10.1111/j.1540-6261.1993.tb04702.x

Jensen, M. (1986). Agency cost of free cash flow, corporate finance, and takeovers. *American Economic Review, 76*(2), 323–329. https://doi.org/10.2139/ssrn.99580

Jensen, M. (2005). Agency costs of overvalued equity. *Financial Management, 34*(1), 5–19. https://doi.org/10.1111/j.1755-053X.2005.tb00090.x

Kahneman, D. (1973). Attention and effort. (10. edition). Englewood Cliff, New Jersey: Prentice-Hall.

Kahneman, D., & Tversky, A. (1972). Subjective probability: A judgement of representativeness. *Cognitive Psychology, 3*(3), 430–454. https://doi.org/10.1016/0010-0285(72)90016-3

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica, 47*(2), 263–292. https://doi.org/10.2307/1914185

Kaustia, M. (2010). Prospect theory and the disposition effect. *Journal of Financial and Quantitative Analysis, 45*(3), 791–812. https://doi.org/10.1017/S0022109010000244

Kim, D., & Kim, M. (2003). A multifactor explanation of post-earnings announcement drift. *Journal of Financial and Quantitative Analysis, 38*(2), 383–398. https://doi.org/10.2307/4126756

Lewellen, W. (1971). A pure financial rational for the conglomerate merger. *Journal of Finance, 26*(2), 521–537. https://doi.org/10.1111/j.1540-6261.1971.tb00912.x

Liang, H., & Renneboog, L. (2017). On the foundations of corporate social responsibility. *Journal of Finance, 72*(2), 853–910. https://doi.org/10.1111/jofi.12487

Lins, K.V., Servaes, H., & Tamayo, A. (2017). Social capital, trust, and firm performance: The value of corporate social responsibility during the financial crisis. *Journal of Finance, 72*(4), 1785–1824. https://doi.org/10.1111/jofi.12505

Lintner, J. (1965). The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets. *Review of Economics and Statistics, 47*(1), 13–37. https://doi.org/10.2307/1924119

Liu, H., & Krystyniak, K. (2021). Investor attention and merger announcements. *Journal of Behavioral Finance*, *22*(1), 97–112. https://doi.org/10.1080/15427560.2020.1748632

Locke, P., & Mann, S. (2000). *Do professional traders exhibit loss realization aversion?* (Working Paper). The George Washington University and Texas Christian University.

Loughran., T. & Vijh, A. (1997). Do long-term shareholders benefit from corporate acquisitions? *Journal of Finance, 52*(5), 1765–1790. https://doi.org/10.2307/2329464

Maksimovic, V., & Phillips, G. (2001). The market for corporate assets: Who engages in mergers and asset sales and are there efficiency gains? *Journal of Finance, 56*(6), 2019–2065. https://doi.org/10.1111/0022-1082.00398

Malkiel, B. (2003). The efficient market hypothesis and its critics. *Journal of Economic Perspectives, 17*(1), 59–82. https://doi.org/10.1257/089533003321164958

Manne, H. (1965). Mergers and the market for corporate control. *Journal of Political Economy, 73*(2), 110–120. https://doi.org/10.1086/259000

Markowitz, H. (1952). Portfolio selection. *Journal of Finance, 7*(1), 77–91. https://doi.org/10.1111/j.1540-6261.1952.tb01525.x

Marris, R.L. (1963). A model of the 'managerial' enterprise. *Quarterly Journal of Economics, 77(*2), 185–209, https://doi.org/10.2307/1884399

Martynova, M., & Renneboog, L. (2006). Mergers and acquisitions in Europe. In L. Renneboog (Ed), *Advances in Corporate Finance and Asset Pricing* (pp.13–75). Elsevier.

Mateev, M. (2017). Is the M&A announcement effect different across Europe? More evidence from continental Europe and the UK. *Research in International Business and Finance, 40,* 190–216. https://doi.org/10.1016/j.ribaf.2017.02.001

Merton, R. (1987). A simple model of capital market equilibrium with incomplete information. *Journal of Finance, 42*(3), 483–510. https://doi.org/10.1111/j.1540-6261.1987.tb04565.x

Miller, D. T., & Ross, M. (1975). Self-serving biases in the attribution of causality: Fact or fiction? *Psychological Bulletin, 82*(2), 213–225. https://doi.org/10.1037/h0076486

Mitchell., M., & Mulherin., H. (1996). The impact of industry shocks on takeover and restricting activity. *Journal of Financial Economics, 41*(2), 193–229. https://doi.org/10.1016/0304-405X(95)00860-H

Mitchell, M., & Stafford, E. (2000). Managerial decisions and long-term stock price performance. *Journal of Business, 73*(3), 287–329. https://doi.org/10.1086/209645

Moeller, S., Schlingemann, F., & Stulz, R. (2004). Firm size and the gains from acquisitions. *Journal of Financial Economics, 73*(2), 201–228. https://doi.org/10.1016/j.jfineco.2003.07.002

Mossin, J. (1966). Equilibrium in a capital asset market. *Econometria, 34*(4), 768–783. https://doi.org/10.2307/1910098

Mulherin, J. & Boone, A. (2000). Comparing acquisitions and divestitures. *Journal of Corporate Finance, 6*(2), 117–139. https://doi.org/10.1016/S0929-1199(00)00010-9

Myers, S. & Majluf, N. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics, 13*(2), 187–221. https://doi.org/10.1016/0304-405X(84)90023-0

Nelson, R. (1959). The simple economics of basic scientific research. *Journal of Political Economy, 67*(3), 297–306. https://doi.org./10.1086/258177

Ng, J., Rusticus, T., & Verdi, R. (2008). Implications of transaction costs for the post-earnings announcement drift. *Journal of Accounting Research, 46*(3), 661–695. https://doi.org/10.1111/j.1475-679X.2008.00290.x

Odean, T. (1998). Volume, volatility, price, and profit when all traders are above average. *Journal of Finance, 53*(6), 1887–1934. https://doi.org/10.1111/0022-1082.00078

Ouadghiri, I.E., Guesmi, K., Peillex, J., & Ziegler, A. (2021). Public attention to environmental issues and stock market returns, *Ecological Economics, 180, 106836. https://doi.org/10.1016/j.ecolecon.2020.106836*

Rajan, R., Servaes, L., & Zingales, L. (2000). The cost of diversity: The diversification discount and inefficient investment. *Journal of Finance, 55*(1), 35–80. https://doi.org/10.1111/0022-1082.00200

Rau, P., & Vermaelen, T. (1998). Glamour, value, and the post-acquisition performance of acquiring firms. *Journal of Financial Economics, 49*(2), 223–253. https://doi.org/10.1016/S0304-405X(98)00023-3

Refinitiv (2021). *Refinitiv ESG company scores*. Retrieved 2021-05-10 from https://www.refinitiv.com/en/sustainable-finance/esg-scores

Reyes, T. (2018). Limited attention and M&A announcements*. Journal of Empirical Finance, 49*, 201–222. https://doi.org/10.1016/j.jempfin.2018.10.001

Rhodes-Kropf, M., & Viswanathan, S. (2004). Market valuation and merger waves. *Journal of Finance, 59*(6), 2685–2718. https://doi.org/10.1111/j.1540-6261.2004.00713.x

Roll, R. (1986). The hubris hypothesis of corporate takeovers. *Journal of Business, 59*(2), 197–216. https://doi.org/10.1086/296325

Sapienza, P. (2002) The effects of banking mergers on loan contracts. *Journal of Finance, 57*(1), 329–367. https://doi.org/10.1111/1540-6261.00424

Schrand, C., & Walther, B. (2000). Strategic benchmarks in earnings announcements: The selective disclosure of prior-period earnings components. *Accounting Review, 75*(2), 151–177. https://doi.org/10.2308/accr.2000.75.2.151

Servaes, H., & Tamayo, A. (2013). The impact of corporate social responsibility on firm value: The role of customer awareness. *Management Science, 59*(5), 1045–1061. https://doi.org/10.1287/mnsc.1120.1630

Shapira, Z., & Venezia, I. (2001). Patterns of behavior of professionally managed and independent investors. *Journal of Banking & Finance, 25*(8), 1573–1587. https://doi.org/10.1016/S0378-4266(00)00139-4

Sharpe, W. (1964). A theory of market equilibrium under conditions of risk. *Journal of Finance, 19*(3), 425–442. https://doi.org/10.1111/j.1540-6261.1964.tb02865.x

Shefrin, H., & Statman, M. (1985). The disposition to sell winners too early and ride losers too long: Theory and evidence. *Journal of Finance, 40*(3), 777–790. https://doi.org/10.1111/j.1540-6261.1985.tb05002.x

Shleifer, A., & Vishny, R. (1989). Management entrenchment: The case of manager-specific investments. *Journal of Financial Economics, 25*(1), 123–139. https://doi.org/10.1016/0304-405X(89)90099-8

Shleifer, A., & Vishny, R. (2003). Stock market driven acquisitions. *Journal of Financial Economics, 70*(3), 295–311. https://doi.org/10.1016/S0304-405X(03)00211-3

Stein, J. (1997). Internal capital markets and the competition for corporate resources. *Journal of Finance, 52*(1), 111–133. https://doi.org/10.1111/j.1540-6261.1997.tb03810.x

Thaler, R.H. (Eds.). (2005). *Advances in behavioral finance*. (Vol II). Russell Sage Foundation.

Travlos, N. (1987). Corporate takeover bids, methods of payment, and bidding firm's stock returns. *Journal of Finance, 42*(4), 943–963. https://doi.org/10.1111/j.1540-6261.1987.tb03921.x

Tremblay, V.J., & Tremblay, C.H. (2012). *New perspectives on industrial organization with contributions from behavioral economics and game theory.* New York, NY: Springer. https://doi.org/10.1007/978-1-4614-3241-8

Tversky, A., & Kahneman, D. (1973). Availability: A heuristic for judging frequency and probability. *Cognitive Psychology*, 5(2), 207–232. https://doi.org/10.1016/0010-0285(73)90033-9

von Neumann, J., & Morgenstern, O. (1944). Theory of games and economic behavior (3rd ed.). Princeton University Press.

Waddock, S., & Graves, S. (1997). The corporate social performance-financial performance link. *Strategic Management,* 18(4), 303–319. https://doi.org/10.1002/(SICI)1097-0266(199704)18:4<303::AID-SMJ869>3.0.CO;2-G

Zhang, Q., Cai, C., & Keasey, K. (2013). Market reaction to earnings news: A unified test of information risk and transaction costs. *Journal of Accounting and Economics, 56*(2), 251–266. https://doi.org/10.1016/j.jacceco.2013.08.002