Joonas Valli

Unanticipated deals and acquirer returns

Evidence from Finland

ABSTRACT:

M&A activity seems to be an ever-increasing feature of the corporate landscape. In fact, the value of US M&A deals has risen from $45.5 billion in 1988 to $469.7 billion in 2017. However, this trend seems to be in stark contrast to the empirical implications of previous literature, which have time and again pointed out that M&As lead to a systematic loss of shareholder value as calculated by the negative or near-zero CARs found in multiple previous papers.

The paper by Tunyi (2021) provides new evidence that in fact, these lackluster acquirer returns reported by previous studies are a result of the markets revision of probabilities regarding the published deal characteristics of highly anticipated deal announcements. Consequently, Tunyi (2021) contributes to the literature by pointing out that acquirers with the lowest acquisition likelihood (unanticipated acquirers) earned the highest returns of all acquirer groups, suggesting that the market reaction is not merely a revision of prior probabilities, but rather a reaction to brand new information. Consistent with this story, Tunyi (2021) also finds that the acquirers with the highest acquisition likelihood (anticipated acquirers) earned the weakest returns of all acquirers, suggesting a linear relationship between acquisition likelihood and acquirer returns.

This study re-examines the findings of Tunyi (2021) in the Finnish stock market in the period from 2010 to 2020 by performing an event study. To conceptualize the results of the event study, the returns were measured over six different categories: means for each event window (3-day mean, 5-day mean, and 7-day mean), and medians for each event window (3-day median, 5-day median, and 7-day median). The main findings of this study can be summarized in three main points. First, acquirers in the Finnish market earned mean CARs upon M&A announcements of 3.0%, 3.4% and 2.6% for the 3-day, 5-day, and 7-day event windows respectively. These findings suggest that acquirers in the Finnish market have been able to create shareholder value through acquisitions in the observed time period. Second, unanticipated acquirers outperformed other acquirers in three of the six utilized categories, and tied for the best returns in two of the six categories, suggesting that unanticipated acquirers performed better than other acquirers in most circumstances. Third, anticipated acquirers earned the lowest CARs in only one of the six utilized categories, suggesting that the relationship between acquisition likelihood and acquirer returns is not as straightforward as proposed by Tunyi (2021). The results of this study help shareholders of publicly listed companies to analyse short-term returns upon M&A announcements more holistically, and thus, gain a better picture how the market views e.g., inorganic growth strategies.

Keywords: Acquisition, Acquirer returns, Takeover prediction, Cumulative abnormal returns

TIIVISTELMÄ:

Yrityskauppavolyymit ovat olleet vuosikymmenten ajan kasvussa maailmanlaajuisesti. Muun muassa Yhdysvaltain yrityskauppojen yhteenlaskettu vuosittain arvo on noussut 45.5 miljardista dollarista vuonna 1988, 469.7 miljardiin dollariin vuonna 2017. Aiheesta tehty aikaisempi tieteellinen tutkimus on osoittanut useita kertoja, että pörssiin noteeratut yritykset, jotka ovat tehneet yritysostoja, ovat systemaattisesti tuhonneet osakkeidensa arvoa sen seurauksena.

Tunyin (2021) tuore tutkimus osoittaa, että aikaisempien tutkimusten heikot osaketuotot yritysostoja tehneille pörssiyrityksille johtuvat nimenomaan ennalta odotettujen yrityskauppojen julkistuksista, joiden yhteydessä markkinat reagoivat pelkästään julkistuksen sisältämiin uusin yksityiskohtiin. Tunyi (2021) nostaa myös esiin, että yritykset, joilla on pienin todennäköisyys ostaa toinen yritys, ovat itseasiassa luoneet arvoa osakkeenomistajilleen yrityskauppojen avulla. Tämä on seurausta siitä, että tällöin markkinat reagoivat julkistuksen yhteydessä täysin uuteen informaatioon, eivätkä pelkästään yksityiskohtien tarkentumiseen kuten odotettujen yrityskauppojen julkistusten yhteydessä. Tämän lisäksi, Tunyin (2021) tutkimuksen tuloksista saadaan selville, että yritysostotodennäköisyydellä ja yritysostajan osakkeen tuottojen välillä vallitsee käänteinen lineaarinen riippuvuus.

Tämän tutkimuksen tavoitteena oli tutkia Tunyin (2021) löydösten validiteettia Suomen osakemarkkinoilla vuosien 2010 ja 2020 välillä. Tutkimuksessa tehtiin tapahtumatutkimus, jonka tuloksia mitattiin kuudella eri kategorialla: keskiarvoilla kolmessa eri aikaikkunassa ja mediaaneilla kolmessa eri aikaikkunassa. Tämän tutkimuksen tärkeimmät tulokset voidaan tiivistää kolmeen osaan. Ensiksi löydettiin, että yritysostoja tehneiden pörssiyritysten osakekurssit olivat reagoineet Suomessa keskimäärin positiivisesti yritysostojen julkistuksen yhteydessä. Koko otoksen keskimääräiset kumulatiiviset epänormaalit osaketuotot olivat 3.0%, 3.4% ja 2.6% mitattuna kolmen, viiden ja seitsemän päivän aikaikkunoilla. Toisekseen tutkimuksessa löydettiin, että odottamattomat yritysostajat, tarjosivat osakkeenomistajilleen keskimäärin parempia tuottoja kuin muut yritysostajat. Tämän ryhmän osakkeiden kumulatiiviset epänormaalit tuotot olivat muita yritysostajia parempia 3/6 kategoriassa ja jaetulla ensimmäisellä sijalla 2/6 kategoriassa. Kolmanneksi tutkimuksessa löydettiin, että todennäköisimpien yritysostajien osakkeet tuottivat huonoimmat kumulatiiviset epänormaalit tuotot vain 1/6 kategoriassa, joka osoittaa, että riippuvuus yritysostotodennäköisyyden ja yritysostajan osakkeen tuottojen välillä ei ole yhtä selkeä kuin Tunyin (2021) tutkimus antaa ymmärtää. Tutkimuksen tulosten perusteella pörssiyritysten osakkeiden omistajat pystyvät arvioimaan yrityskauppojen julkistuksen yhteydessä tapahtuvaa markkinoiden reaktiota kokonaisvaltaisemmin sekä arvioida mm. pörssiyritysten yritysostostrategiota holistisemmin.

Avainsanat: Yrityskauppa, Osakkeen tuotto, Yrityskaupan ennustaminen, Kumulatiiviset epänormaalit tuotot

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Abbreviations

CAR	Cumulative Abnormal Return
CAAR	Cumulative Average Abnormal Return
DCF	Discounted Cash Flow
DDM	Dividend Discount Model
FCF	Free Cash Flow
M&A	Mergers and Acquisitions
RI	Residual Income
ROE	Return for Equity
WACC	Weighted Average Cost of Capital

1 Introduction

1.1 Background and motivation

M&A activity seems to be an ever-increasing feature of the corporate landscape. In fact, the value of US M&A deals has risen from $45.5 billion in 1988 to $469.7 billion in 2017 (Tunyi, 2021). However, this trend seems to be in stark contrast to the empirical implications of previous literature, which have time and again pointed out that M&As lead to a systematic loss of shareholder value as calculated by the negative or near-zero CARs found in multiple previous papers (e.g., Renneboog, & Vansteenkiste, 2019; Alexandridis, Antypas, & Travlos, 2017).

Vast majority of previous literature regarding acquirer returns suggest that M&As systematically destroy shareholder value. However, the recent paper by Tunyi (2021) argues that in fact, these lackluster acquirer returns reported by previous studies are a result of the markets revision of probabilities regarding the published deal characteristics of highly anticipated deal announcements. Consequently, Tunyi (2021) contributes to the literature by pointing out that unanticipated M&A announcements in fact do create shareholder value, as the reaction is not a revision of prior probabilities, but a reaction to brand new information.

These findings suggest that the short-term event studies used to calculate acquirer returns are not adequate in capturing the true shareholder effects of the corporate acquisitions. This has profound implications to this area of research, as the study by Tunyi (2021) suggests that other research methods (e.g., not short-term CAR studies) should be utilized to capture the actual effects of M&As to shareholder value. However, as the study by Tunyi (2021) is currently the only paper that has researched this phenomenon, it remains unclear whether his findings can be generalized for other markets. This suggests that further examination regarding this topic is needed.

1.2 Purpose of the study

Based on a comprehensive dataset of US M&As during the past few decades, the findings of the paper by Tunyi (2021) can be generalized for the US market. However, whether the findings are apparent in other geographical markets remains unexplored. As such, the purpose of this study is to test whether these findings are a geographical anomaly or an intermarket phenomenon. More specifically, the purpose of this is to test whether acquisition likelihood affects acquirer returns upon M&A announcements in the Finnish stock market. As such, the hypotheses of this study are as follows:

H_1: Unanticipated acquirers earn the highest statistically significant CARs of all acquirer groups

The first hypothesis is based on the argument by Tunyi (2021) that the share prices of unanticipated acquirers do not reflect the possibility of future acquisitions. Moreover, the CARs upon M&A announcements should be positive given the assumption that in general, acquirers choose to engage in M&A deals that create value for their shareholders. Additionally, Tunyi (2021) found that acquirer returns and bid anticipation have a negative correlation; when bid anticipation decreases, acquirer returns increases. As such, it is expected that the group of unanticipated acquirers should have higher returns than the other acquirer groups, which have a higher level of bid anticipation.

H_2: Anticipated acquirers earn the lowest statistically significant CARs of all acquirer groups

The second hypothesis also bases itself both on the above arguments of a dependency between bid anticipation and acquirer returns as presented by Tunyi (2021). More specifically, if a company is known for pursuing acquisitions, the basic preposition is that it should be in a financial position that allows it to finance these activities. Consequently, a well-constructed bid anticipation model should be able to recognize this set of companies. Moreover, given the fact that public companies clearly state in their

strategies how they plan to achieve their future growth, the current market prices should reflect the probabilities of a certain company achieving these goals (Fama, 1970). As such, the market reaction to an M&A announcement of an anticipated acquirer should merely react to the new information in the announcement compared to the ex-ante anticipation of the specific outcome. Moreover, this group of acquirers with the highest level of bid anticipation should have the lowest returns of all acquirers (Tunyi, 2021). As such, it is expected that the anticipated acquirers earn lower CARs than the other acquirer groups, which have a lower level of bid anticipation.

1.3 Intended contribution

According to Fama and French (2008) most studies regarding financial markets are focused on the U.S. markets. Consequently, enhancing the geographic scope of studies offers a unique value proposition by examining whether the outcome of a certain study is market specific. Moreover, the effect of acquisition likelihood to abnormal returns of acquirers upon M&A announcements are yet to studied outside the US. As such, it remains unclear whether the conclusions of Tunyi (2021) are sample specific. In line with these arguments, it is of paramount importance to test whether the hypotheses put forward in the previous subchapter hold true in other market settings.

As such, this study intends to contribute to the existing literature in two distinct ways. First, this study intends to contribute by examining whether the market anticipation effect for CARs upon M&A announcements are a sample specific finding. Second, this study intends to contribute by enhancing the geographic scope of these findings by examining a sample of Finnish acquirers from the beginning of 2010 until the end of 2020.

The Finnish M&A market provides an interesting avenue of research, since there are relatively few studies done in this specific market in the 21st century (Högholm, 2016). Moreover, there are two unique characteristics that this small, but developed European M&A market exhibits. First, there is close to zero hostile takeovers happening in the market, and second, the acquirers consistently aim to acquire 100% of the target

company (Högholm, 2016; Huhtilainen, Saastamoinen, & Suhonen, 2021). These innate characteristics of the market enhance the simplicity of potential transactions to choose from. More specifically, the level of hostility a certain transaction exhibits could have implications to the abnormal returns of the acquirer (Higson, & Elliott, 1998; Chang, Yang, Wang, & Lien, 2017). Conversely, this means that the Finnish M&A universe does not suffer from this potential bias at large.

1.4 Structure of the study

The remainder of this thesis fill be structured in 6 distinct chapters. In the second chapter, the efficient market hypothesis and the most common valuation methods are presented to give an overview how market participants value acquirers in the public markets. In the third chapter, theoretical background regarding mergers and acquisitions will be presented. More specifically, the reasons for pursuing M&As, different payment methods, merger waves and factors affecting acquisition likelihood will be scrutinized. In the fourth chapter, a literature review regarding previous studies of abnormal returns to acquirers will be presented. The fifth chapter will then present the data and methodology that will be utilized for the empirical part of the study. More precisely, the methodologies for a bid anticipation model and a subsequent event study will be presented in this chapter. The sixth chapter will then present the empirical findings of this study, and the seventh will conclude and discuss the results of this study.

2   Firm valuation

The share price of a company reflects the markets future assessment of a company's ability to generate (free) cash flows. When a public company announces an acquisition, the market price of the acquirer is adjusted based on the markets view on how the announced deal affects the company's ability to create value compared to the ex-ante status. As such, the M&A strategy of a given company should focus on engaging in corporate restructurings only if a given deal creates value for the shareholders. Additionally, the ability to accurately measure and manage the value of a given acquisition target is one of the most critical components in the value creation process (Mellen, & Evans, 2018).

Different models for the valuation of companies have been thoroughly examined by empirical research in the past. Whilst theory suggests that all accurately constructed valuation models should provide identical outcomes, it is often alternative valuation models which provide the most accurate results in both academic research and practice (Imam, Chan, & Shah, 2013). For instance, according to Penman (2001) & Lundholm and O'Keefe (2001), *discounted cash flow model* (DCF), *residual income model* (RI) and *dividend discount model* (DDM) should all provide similar results. However, Francis, Olsson, & Oswald (2000) empirically tested the above models using 5-year forecasts and around 3000 firm-year observations and found that the residual income model provided the best results with a prediction error of only 30%, whilst the same figure was 40% for DCF and 71% for DDM. Moreover, Demirakos, Strong, & Walker (2010) examine the target price accuracy and forecast error of price-to-earnings and discounted cash flow models within a 12-month forecast horizon and find that price-to-earnings models significantly outperform DCF models in practice.

All in all, it can be concluded that there are many different valuation models with their own specific advantages and disadvantages. Consequently, a common approach to valuation is to use these models in conjunction to find the true value of a company (Roosenboom, 2012). The purpose of this chapter is to present a theoretical background

of price formation in the public markets. This chapter begins with defining the *efficient market hypothesis* to understand the role of informational efficiency in the price formation of public equities. Thereafter, the most relevant valuation models according to contemporary scientific literature are presented. The presentable models have been chosen by the frequency of their appearance in this branch of literature and consists of the following models: *discounted cash flow model, residual income model, dividend discount model* and *relative valuation.*

2.1 Efficient market hypothesis

According to Fama (1970), the *efficient market hypothesis* (EMH) states that market prices should fully reflect all available information. The EMH suggests that choosing individual assets to invest in cannot be used to earn above average returns without accepting an above average level of risk, as current market prices already reflect all available information (Malkiel, 2005). Fama (1970) categorizes the EMH into three different levels: *weak form, semi-strong form,* and *strong form*.

The *weak form* of EMH states that current market prices reflect all historical information such as past prices, trading volume or short interest. Consequently, the weak form of EMH suggests that trend analysis regarding past performance cannot be used to predict future performance of a given asset (Fama, 1970; Bodie, Kane, & Marcus, 2021).

The *semi-strong form* of EMH states that in addition to historical information, current market prices reflect all publicly available information. This information includes data such as earnings forecasts, balance sheet composition, utilized accounting standards, patents, and quality of the current management team (Fama, 1970; Bodie, et al., 2021).

The *strong form* of EMH states current market prices reflect all available information, which includes both public and private information. This form of EMH suggests that obtaining insider information cannot be used to one's advantage as the current market prices already reflect this information in addition to all public knowledge. However, in

practice insider trading is prohibited in all major stock exchanges, which makes the strong form of EMH theoretical in practice (Fama, 1970; Bodie, et al., 2021).

Fama (1970) states that the null hypothesis of the EMH is quite extreme as it argues that *prices should fully reflect all available information*. However, the author explains that he does not expect this statement to be a literal truth, but rather, a benchmark against which the three forms of EMH can be tested. As such, the three forms of EMH allows one to recognize at which point the null hypothesis breaks down in practice. At the time, Fama (1970) argued that there was no important evidence to refuse the weak and semi-strong forms of EMH and only limited evidence against the strong form of EMH. However, the evidence regarding market efficiency remains mixed as some studies point out the intermittent irrationality of financial markets. For instance, Malkiel (2005) points out that the irrationally high valuations of technology stocks between 1998 and 2001 works as one example of behavioural biases which contradicts the hypothesis of the EMH.

2.2   Discounted cash flow model

In the discounted cash flow (DCF) model, the expected future free cash flows are discounted to the present with an appropriate rate of return. There are two different ways to utilize the DCF model. According the Bernström (2014), the most common way to utilize the DCF model is to discount the *free cash flows to the firm* (FCFF) with the *weighted average cost of capital* (WACC). When utilizing this approach, one arrives at the enterprise value of a given company. Therefore, to arrive at the equity value, one must subtract the total debt and add the total cash to this figure. The other way to utilize the DCF model is to discount the *free cash flows to equity* (FCFE) to the present with the equity cost of capital. By utilizing this approach, one arrives straight at the equity value of a specific company (Bernström, 2014). The formula for the DCF model is displayed in equation 1 (Berk, & DeMarzo, 2019).

$$V_0 = \sum_{t=1}^{n} \frac{FCF_t}{(1+r)^t} \qquad (1)$$

where: V_0 = Present value of a company

                FCF_t = Free cash flow in period t

                r = Required rate of return

                t = Period of the cash flow

In practice, it is hard to predict the cash flows for more than three to five years, which is why it is typical to make projections for the mentioned length and utilize a modified version of the Gordon growth model to arrive at a terminal value for the cash flows that continue until infinity. The terminal value is then discounted to the present according to the principles of the DCF model. According the Brealey, et al., (2021) one must recognize that the results for a valuation model depend heavily on the terminal value and its growth rate. The formula for the calculation of terminal value is displayed in equation 2 (Brealey, et al., 2021).

$$TV_t = \frac{FCF_t * (1+r)}{(r-g)} \tag{2}$$

where: TV_t = Terminal value in period t

                FCF_t = Free cash flow in period t

                r = Required rate of return

                g = Terminal growth rate

                t = Period of the cash flow

2.3   Dividend discount model

In the dividend discount model (DDM), the general idea is the same as in the DCF model. However, instead of free cash flows, the expected dividends of a company are discounted to their present value. Consequently, the formula for this model is the same as for the DCF model, except that the FCF is being replaced with expected dividends of a company. Moreover, in this model it is recommended that the required return for equity (ROE) of

a company is used, which is typically higher than the WACC (Bodie, et al., 2021). The formula for the DDM model is displayed in equation 3. Moreover, also the DDM utilizes the idea that of a discounted terminal value that is calculated according to equation 2, by determining a rate at which the dividends of a company are expected to grow into perpetuity (Berk, & DeMarzo, 2019).

$$V_0 = \sum_{t=1}^{n} \frac{D_t}{(1+r_e)^t}$$ (3)

where: V_0 = Current share price

D_t = Dividend in period t

r_e = Cost of equity

t = Period of the dividend

Even though, the DDM model offers a good theoretical framework for valuing companies, the model can be a bit hard to use in practice since companies that are growing rapidly don't necessarily pay high dividends compared to their share price. Moreover, another difficulty with this model is that companies have vastly different dividend policies (Nikkinen, Rothovius, & Sahlström, 2002).

2.4   Residual income model

Residual income model (RIM) is an alternative valuation model which has been empirically proven to provide superior valuation estimates compared to other widely used valuation techniques such as DCF and DDM. For instance, as it was mentioned earlier, Francis, et al., (2000) empirically tested the RIM, DCF and DDM models using 5-year forecasts and around 3000 firm-year observations and found that the residual income model provided the best results with a prediction error of only 30%, whilst the same figure was 40% for DCF and 71% for DDM.

The definition of *residual income* is the income a company has earned during a specified time period compared to the required rate of return. More specifically, the residual income can be calculated using equation 4, where the equity capital is the book value of equity, and the cost of the equity can be determined by the using the *capital asset pricing model* (Francis, et al., 2000; Brealey, et al., 2021).

$$Residual\ income = Net\ income - Equity\ capital * Cost\ of\ equity \quad (4)$$

Consequently, the residual income ought to be forecasted for the next 3–5-year period and discounted to the present using equation 5. Moreover, also the RIM utilizes the discounted terminal value as presented in equation 2 (Francis, et al., 2000).

$$V_0 = BV_e + \sum_{t=1}^{n} \frac{RI_t}{(1+r_e)^t} \quad (5)$$

where: V_0 = Equity value of a company

BV_e = Book value of equity

RI_t = Residual income in period t

r_e = Cost of equity

t = Period of the residual income

2.5 Relative valuation

Another popular valuation method among market participants is called relative valuation. In this method, the valuation is based on observing different valuation multiples (e.g., P/E, P/S, EV/EBITDA) from comparable public companies in the same or a similar industry, and then valuing the company in question with similar valuation multiples by utilizing e.g., a median multiple from a set of comparable companies (Berk, & DeMarzo, 2019).

For instance, if the median price-to-earnings (P/E) ratio of companies in the same industry is 15, the value of private company in the same industry can be determined by multiplying its earnings per share (EPS) by the observed P/E-ratio. While this valuation method is easy to use, it does have some drawbacks; if the comparable public firms would be identical, this method would be extremely accurate. However, companies are not identical and thus the usefulness of this method is based on the differences between the firms that are being compared together. In addition, relative valuation does not take into consideration whether all the companies in an industry are overvalued (Berk, & DeMarzo, 2019).

3 M&A theory

Mergers and acquisitions or M&A is a colloquial term used for corporate restructurings where two or more corporate entities restructure themselves to continue their operations under the ownership of one company. More specifically, a merger is a term used to describe an event where two (or more) companies decide to combine their operations and merge into one corporate entity. There are two types of mergers: amalgamations and absorptions. An amalgamation is said to happen when a new company is created in the merger process, and an absorption is said to happen when only one of the corporate entities in the merger process survives and the other entities are absorbed by the remaining company (Gupta, 2012).

A corporate restructuring is called an acquisition, when one corporate entity (the acquirer) uses cash, stocks, or a mixture of them to buy either the shares or the assets of another company. After such an event, the acquirer gains corporate control over the operations of the target company (Brealey, et al., 2011). A tender offer is one type of an acquisition where a potential acquirer makes an offer directly to the shareholders of a target company, bypassing the management. If the management of a company does not want to sell the company, a tender offer can also be used for a hostile takeover. (Mallikarjunappa, & Nayak, 2007). A Leveraged Buyout is another form of an acquisition where the purchase of another company is financed by a large amount of low-quality debt and target company is taken private after the takeover. Private Equity firms are primarily known for pursuing these kinds of acquisitions (Brealey, et al., 2011).

Mergers and acquisitions can be classified as *horizontal*, *vertical,* or *conglomerate* based on the business lines of the merging companies. A horizontal M&A is said to happen when two companies in the same line of business decide to come together as one. A vertical M&A happens when companies in the same industry, but in different parts of the production stage become one company. A conglomerate M&A happens when companies in entirely different industries are integrated together. Conglomerate M&As

are common within Private Equity firms, as they acquire companies in multiple different industries (Gupta, 2012).

3.1 Rationale for M&As

Contemporary scientific literature offers multiple different explanations why companies decide to pursue M&As. What's more, Nguyen, Yung, and Sun (2012) a studied a sample of 3520 US based M&As from 1984 to 2004 and found out that 78% of the observed corporate restructurings had at least two simultaneous motives and that value increasing and value decreasing motives frequently coexist in M&A transactions. These motives will be thoroughly presented in the next subchapters to introduce an overview of the underlying motives behind M&A transactions.

3.1.1 Value increasing theories

The consensus within the value increasing theories is that M&As occur when it is perceived that two separate corporate entities would become more valuable than the sum of their parts when combined. These intangible benefits are called synergies and according to the *theory of efficiency*, mergers should only be pursued if enough realisable synergies can be achieved. There are three different types of synergies: financial, operational, and managerial. Lower cost of capital, reduction of systematic risk, interest tax shields and the creation of an internal capital market are examples of financial synergies. Whereas, operational synergies can be achieved from achieving economies of scale, knowledge transfers or because of exterminating overlapping functions. Lastly, managerial synergies can be achieved if the managers in the acquiring company possess superior capabilities compared to the old managers, which can be used to improve the performance of the target company (Trautwein, 1990).

According to the *market power theory* increasing one's market share provides companies with several benefits, which act as drivers for pursuing M&As. These benefits are called collusive synergies and they materialize as wealth transfers from the customers

(Trautwein, 1990; Weitzel & McCarthy, 2011). Weitzel & McCarthy (2011) argue that companies which have increased their market share through participating in M&As are able to charge their customer higher prices, earn higher margins on their sales figures and are able to raise the barriers of entry into a given market and thus, deter future competitors from entering the market.

Devos, Kadapakkam & Krishnamurthy (2008) examined the synergy breakdown of a sample of 264 mergers of unregulated industrial firms from 1980 to 2004. They report that the average synergy gain post-transaction in their sample was 10.03%. Furthermore, they argue that the merger synergies primarily rise from operating synergies which averaged as much as 8.38% in their sample. The role of financial synergies was 1.64%, which suggests that tax considerations are not a primary motive for mergers. What's more, they argue that only a small number of synergies were gained because of increased market power and subsequent wealth transfers from customers, which suggests that national authorities can prevent mergers with the sole purpose of gaining market share by enforcing antitrust laws.

According to the *theory of corporate control*, rival management teams compete for the control of underperforming companies to capitalise on the failed opportunities led by previous management teams (Weitzel, & McCarthy, 2011). Jensen & Ruback (1983) argue that the owners of a company have no loyalty towards the incumbent management, and that they are only looking for the highest rate of return. This has created a market for corporate control, where managers continuously operate under the threat of a possible takeover by a rival management team who possesses seemingly superior capabilities to increase the financial returns of a company.

Martin and McConnell (1991) examined the disciplinary role of corporate takeovers by analysing a sample of 253 successful takeovers through a tender offer from 1958 to 1984. They found evidence for the argument that poorly performing management teams experience high rates of turnover following a takeover. Furthermore, they also found

support for the argument that the market for corporate control acts as a significant disciplinary force to align the interests of the shareholders with corporate executives. These findings suggest that the theory of corporate control presents a valid explanation for the motivations of M&As.

3.1.2 Value decreasing theories

Even though the conventional explanation has been that M&As are pursued to grow sales, eliminate costs, and to ultimately grow profits. It seems that these outcomes are an exception rather than the norm (Rahman, & Lambkin, 2015). As a result, a number of *value decreasing theories* have been presented to further understand alternative motives to pursue M&As. Nguyen, et al., (2012) classify these motives into three different categories: agency problems, hubris and market timing. What's more, it seems that the effects of the above theories have wide-spread implications for the pursuit of M&As, as Nguyen, et al., (2012) found that in their sample of 3,520 US acquisitions from 1984 to 2004, 73% were related to market timing and 59% were related to agency problems and/or hubris.

Agency problems arise when the interests of the shareholders and executives of a company are not aligned, and executives pursue excessive growth to promote their own objectives and goals (Nguyen, et al., 2012). One such agency problem is called *managerial entrenchment*, and it may arise when a manager seeks to make acquisitions for the purpose of making themselves harder to replace and to extract a higher compensation package. In other words, in this agency problem a manager increases their own value to the company, at the expense of increasing the value of the company itself (Shleifer, & Vishny, 1989).

When a company is producing substantial amounts of free cash flow, an agency problem called *managerial discretion* may arise. This happens when the managers of a company use these funds to finance the expansion of a company beyond its optimal size, to increase the resources under their control, and to subsequently increase their

compensation packages. When there are not enough satisfactory investment opportunities available internally, the managers may result in acquiring other companies with these excess funds. Consequently, this may lead to poor acquisitions as potential targets are screened less intensively than they would be if resources were constrained, and managers may end up overpaying for acquisitions more easily (Jensen, 1986).

Roll (1986) presented the *hubris hypothesis* as an explanation why companies take part in corporate restructurings. According to this theory, managers of a company are overconfident in their own ability to increase the value of another company and on average, end up overpaying for acquisitions for the above reason. What's more, these acquisitions are pursued even though there is are no measurable synergies to be achieved. Managerial hubris seems to offer a valid explanation for acquisitions, which have failed to deliver extra profits. For instance, Goergen and Renneboog (2004) analysed a sample of 228 M&As from Continental Europe and the UK between the years of 1993 and 2000 and found that a third of the corporate restructurings occurred in their sample were affected by managerial hubris.

Shleifer and Vishny (2003) present the *market timing hypothesis*, according to which, corporate restructurings are largely determined by the stock market valuations of the participating firms. The assumption behind this hypothesis is that the financial markets are irrational, whereas the managers of a company are completely rational. As such, when the share price of a company is overvalued, the managers of that company take advantage of this and finance their acquisitions with overvalued stock. Rhodes-Kropf and Viswanathan (2004) & Nguyen, et al., (2012) also find evidence for the claim that M&As are largely driven by stock market valuations and that these periodical overvaluations cause mergers to cluster in waves of stock financed M&As.

3.2   Method of payment

There are three different payment methods that can be used in M&A transactions. The method of payment can be either cash (including noncontingent liabilities and newly issued notes), stock (with either full and inferior voting rights) or a mixture of these two. What's more, cash financing often requires the use of use debt, since bidders might not have enough cash and liquid assets to pursue M&As. Thus, the choice between cash or stock financing also requires the bidder to contemplate whether they want to use equity or debt to finance the transaction (Faccio, & Masulis, 2005).

Travlos (1987) studied the stock return mechanisms triggered by M&A announcements and found that while the abnormal returns in cash-financed M&A announcements were "normal", similar announcements for stock-financed M&As resulted in significant losses for the shareholders of the bidder. Thus, one of the most important questions regarding the method of payment in M&As is why companies decide to engage in stock-financed acquisitions, even though they have been associated with inferior abnormal returns compared to cash financed acquisitions (Faccio, & Masulis, 2005). One explanation Travlos (1987) offers for this phenomenon is the signalling hypothesis. According to which, the use of stock as an acquisition currency signals about the overvaluation of the bidder to the market. This leads to negative abnormal returns to the bidder at the time of the announcement.

Hansen (1987) introduces the *contingency pricing effect* as a possible explanation why companies are prone to pursuing stock-financed acquisitions. According to this theory, companies prefer to use their stock as a method of payment in M&As, when there is a possibility that the target company may be overvalued. This way, shareholders of the target company share the risk of the consequences that the bidder might have overpaid. On the other hand, if the target company has positive information regarding their own company, they may prefer this method of payment to realise their returns of this knowledge in the future.

Martin (1996) analysed a sample of 846 acquisitions between 1978 and 1988 and found that companies with a Tobin's Q of 2.0 were 2.7 times more likely to use equity financing in their acquisitions compared to companies that had a Tobin's Q of 1.0. This suggests that the future investment opportunities of a company are positively correlated with stock-financed acquisitions. The reason these two parameters are correlated together, is because if the managers of a company perceive that they need to preserve assets for future use, they have an incentive to use the stock of their company to finance their acquisitions, so that they are also able to invest in different investment opportunities in the future.

Faccio & Masulis (2005) analysed a sample of 3,667 M&A deals from 13 different European countries and found that corporate control incentives are one of the most important determinants to the payment method in M&As. They found that stock financing is frequently used when there is not a threat to the control of the largest shareholder. Simultaneously, they found that cash financing frequently occurs when the largest shareholder of a bidder has an incentive not to dilute his holdings to remain in control. This happens when the largest shareholder holds between 20% and 60% of the shares in the bidder. Martin (1996) also found that if the management of a company holds between 5% and 25% of the equity of a company, they are more reluctant to use stock to finance their corporate restructurings.

Fishman (1989) presented a model, according to which bidders may choose to use cash financing to prevent other bidders from bidding on the same target company. If the first offer made for the purchase of a company is a stock offer, there is a higher likelihood that another bidder may present their own offer. Thus, the rationale behind the model is that the target company is more likely to accept a cash offer and making a cash offer also deters other companies on making a bid for the target company.

Boone, Lie and Liu (2014) examined the time trends in payment methods of corporate restructurings by examining a global sample of 2,590 transactions, and found that the

use of a mixed payment has tripled in popularity since the 1990s. More specifically, a mixed payment method was used in approximately 10% of deals between 1985 and 2000, whereas the same figure was 30% for deals between 2001 and 2013. A large portion of the literature in this area of research has given little attention to the mixed payment method. However, Boone, et al., (2014) argue that a mixed payment is not just a hybrid between a cash and stock financed acquisitions, but rather, a payment method that should be examined separately. The authors found that the use of stock in mixed payments increased as the size of the transaction grew, which is consistent with the findings of Hansen (1987) that stock payment is used as a tool to share the risk of overpaying for an acquisition. Another advantage offered by the mixed payment method is that it lets the shareholders of a target company to decide whether they prefer to be paid in cash or stock (Boone, et al., 2014).

3.3 Merger waves
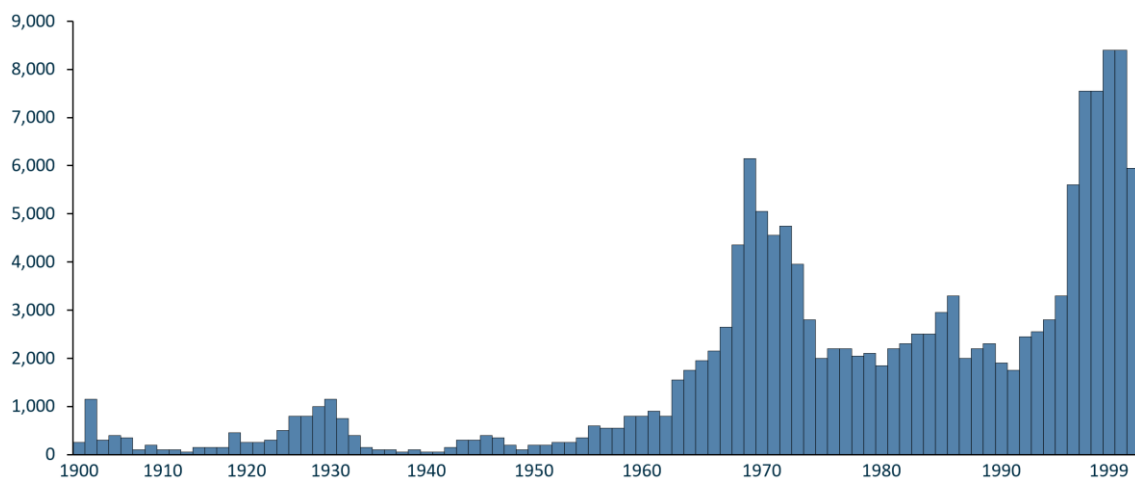
Figure 1. Evolution of US takeover activity from 1897 to 2002 (Martynova, & Renneboog, 2008)

Martynova and Renneboog (2008) state that it is a well-known fact that mergers and acquisitions tend to cluster in waves. In Figure 1, five of the seven historical merger waves from the United States can be visually observed. Even though all merger waves have some unique characteristics, similarities across all have been found. First, merger

waves tend to be preceded by industry, regulatory or technological shocks. Second, merger waves do not happen in isolation, but they tend to coincide with eased access to financing and high stock market valuations. Moreover, merger waves tend to come an end when there is a sudden decline in the stock market and a consequent economic recession (Martynova, & Renneboog, 2008; Rhodes-Kropf, & Viswanathan, 2005).

For instance, beginning of the first merger wave (1897-1903) in US history coincided with multiple different factors such as economic expansion, introduction of new state legislation, development of the New York Stock Exchange, and radical technological improvements. Moreover, beginning of the fifth merger wave (1993-2001) was fuelled by the technological innovation, globalization, deregulation, privatization, and high valuations in the stock market, which were ultimately driven by the tech bubble (Martynova, & Renneboog, 2008). However, Harford (2005) points out that while merger waves have historically been preceded by regulatory, industrial, and technological shocks, they are not powerful enough to start a merger wave on their own.

Moreover, there has also been a sixth merger wave which has been well documented by Alexandridis, Mavrovitis and Travlos (2012). The sixth merger wave started in early 2003 and lasted until late 2007, when the global financial crisis started unravelling and consequently financing conditions became challenging, which ultimately led to plummeting M&A activity. Characteristics of the sixth merger wave included low costs of borrowing and abundant cash resources, which led to the availability of ample liquidity. However, during the sixth wave, acquirers were less overvalued than the companies they acquired, which led to an increasing amount of cash deals (Alexandridis, et al., 2012).

In addition to changes in the technological, regulatory and industry environments, Harford (2005) argues that there must be adequate capital liquidity to facilitate M&As. Moreover, Maksimovic, Phillips, and Yang (2013) point out that one reason why merger waves occur, is that access to public financing is cyclical. Furthermore, these arguments are supported by the findings of Martynova and Renneboog (2008), Rhodes-Kropf and

Viswanathan (2005) & Alexandridis, et al., (2012). Additionally, Maksimovic, et al., (2013) & Arikan and Stulz (2015) claim that public firms are the primary drivers for observed merger waves since they are almost twice as likely to participate in M&As than their private counterparts.

3.4   Acquisition likelihood

Previous literature has identified certain factors that might influence the likelihood that a certain company will self-select to become an acquirer. The most significant of these factors are the following: profitability, Tobin's Q, sales growth, liquidity, leverage, growth resources, disturbance, firm size, firm size squared, free cash flow, tangible assets, firm age, and industry concentration (Tunyi, 2021). The purpose of this subchapter is to give an overview of these factors as they closely relate to the bid anticipation model, which will be introduced in chapter 5.2.

The *theory of corporate control* argues that rival management teams continuously compete for the control of poorly managed companies, which can be capitalized upon by a well performing management team (Weitzel, & McCarthy, 2011). The profitability of a company, and its sales growth signal about a high-performing management team, that can create shareholder value by replacing the management of poorly performing target companies (Palepu, 1986).

The *market timing hypothesis* presented by Shleifer and Vishny (2003) argues that the managers of a company are completely rational, whereas the market is periodically irrational, which can be observed as a periodical overvaluation of stock prices at large. This implies that when the stock price of a company is relatively overvalued, the managers of such a company may take advantage of this by using their overvalued stock as a currency to acquire relatively cheaper target companies (Shleifer, & Vishny, 2003; Dong, Hirshleifer, Richardson, & Teoh, 2006). Moreover, Tobin's Q can be used as a measure for the valuation of a given company.

Managerial discretion is an agency problem that arises when a company has significant cash resources and/or is producing large amounts of free cash flow. According to Jensen (1986), the managers of a company may be tempted to use these excess resources to grow the resources under their control by pursuing acquisitions. This happens at the expense of the company as it may grow beyond its optimal size, whilst the managers are trying to increase their own compensation packages. Consequently, Liquidity and Free Cash Flow can be used to represent the resources a company has at its disposal, which could be used to fund acquisitions.

Companies with a larger size and significant resources are more prone to engage in acquisitions as M&As require a certain threshold of resource availability (firm size). Additionally, companies with significant tangible assets may borrow against these assets to arrange for financing to pursue corporate restructurings (tangible assets). However, in certain cases regulators may disallow for the merger of companies that exceed certain size limits to keep the market competitive. As such, firm size squared can be used to represent the potential effect of this regulatory process (Zhang, 2016; Tunyi, & Ntim, 2019; Tunyi, 2021).

According to Palepu (1986), a discrepancy between the growth resources a firm has available can act as a catalyst for M&A activity. More specifically, companies with significant resources but low growth, could complement their own business by acquiring another firm that has high growth but low resources. Additionally, this also partially explains why older companies are more likely to acquire younger and growing companies. Moreover, Loderer and Waelchli, 2015 argue that older companies target younger companies to acquire new business models, products, and technologies to stay competitive.

M&As provide an avenue for companies to quickly increase their market share by e.g. acquiring a competitor within the same industry. According to Powell and Yawson (2007), fragmented industries with many small companies provides an excellent avenue to

quickly gain market share by inorganic growth (industry concentration). Moreover, Danbolt, Siganos & Tunyi (2016) argue that a when a merger in a given industry happens, it also incentivises the competitors to engage in M&As to maintain their market share (disturbance).

Tunyi (2021) found that there was a negative relationship with leverage and bid likelihood. Consequently, leverage can be used to capture the fact, that companies with lower levels of leverage have an easier access to debt financing, which can be used to finance subsequent acquisitions.

4   Literature review

In this chapter, previous literature regarding acquirer returns upon M&A announcements will be examined. More specifically, the research that contains the historical foundation of this branch of literature, as well as specific deal characteristics that affect these returns, will be presented. Additionally, the findings of Tunyi (2021) regarding the relationship between acquirer returns and bid anticipation will be examined in detail.

Before the paper by Jensen and Ruback (1983), the literature regarding share price reactions upon M&A announcements was rather fragmented. The authors consolidated this branch of research by reporting the weighted average abnormal returns for all relevant previous studies. Their main finding was that upon an M&A announcement, the target companies earn positive weighted abnormal returns, whereas the bidders does not destroy shareholder value. More specifically, they find that successful acquisitions which were performed through a tender offer, ended up earning the bidder and the target weighted average abnormal returns of 3.8% and 29.1% respectively. Furthermore, they find that the bidder and the target upon announcement of a successful merger end up earning weighted average abnormal returns of approximately 0.0% and 7.7% respectively.

Walker (2000) used a sample of 278 US acquisitions, from 1980 until 1996, to study the cumulative market-adjusted returns (CMAR) for bidders with a [-2, +2] event window. Walker (2000) finds that the average CMAR for the entire sample was -0.84% at a 10% significance level. However, the micro-level analysis reveals that bidders earn normal CMARs following related takeovers, but the average CMAR of acquisitions that are driven by diversification motives with potential overlap is -3.4% (at 1% significance level). Similar results span multiple different studies with different geographical scopes. For instance, Campa and Hernando (2004) studied a sample of 262 European M&A announcements between 1998 and 2000 and find that while the shareholders of target companies earn statistically significant positive returns, the same cannot be said for the

returns of acquirers. In fact, Campa and Hernando (2004) report that the CAR for acquirers is not statistically different from zero. What's more, they find that the returns to 55% of the acquirers in their sample were negative.

At the turn of the 21st century, the biggest merger wave thus far was going on, and Bruner (2002) stated that a thorough look into the profitability of these endeavours was much needed. Consequently, he compiled the evidence from a total of 130 previous studies to gain a consensus regarding the topic. Bruner (2002) found that while M&As in general are a profitable endeavour, most of these profits end up with the target shareholders, as acquirers tend to earn near-zero returns, whereas target shareholders usually end up with significant positive returns upon deal announcement.

Capron and Shen (2007) used a multinational sample of 101 acquirers between 1988 and 1992 to study whether the status (public or private) of the target firm influences the share price of the bidder upon deal announcement. Their sample of 101 target companies consisted of 52 public and 40 private companies. The authors find that by using a time window of [-20, +2] the CAARs for acquirers of public and private targets were approximately -1% and 1% respectively. Capron and Shen (2007) point out that these results are exceptional for two reasons. First, the average bid value between public and private companies were $826M and $158M respectively. However, a smaller bid should have a smaller effect of the share price of the bidder ceteris paribus. Second, the statistically significant positive CAARs for acquirers of private targets suggest that the market was not able to predict the bids for private targets.

Also, Chang (1998) examines acquirer returns upon deal announcement when the target is a privately held company. However, Chang (1998) scrutinizes whether the method of payment influences these returns. The author finds that acquirers experience a positive abnormal return when using their stock as a method of payment. However, there is no abnormal return for acquirers using cash to pay for a privately held target. Moreover, Fuller, Netter and Stegemoller (2002) confirm these findings and point out that acquirers

experience negative returns when the target is another public company. Additionally, Fuller, et al., (2002) find that the concrete value of acquirer returns in all the above situations is larger when the target size increases or when stock is used as a method of payment. Consequently, this means that stock-for-stock deals of public targets exhibit larger losses for the shareholders of the acquirer.

Moeller, Schlingemann and Stulz (2004) study an extensive sample of 12,023 acquisitions from 1980 to 2001 and find a robust correlation between acquirer size and returns. More specifically, Moeller, et al., (2004) find that while the equally weighted abnormal return for bidders is 1.1%, these bidders lose an average of $25 million upon deal announcement. In this case, the dollar abnormal return is a negative value, whereas the percentage abnormal return is not, suggesting that the percentage abnormal return differs by company size. Moreover, a closer look at the sample reveals that acquirer returns of small firms are 2.24 percentage points higher than for larger firms. The authors claim that this effect is robust when controlling for different time periods, payment methods, and other deal characteristics.

While a big portion of the reviewed literature has used pre-2000 data, Alexandridis (2017) examined a more thorough sample of 26,078 US acquisitions ranging from 1990 to 2015. Alexandridis (2017) argues that in the period ranging from 2009 to 2015, acquirers create distinguishable shareholder value. More specifically, the author finds that during this time, the acquirers of public companies earned an average abnormal return of 1.05% upon deal announcement, whereas this same figure was -1.08% for acquirers who completed acquisitions between 1990 and 2008. Furthermore, Alexandridis (2017) argues that this improvement is so remarkable that acquisitions of private targets no longer create superior returns to acquirers. Contrary to the findings of Fuller, et al., (2002), the author also points out that using stock as a payment method for acquisitions has not been a trigger for substantial negative returns after 2009. Alexandridis (2017) argues that these recent developments have been triggered by the financial crisis of

2008, which acted as a trigger for improving corporate governance practices, ultimately leading to higher quality of investment decisions on a large scale.

In 2021, Tunyi (2021) published a study called "*Revisiting acquirer returns: Evidence from unanticipated deals*", where he argues that using CARs as the methodology to examine short-term acquirer returns is flawed, as it does not account for the fact that participants in the market actively expect M&As. Tunyi (2021) states that according to the semi-strong form of market efficiency, market prices should already reflect the likelihood that a certain company may pursue an acquisition. Moreover, this implies that when a deal is announced, the short-term acquirer returns are merely a revision of prior probabilities regarding the deal characteristics. Furthermore, one of the most fundamental arguments put forwards by Tunyi (2021) is that previous studies which have examined short-term acquirer returns, systematically underestimate the returns to acquirers. Therefore, the author argues that the short-term CARs to acquirers with different levels of market anticipation should significantly differ from each another.

Tunyi (2021) investigates his claims by studying an extensive sample of 183,823 US acquisitions ranging from 1988 until 2017. First, he finds that the median and average 7-day CARs for the full sample are 0.5% and 1.2% respectively. Consequently, these results are similar to the findings of Alexandridis (2017). Second, Tunyi (2021) divides the sample into five quintiles based on pre-bid acquisition likelihood. The pre-bid acquisition likelihood is measured by 13 different metrics: profitability, Tobin's Q, sales growth, liquidity, leverage, growth resources, disturbance, firm size, firm size squared free cash flow, tangible assets, firm age, and industry concentration. Acquirers with the highest likelihood of undergoing an acquisition are sorted into the fifth quintile (anticipated acquirers), and the acquirers with the lowest likelihood of undergoing an acquisition are sorted into the first quintile (unanticipated acquirers). Tunyi (2021) finds that the average 7-day CAR for Q_1 acquirers is 5.4%, while this same figure is only 0.2% for Q_5 acquirers. Furthermore, Tunyi (2021) found that acquirer returns and bid anticipation have a negative correlation; when bid anticipation decreases, acquirer returns increases.

Overall, it can be concluded that acquisitions have historically created significant abnormal returns to target shareholders at the expense of acquirer shareholders. Moreover, the consensus has been that the most significant characteristics affecting acquirer returns upon deal announcement are status of the target company (public/private), size of the acquirer, and the method of payment. Acquisitions of private companies create greater abnormal returns to public acquirers than a similar target company that is publicly traded (Capron, & Shen, 2007). Smaller acquirers realize greater abnormal returns upon deal announcement than similar companies with a larger size (Moeller, et al., 2004). Using stock as a payment method seems to accelerate abnormal returns so that when acquiring a private target, the abnormal returns are significantly positive, but when acquiring a public target, the abnormal returns are distinctively negative (Chang, 1998; Fuller, et al., 2002).

Contrary to these previous findings, it seems that the source of acquirer returns has evolved over time as suggested by Alexandridis (2017) and Tunyi (2021). More specifically, Alexandridis (2017) argues that post-2009 acquisitions have created positive and statistically significant CARs for the acquirers. In addition, the author argues that this shift is so distinct that acquiring private targets no longer create greater abnormal returns for acquirers, and that using stock as a payment method no longer destroys shareholder value. Alexandridis (2017) argues that these findings have been driven by the financial crisis of 2008, which effectively forced companies to improve their corporate governance characteristics.

Moreover, Tunyi (2021) finds that through categorizing acquirers into different groups by their acquisition likelihood, it can be differentiated that unanticipated acquirers earn much greater positive and statistically significant CARs than their counterparts who are expected to announce takeover bids. Tunyi (2021) argues that this phenomenon is driven by the fact that the acquisition likelihood of an anticipated acquirers is already priced in

their share price, while the same is not true for unanticipated acquires, as the market does not expect them to pursue acquisitions.

5   Data and methodology

5.1   Data

Thomson Reuters Eikon database is used to collect data about all mergers and acquisitions that have occurred in Finland between 1.1.2010 and 31.12.2020. Furthermore, this data set is restricted to transactions where the transaction is either a merger or an acquisition, the acquirer is a publicly traded company, the deal value is known, the deal status is completed, and 100% of the target shares have been acquired. Moreover, transactions where required information for the bid anticipation model was not available were excluded. This yields us with a final sample of 79 M&A transactions with a total deal value of 13.4 billion euros. Descriptive statistics of the selected M&A transactions can be observed from table 1.

Table 1. Descriptive statistics of the selected M&A transactions

Year	Deals	Cross-border	Cash	Deal value (EURm)	Deal value (%)
2010	7	6	2	228	2%
2011	6	4	1	815	6%
2012	6	4	3	157	1%
2013	10	4	1	184	1%
2014	6	3	2	121	1%
2015	7	4	5	2,158	16%
2016	7	2	6	1,287	10%
2017	8	4	2	1,362	10%
2018	4	3	1	942	7%
2019	7	2	3	5,639	42%
2020	11	7	2	478	4%
Total	79	43	28	13,372	100%

Another set of data that is utilized to build a bid anticipation model will be collected from Thomson Reuters Datastream. It comprises of in-depth accounting information that is extracted from the latest annual financial statements that have been available at the time of the deal announcement. Moreover, this data is collected for all publicly listed

5.2 Bid anticipation model

5.2.1 Construction of the model

The bid anticipation model is constructed in order to sort the sample of acquirers into 4 quartiles based on their acquisition likelihood. Acquirers sorted into the first quartile (Q_1) are called unanticipated acquirers, as they have the lowest likelihood of initiating a takeover bid. Whereas the acquirers sorted into the fourth quartile (Q_4) are called anticipated acquirers, as they have the highest likelihood of initiating a takeover bid.

$$Z_{it-1} = \beta_0 + \beta_1 Profitability_{it-1} + \beta_2 Sales\ growth_{it-1} + \beta_3 Tobin's\ Q_{it-1} +$$
$$\beta_4 Liquidity_{it-1} + \beta_5 Free\ Cash\ Flow_{it-1} + \beta_6 Firm\ size_{it-1} + \beta_7 Firm\ size\ sq_{it-1} +$$
$$\beta_8 Leverage_{it-1} + \beta_9 Tangible\ Assets_{it-1} + \beta_{10} Firm\ age_{it-1} + \epsilon_{it-1} \qquad (6)$$

The bid anticipation model is constructed by utilizing a two-step backtesting approach similar with the methodology used by Tunyi (2021). First, equation 6 is utilized to input firm specific characteristics of company i at time $t-1$ before a takeover announcement, denoted as Z_{it-1}. The output is plugged into the logistic regression model in equation 7, where Bid_{it} takes a value of 1 if company i has announced a takeover bid at time t, and a value of 0 if company i has not announced a takeover bid at time t. Subsequently, model coefficients for equation 6 are backsolved from the firm-year observations of a given year. Second, these model coefficients are then used together with company specific variables at time $t-1$ to calculate the measure for bid anticipation for time t. This score represents the acquisition likelihood of a given company on a given year, and it is then used to sort the acquirers of into 4 quartiles. This process is repeated each year to calculate the most accurate model coefficients that correlate with future bid announcements.

$$Bid_{it} = \frac{1}{1+e^{-Z_{it-1}}} \qquad (7)$$

Three variables (*Growth resources*, *Disturbance*, and *Industry concentration*) used in the original bid anticipation model constructed by Tunyi (2021) were excluded from equation 6 as a result of incomplete data availability. As such, the methodology has been adjusted accordingly to retain the accuracy of the bid anticipation model. These changes and their justifications will be further explained in chapter 5.4.

Table 3. Variables utilized in the bid anticipation model

Variable	Description
Profitability	EBIT divided by total assets
Sales growth	Percentage change in revenue
Tobin's Q	Sum of market value of equity and book value of debt divided by total assets
Liquidity	Cash and short-term investments divided by total assets
Free cash flow	Free Cash Flow divided by total assets
Firm size	Natural logarithm of total assets
Firm size (squared)	Natural logarithm of total assets squared
Leverage	The ratio of long-term debt to total assets
Tangible assets	PP&E divided by total assets
Firm age	Number of years since the IPO of a given firm

Descriptions of the variables utilized in the bid anticipation model, can be observed from table 3. The variables have been constructed in order to produce comparable financial observations between companies with different profiles of size, growth stage, and profitability. Moreover, the chosen variables have been shown to affect acquisition likelihood by the previous literature as discussed in the chapter 3.4

5.3 Event study methodology

The event study methodology is a widely used research method in accounting, economics, and finance, that is designed to quantify the economic impact of a particular event on a company's value. The usefulness of this method derives from the fact that according to the *efficient market hypothesis*, the impact of a certain event should be immediately reflected in the share price of a specific company. Therefore, a measure of

the economic impact of an event can be constructed by using securities prices observed during a specified event window (MacKinlay, 1997).

The first published paper using the event study methodology was introduced by Dolley (1933), where he examined the reaction of share prices to stock splits by examining the nominal price fluctuation at the time of the stock split. According to MacKinley (1997), the methodology has evolved since then to become more sophisticated by excluding the effects of general stock market movements and other ambiguous events. The event study methodology in its current form was introduced by Ball and Brown (1968) & Fama, Fisher, Jensen, and Roll (1969).

Ball, et al., (1968) conducted an empirical evaluation regarding the relationship between forecast errors of accounting income and share prices and found a positive synchronous relationship between stock returns and income forecast errors. Fama, et al., (1969) examined the effects of stock splits by isolating the effects of concurrent increases in expected dividends and found that the market merely reacts to the expected dividend implications of a stock split, rather than the action itself. Moreover, the results of Fama, et al., (1969) show that stock prices absorb the effects of new information with considerable velocity without the creation of statistically significant abnormal returns. Therefore, these results provide evidence in favour of the *efficient market hypothesis*.

An event study starts by defining an event of interest and an event window, during which the chosen event is assumed to generate abnormal returns. For instance, when examining the effect of an M&A announcement to an acquirer's share price, it is commonplace to include multiple days surrounding the event to fully capture any abnormal returns triggered by the event of choice. Subsequently, a criterion for the inclusion of companies to the study should be made. This criterion may include restrictions based different characteristics, such as geographic location or a certain industry. The next step is to calculate the abnormal returns for the chosen set of companies during the event windows (MacKinlay, 1997).

Next, the specific formulas used to calculate the abnormal returns for the purposes of this study will be presented. The process starts with the calculation of daily logarithmic returns for all individual securities for the observed time period according to equation 8. Where $R_{i,t}$ denotes the logarithmic return of stock i at time t, whereas $P_{i,t}$ and $P_{i,t-1}$ denote the price of stock i at time t and $t-1$ respectively.

$$R_{i,t} = ln\left(\frac{P_{i,t}}{P_{i,t-1}}\right) \tag{8}$$

According to Vaihekoski (2004), the usage of logarithmic returns instead of percentage returns offers three distinct advantages. First, the usage of logarithmic returns is not prone to biases arising from the bid/ask spread and price discreteness. Second, logarithmic returns are more symmetric and thus, offer a higher degree of normality. Third, logarithmic returns diminish the level of heteroskedasticity found in most series of percentage returns.

$$R_{mkt,t} = ln\left(\frac{P_{mkt,t}}{P_{mkt,t-1}}\right) \tag{9}$$

Equation 9 is utilized for the calculation of daily logarithmic returns for the chosen market portfolio. Where $R_{mkt,t}$ denotes the logarithmic return of the market portfolio at time t, whereas $P_{mkt,t}$ and $P_{mkt,t-1}$ denote the value of market portfolio i at time t and $t-1$ respectively. OMX Helsinki is chosen to represent the market portfolio as it is the most extensive representation of Finnish publicly listed companies. Equation 9 is further utilized in equation 10.

Equation 10 represents the *Capital Asset Pricing Model* (CAPM), which is used to calculate the expected returns of individual stocks in the sample. The CAPM is a widely used financial model, which was proposed separately by Sharpe (1964) & Lintner (1965)

and Mossin (1966) to predict the relationship that ought to be witnessed between the risk and expected return of a security (Bodie, et al., 2021).

$$E[R_{i,t}] = R_f + \beta_i * (R_{mkt,t} - R_f) \tag{10}$$

Where $E[R_{i,t}]$ denotes the expected returns of stock i at time t, whereas R_f represents the risk-free rate, and β_i represents the Beta of stock i. For the risk-free rate, the 5-year Finnish bond will be utilized (0.50%) (Kauppalehti, 2022). The beta will be calculated from an estimation window ranging from t = -30 to t = -11 relative to the event date (t = 0).

In practice, there are endless possibilities for the determination of the estimation window, which can be showcased by the different estimation windows utilized in previous studies (see e.g., Chen and Siems, 2007; Alexandridis, 2017; Tunyi, 2021). For instance, Tunyi (2021) utilized an estimation window of [-300, -91], whereas Chen and Siems (2004) utilized an estimation window of [-30, -11]. To improve the robustness of the results presented by Tunyi (2021), a different estimation window has been chosen for this study. Moreover, Chen and Siems (2004) utilized an estimation window of [-30, -11] to calculate 1-day, 6-day and 11-day CARs, which are similar as the event windows utilized in this study. Following this reasoning, the estimation window has been chosen to be [-30, -11].

According to Jacobsen (1988), abnormal returns (also known as unsystematic returns) can be defined as the deviation between the expected and actual returns of a specific security. Equation 11 will be utilized to calculate the abnormal returns $AR_{i,t}$ for the individual securities i at time t:

$$AR_{i,t} = E[R_{i,t}] - R_{i,t} \tag{11}$$

Following Tunyi (2021), the abnormal returns will be calculated for three specific event windows: [-1, +1], [-2, +2], and [-3, +3] centered around the date of the deal announcement (t = 0). Consequently, equation 12 will be utilized to calculate the cumulative abnormal returns $CAR_i(t_1, t_2)$ for the specified event windows for all selected securities:

$$CAR_i(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_{i,t} \tag{12}$$

According to MacKinlay (1997), the individual CARs can be aggregated for a given event window to arrive at a mean or median for cumulative abnormal returns, denoted as $\overline{CAR}$. Consequently, equation 13 will be utilized to calculate the $\overline{CAR}$s for each of the four quartiles and each of the three event windows. Where $\overline{CAR}_{Q_x}(t_1, t_2)$ denotes the mean/median cumulative abnormal return of quartile Q_x, and $\overline{AR}_{Q_x,t}$ denotes the mean/median abnormal return of quartile Q_x at time t

$$\overline{CAR}_{Q_x}(t_1, t_2) = \sum_{t=t_1}^{t_2} \overline{AR}_{Q_x,t} \tag{13}$$

Lastly, the results are going to be tested for statistical significance to get an understanding whether the results of the underlying $\overline{CAR}$s are statistically significant from zero. For this purpose, equation 14 will be utilized to perform t-tests on the $\overline{CAR}$s for all four quartiles and the selected event windows:

$$t_{\overline{CAR}_{Q_x}} = \frac{\overline{CAR}_{Q_x}}{S_{\overline{CAR}_{Q_x}}} \tag{14}$$

Where $t_{\overline{CAR}_{Q_x}}$ represents the t-statistic of a given quartile, $\overline{CAR}_{Q_x}$ represents the mean/median cumulative abnormal return of quartile Q_x, and $S_{\overline{CAR}_{Q_x}}$ represents the standard deviation of the underlying $\overline{CAR}_{Q_x}$.

5.4 Limitations of the study

The number of M&A transactions chosen for this study is quite small, which poses some limitations. More specifically, the number of acquirers sorted into the first quartile will be quite low given how the methodology is designed to work i.e., Q_1 is supposed to have the least acquirers as they have the lowest likelihood of initiating a takeover bid, whereas Q_4 is supposed to have the highest number of acquirers as they have the highest likelihood of initiating a takeover bid. Given this limitation, the acquirers in this study have been sorted into four quartiles instead of the five quintiles used by Tunyi (2021) to increase the number of acquirers classified as unanticipated acquirers. The effect of differing methodology should not affect the outcome of this study.

Moreover, the bid anticipation model utilized in this study excludes three variables used in the original model constructed by Tunyi (2021). This has change has some ramifications for the accuracy of the utilized model when following the original methodology used by Tunyi (2021). In his methodology, Tunyi (2021) matched financial characteristics from time $t - 1$ to bids initiated at time t, and then and utilizing financial characteristics from time t to come up with a measure of bid anticipation for time $t + 1$. Whereas the methodology in this study has been altered so that first financial characteristics from time $t - 1$ are matched to bids initiated at time t, and then utilizing financial characteristics from time $t - 1$ to come up with a measure of bid anticipation for time t. The problem arises from the fact that the (fewer) regression variables in the logistic regression model fluctuate significantly from year to year, which results in the fact that the output of the model is extremely accurate when following the altered methodology, but it becomes arbitrary when following the methodology of Tunyi (2021).

As a result of the differing methodology, it must be noted that the current model includes information that is not available to market participants ex ante. Consequently, the output of the bid anticipation model is more accurate than what could be predicted by market participants in real time. However, the only purpose of the model in this study is to sort the acquirers into four quartiles based on their acquisition likelihood, which is

something that can be accomplished with the current methodology. Moreover, the differing methodology does not affect the objectives of this study, but rather, it merely suggests that the predictive ability of the model utilized in this study might be severely impaired when following the original methodology introduced by Tunyi (2021).

6   Empirical results

6.1   Distribution of acquirers into quartiles of bid anticipation

Table 4. Output of the bid anticipation model

Quartile	Firm-year observations	Acquirers	% of acquirers
Q1	357	6	1.68%
Q2	357	7	1.96%
Q3	364	16	4.40%
Q4	369	50	13.55%
Total	1,447	79	5.46%

In order to make meaningful inferences from the results of this study, the basic preposition is that the bid anticipation model should be able to categorize the companies (firm-year observations) into four quartiles based on acquisition likelihood. Table 4 presents the results regarding the output of the model used in this study. The full data set includes observations from 199 different companies across 10 years, resulting in 1,447 firm year observations, which are then matched to 79 deal announcements across the selected time period. This suggests that on average, a null model (i.e., a model that has no predictive ability) would be able to correctly identify 5.46% of the acquirers into each quartile.

Following the logic of Tunyi (2021), if the model utilized in this study has a superior predictive ability when compared to the null model, there should be significantly less acquirers sorted into the first quartile (Q_1) than the fourth quartile (Q_4). The utilized model sorted 1.68% of the acquirers into Q_1, 1.96% of the acquirers into Q_2, 4.40% of the acquirers into Q_3, and 13.55% of the acquirers into Q_4. These results suggest that the utilized model can sort the acquirers into quartiles based on acquisition likelihood with meaningful accuracy, and thus, can be used for the purposes of this study.

6.2 Characteristics of acquirers

Table 5. Descriptive statistics by acquirer status

Variable	Acquirer		Non-acquirer	
	Mean	Median	Mean	Median
Profitability	0.061	0.070	0.038	0.051
Sales growth	1.112	1.068	1.074	1.029
Tobin's Q	0.304	0.260	0.295	0.261
Liquidity	0.139	0.109	0.133	0.088
Free cash flow	0.062	0.072	0.045	0.063
Firm size	12.288	11.803	12.584	12.218
Firm size sq	24.575	23.607	25.168	24.436
Leverage	0.221	0.187	0.206	0.162
Firm age	13.418	15.000	15.431	16.000

Table 5 displays descriptive statistics of the selected stock universe by acquirer status. The group of companies from the selected stock universe that have chosen to become acquirers have some unique characteristics when compared to their non-acquiring counterparts. The most significant differences between the two groups can be observed from metrics of *Profitability*, *Sales growth*, *Free cash flow*, and *Firm age*. More specifically, it seems that the group of acquirers has a higher level of profitability, are growing faster, have a comparatively higher level of free cash flow, and have been public companies for a shorter period of time. Moreover, the group of acquirers are slightly smaller in terms of their balance sheet and have slightly more liquidity and leverage than their non-acquiring counterparts. The metric of *Tobin's Q* is relatively similar between the two groups.

The profitability of a company, and its sales growth signal about a high-performing management team, that can create shareholder value by replacing the management of poorly performing target companies (Palepu, 1986). Moreover, given the fact that the group of acquirers have grown faster and have a significantly higher profitability than

their non-acquiring peers, the results are in line with the *theory of corporate control* put forward by Weitzel & McCarthy (2011), which argues that rival management teams continuously compete for the control of poorly managed companies. Contrary to the expectations of this study, it seems that acquiring companies have had a higher amount of leverage and are comparatively younger than their non-acquiring peers. However, acquirers have generated significantly higher amounts of free cash flow, which suggests that despite being more levered than their non-acquiring counterparts, they have not been restricted in their ability to pursue inorganic growth.

Table 6. Descriptive statistics of the selected stock universe across quartiles

Variable	All quartiles		Q1		Q2		Q3		Q4	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Profitability	0.039	0.052	0.002	0.023	0.026	0.048	0.052	0.060	0.073	0.069
Sales growth	1.076	1.031	1.039	1.010	1.036	1.014	1.072	1.028	1.155	1.058
Tobin's Q	0.296	0.261	0.333	0.255	0.294	0.257	0.269	0.269	0.287	0.266
Liquidity	0.134	0.089	0.179	0.115	0.120	0.092	0.115	0.079	0.121	0.077
Free cash flow	0.046	0.064	-0.019	0.032	0.041	0.063	0.076	0.072	0.086	0.086
Firm size	12.568	12.212	12.513	11.951	12.579	12.198	12.735	12.645	12.444	12.015
Firm size sq	25.135	24.424	25.027	23.903	25.159	24.397	25.469	25.290	24.888	24.029
Leverage	0.207	0.162	0.233	0.141	0.207	0.153	0.184	0.175	0.204	0.180
Firm age	15.321	16.000	16.381	17.000	16.017	17.000	15.953	17.000	12.997	13.000

Table 6 displays descriptive statistics of the selected stock universe sorted across quartiles of acquisition likelihood. Within this full sample of 1,447 firm-year observations, the companies that have the lowest likelihood of pursuing an acquisition (Q_1) display certain innate characteristics when compared to the other quartiles as well as the full sample characteristics. Most notably, the firms sorted into Q_1 have the lowest level of profitability, earn negative free cash flows, have highest levels of debt, and have been public companies for the longest period of time. Moreover, companies in Q_1 are slightly smaller than average and have the highest deviation within their metric for Tobin's Q as displayed by the highest score for mean, but the lowest median.

Table 7. Descriptive statistics of acquirers across quartiles

Variable	All quartiles		Q1		Q2		Q3		Q4	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Profitability	0.061	0.070	-0.015	0.054	0.053	0.067	0.068	0.076	0.069	0.077
Sales growth	1.112	1.068	1.127	1.061	1.110	1.094	0.989	1.015	1.150	1.082
Tobin's Q	0.304	0.260	0.290	0.201	0.301	0.312	0.270	0.256	0.316	0.261
Liquidity	0.139	0.109	0.208	0.207	0.074	0.041	0.131	0.131	0.142	0.103
Free cash flow	0.062	0.072	0.009	0.036	0.057	0.047	0.103	0.106	0.056	0.068
Firm size	12.288	11.803	12.891	12.356	12.721	11.472	13.371	13.424	11.808	11.583
Firm size sq	24.575	23.607	25.781	24.711	25.443	22.943	26.741	26.847	23.616	23.166
Leverage	0.221	0.187	0.236	0.163	0.187	0.114	0.197	0.198	0.232	0.167
Firm age	13.418	15.000	15.167	17.500	20.714	22.000	17.750	18.500	10.800	12.000

Table 7 displays descriptive statistics of the acquirers (79 observations) across all quartiles of acquisition likelihood. Within this group, the deviations for certain variables display more variations between quartiles. For instance, companies in Q_1 and Q_4 have been public companies for comparatively less time than companies in Q_2 and Q_3. Moreover. companies in Q_1 and Q_3 are larger than companies in other quartiles as measured by *Firm size*. However, the companies with the lowest acquisition likelihood also display innate characteristics of low acquisition likelihood. Most notably, the unanticipated acquirers are characterized by the lowest profitability (negative in this sample), lowest levels of free cash flow, and the highest amount of debt. These financial characteristics offer a logical explanation why companies categorized Q_1 have the lowest acquisition likelihood. More specifically, when a company's financial profile is characteristic of unprofitability, low levels of free cash flow, as well as high amounts of debt, it is in a relatively weak financial position to finance its endeavours for inorganic growth when compared to other companies in the same stock universe.

6.3   Acquirer performance across quartiles

Table 8. Acquirer performance across quartiles

|	Acquirers	3-day CAR		5-day CAR		7-day CAR	
	N	Mean	Median	Mean	Median	Mean	Median
Q1	6	0.033**	0.033**	0.039***	0.035**	0.027***	0.036***
Q2	7	0.016***	0.003	0.026***	0.035***	0.013**	0.010**
Q3	16	0.018**	0.004	0.025**	0.017*	0.027**	0.018
Q4	50	0.036*	0.012	0.037**	0.015*	0.027**	0.014*
All	79	0.030**	0.011	0.034**	0.017*	0.026**	0.016**

Table 8 displays results of the event study across all quartiles of acquisition likelihood and event windows, where ***, ** and * represent statistical significance at 1%, 5% and 10% respectively. The mean CARs for the full sample of acquirers were 3.0% for the 3-day event window, 3.4% for the 5-day event window and 2.6% for the 7-day event window, with a 5% level of significance for all event windows. Whereas the median CARs for the full sample of acquirers for the respective event windows were 1.1%, 1.7% and 1.6% with varying statistical significance. These results suggest that companies in the Finnish stock market have been able to create statistically significant CARs by pursuing acquisitions as measured by most of the event windows, with the only exception being the 3-day median CAR which is statistically insignificant for the full sample of acquirers.

Contrary to the expectations of this study, acquirers in Q_4 (anticipated acquirers) had the highest mean CARs in the 3-day event window. Whereas acquirers in Q_1 (unanticipated acquirers) had the highest mean CARs in the 5-day event window, and the returns for the 7-day event window were equal between acquirers in Q_1, Q_3 and Q_4. However, the median return for unanticipated acquirers (Q_1) across all event windows were the highest of all groups. Although, in the 5-day event window acquirers in Q_1 and Q_2 had roughly the same level of returns after rounding to three decimal places. Moreover, the results suggest that there are a small number of acquirers in Q_4 that have exceptionally high returns, which appears as a high mean but low median for the group.
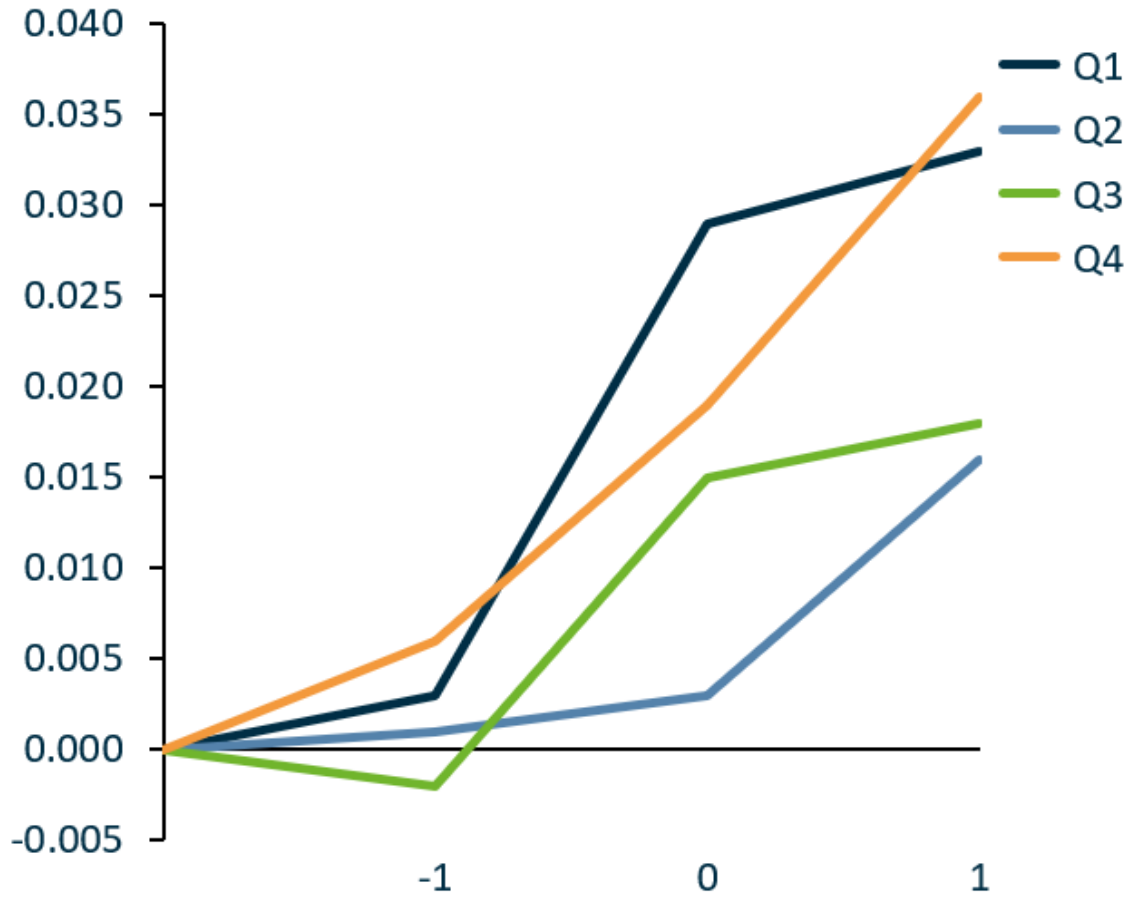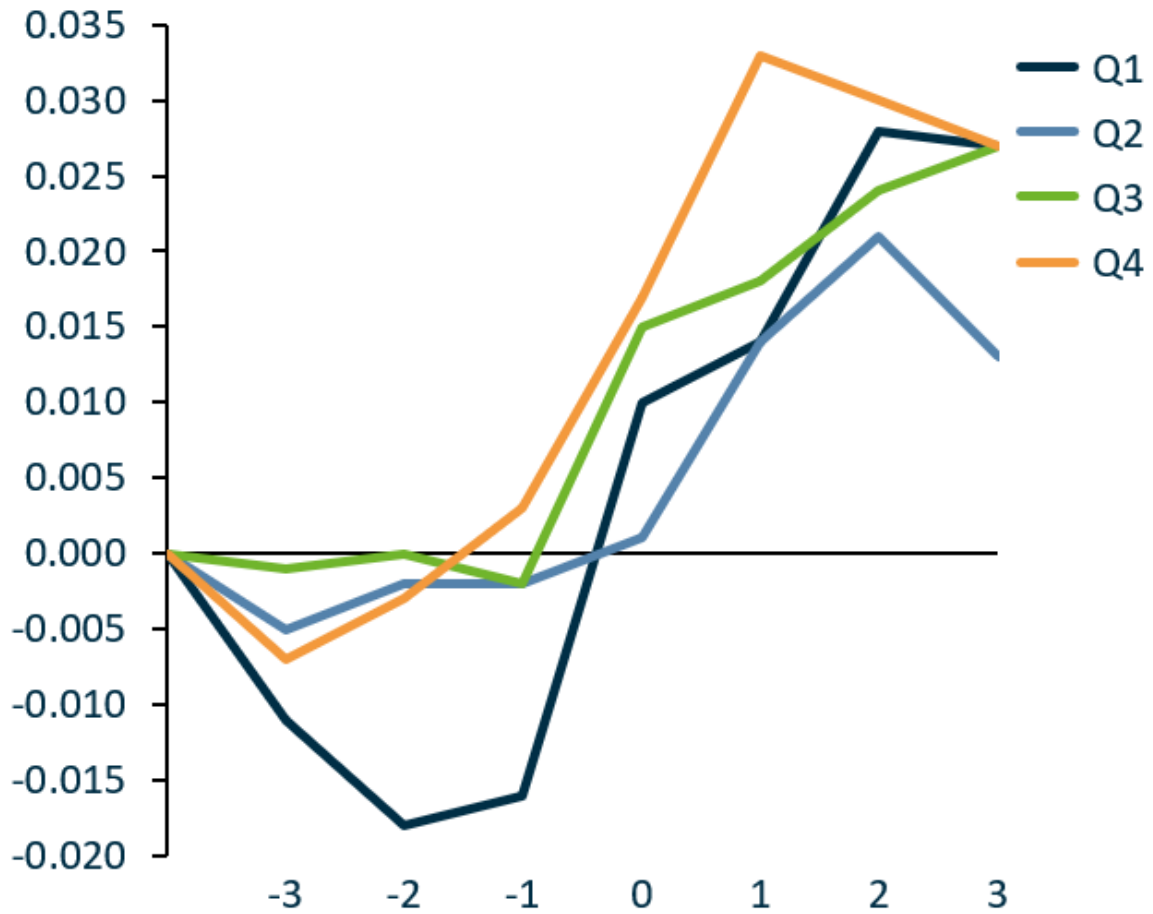
Figure 2. 3-day mean CARs across quartiles

Figure 2 displays the 3-day mean CARs as measured by the [-1, +1] event window across all quartiles of acquisition likelihood. Within the 3-day event window, Q_4 has the highest return (3.6%), followed by Q_1 (3.3%), Q_3 (1.8%) and Q_2 (1.6%). These results differ significantly from those presented by Tunyi (2021) where he found that abnormal returns monotonically decreased from the group with the lowest acquisition likelihood (Q_1) to the group with the highest likelihood (Q_5) as measured by both the mean and median scores. In fact, the 3-day abnormal returns seem to follow a U-shaped pattern when arranging the groups in line with their level of bid anticipation (i.e., $Q_1 \rightarrow \cdots \rightarrow Q_4$).
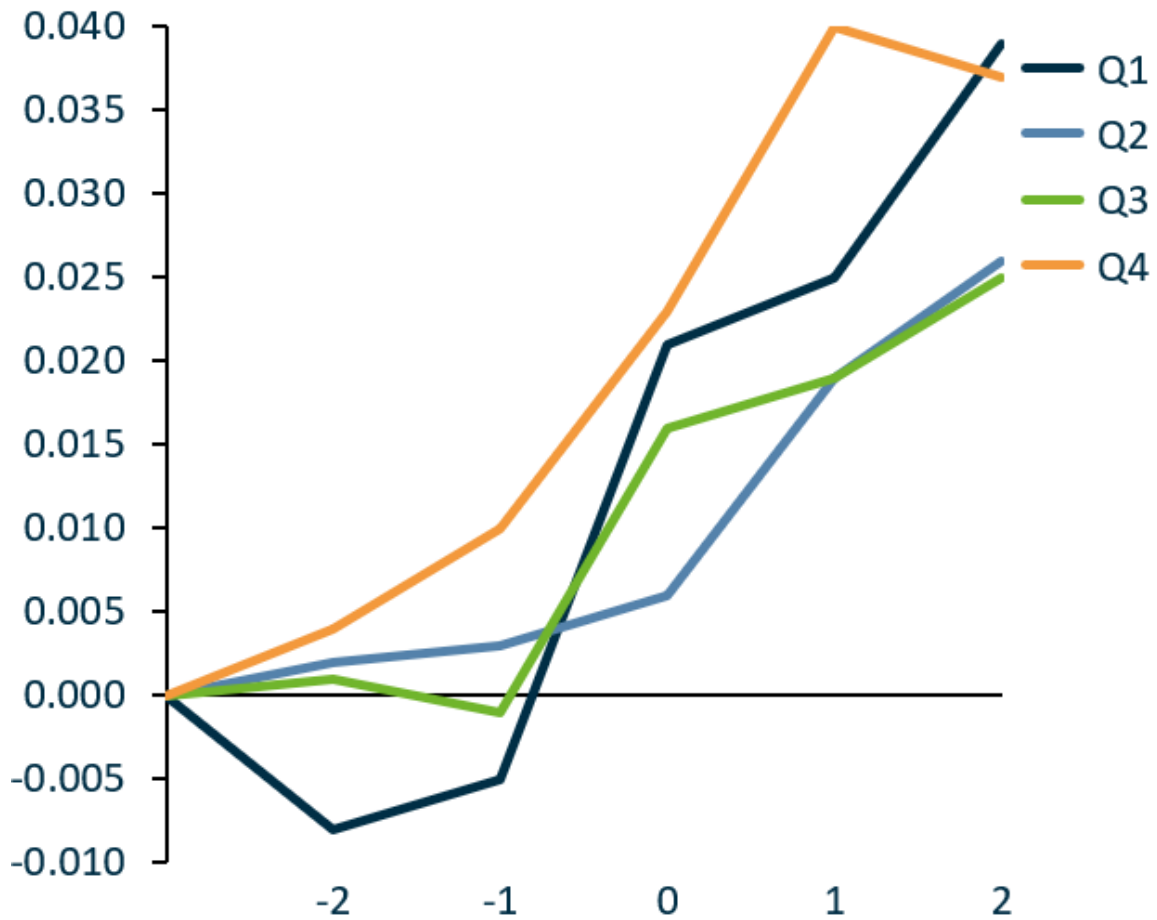
Figure 3. 5-day mean CARs across quartiles

Figure 3 displays the 5-day mean CARs as measured by the [-2, +2] event window across all quartiles of acquisition likelihood. Within the 5-day event window, Q_1 has the highest return (3.9%), followed by Q_4 (3.7%), Q_2 (2.6%) and Q_3 (2.5%). The 5-day event widow is the only category where the unanticipated acquirers (Q_1) managed to gain a higher mean return than rest of the groups. Moreover, the returns within this category also seem to monotonically decrease from Q_1 to Q_3, except for the anticipated acquirer (Q_4) that displayed the second highest returns within the category. As such, the returns between quartiles of anticipation also follow a U-shaped pattern in this category.

Figure 4. 7-day mean CARs across quartiles

Figure 4 displays the 7-day mean CARs as measured by the [-3, +3] event window across all quartiles of acquisition likelihood. Within the 7-day event window, Q_1, Q_3 and Q_4 all have returns of 2.7%, whereas Q_2 has a return of 1.3%. As such, the returns within this category are the most comparable to each other with Q_2 being the only exception. Oddly, the returns for unanticipated acquirers (Q_1) at time $t-2$ and $t-3$ seem to be significantly more negative than for the other acquirer groups, which seem to be factor in lagging the returns for the group.
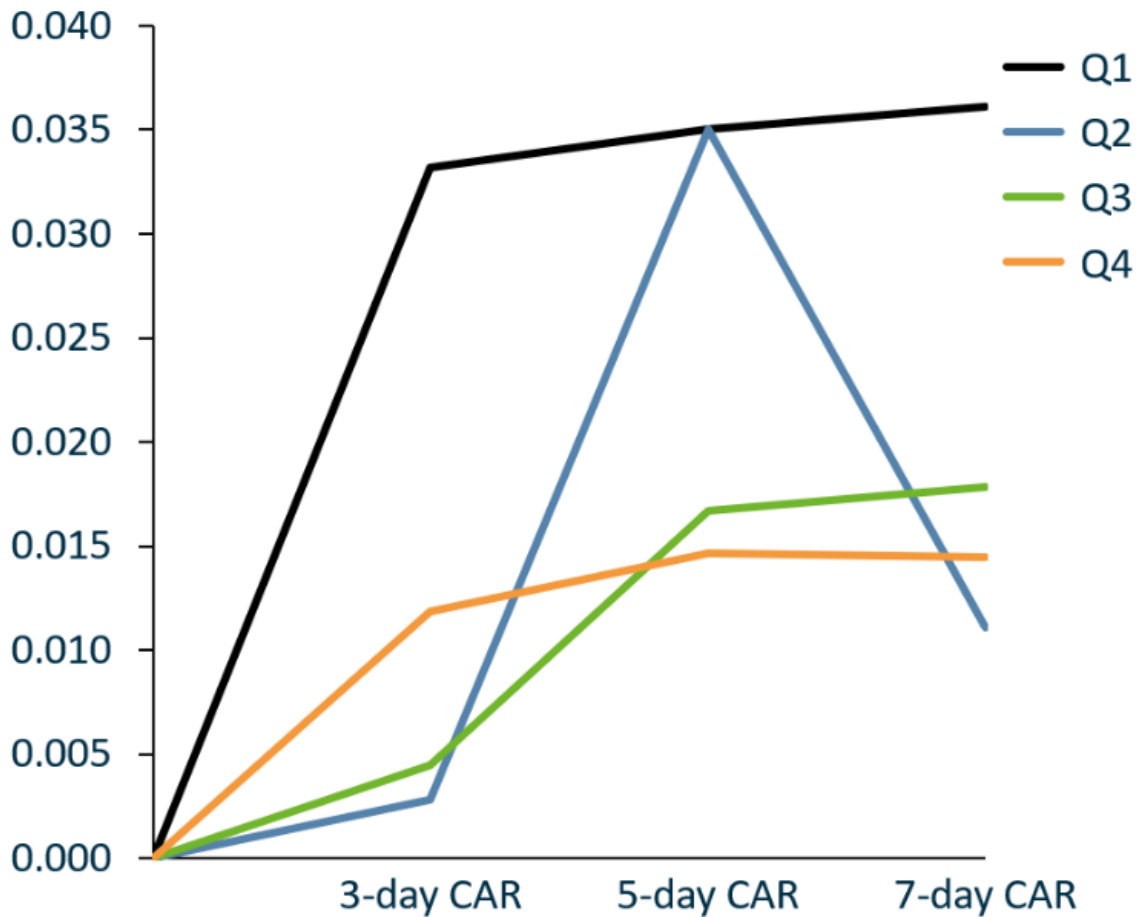
Figure 5. Median CARs across all event windows

Figure 5 displays the median CARs for all the utilized event windows. From this figure, it can be observed that the results for median CARs are much more in line with the expectations of this study. More specifically, the unanticipated acquirers (Q_1) outperform all other quartiles in all two of the three event windows and tied for the best returns in one of the three event windows. Moreover, anticipated acquirers (Q_4) displayed the lowest abnormal returns in 2/3 event windows, which is in line with the arguments put forward by Tunyi (2021). However, it must be noted that the statistical significance for median CARs is inferior to their respective means for some quartiles. More specifically, in the 3-day event window, acquirers in Q_2, Q_3 and Q_4 displayed statistically insignificant results, and within the 7-day event window, the abnormal returns for Q_3 are also statistically insignificant.

6.4 Economic value created across quartiles

Table 9. Median economic value created across quartiles

	Acquirers	3-day	5-day	7-day
	N	EURm	EURm	EURm
Q1	6	4.30	6.85	6.14
Q2	7	0.90	2.69	0.86
Q3	16	2.23	2.44	2.51
Q4	50	1.12	1.43	0.99
All	79	1.46	2.12	1.31

Table 9 displays the median monetary gain upon M&A announcements (in millions of euros) across all quartiles. Monetary gains are calculated by multiplying the acquirer's market capitalization with the subsequent abnormal returns for each respective event window (3-day, 5-day, and 7-day). Given the small number of acquirers in especially Q_1 and Q_2, the median has been utilized to avoid giving disproportionate emphasis to individual deal announcements.

The median economic value created across the full sample of acquirers were EUR 1.46m for the 3-day event window, EUR 2.12m for the 5-day event window, and EUR 1.31m for the 7-day event window. The deals pursued by unanticipated acquirers (Q_1) created economic value of EUR 4.30m, EUR 6.85m and EUR 6.14m for the respective event windows. Moreover, acquirers in Q_3 also created economic value that is above the full sample median, with Q_2 and Q_4 creating below median economic value for their shareholders. These results suggest that the acquisitions of unanticipated acquirers have created much greater economic value through shareholder wealth effects than other acquirers with a higher level of acquisition likelihood.

7 Conclusions

Tunyi (2021) found that companies with the lowest (highest) acquisition likelihood had the highest (lowest) CARs upon M&A announcements, suggesting a linear relationship between acquisition likelihood and abnormal returns. This study is aimed at re-examining the findings of Tunyi (2021) in a different market setting. More specifically, the purpose of this study was to analyse whether acquisition likelihood affects acquirer returns upon M&A announcements in the Finnish stock market.

The bid anticipation model presented earlier in this study has been used to sort Finnish publicly listed companies into quartiles of acquisition likelihood on an annual basis, where Q_1 is the group with the lowest acquisition likelihood, and Q_4 is the group with the highest acquisition likelihood. Consequently, it was found that the companies with the lowest likelihood for acquisitions have some common characteristics. More specifically, the companies in the first quartile had the lowest profitability, earned negative free cash flow, had highest levels of debt, and had been public for the longest period. Furthermore, the companies which self-selected to become acquirers from this group (i.e., unanticipated acquirers) were characterized by negative profitability, lowest level of free cash flows, and the highest amount of debt. Furthermore, these characteristics offer a natural explanation for their low level of acquisition likelihood; when a company's financial profile is characteristic of unprofitability, low levels of free cash flow, as well as a high amounts of debt, it is in a much weaker financial position to finance M&A transactions than financially stable peer companies.

The returns for the full sample of acquirers were overwhelmingly positive. The mean CARs for the full sample of acquirers were 3.0% (median: 1.1%) for the 3-day event window, 3.4% (median: 1.7%) for the 5-day event window and 2.6% (median: 1.6%) for the 7-day event window. These findings suggest that acquirers in the Finnish market have been able to create shareholder value by engaging in M&As in the period ranging from 2010 to 2020. As such, this gives support to the *theory of efficiency* as proposed by Trautwein (1990), which argues mergers should only be pursued if enough the combined

entity would be more valuable than the sum of their parts. Moreover, these results also corroborate the story of Alexandridis (2017) that acquirers have generally created positive shareholder returns after the financial crisis of 2009.

The first hypothesis states that *"Unanticipated acquirers earn the highest statistically significant CARs of all acquirer groups"*. To conceptualize the results of the event study, the returns were measured over six different categories: means for each event window (3-day mean, 5-day mean, and 7-day mean), and medians for each event window (3-day median, 5-day median, and 7-day median). It was found that unanticipated acquirers (Q_1) earned the highest returns of all groups in three of the six categories (3-day median: 3.3%, 5-day mean: 3.9%, and 7-day median: 3.6%), and tied for the best returns in two of the six categories (5-day median: 3.5%, and 7-day mean: 2.7%), with at least 5% statistical significance for all categories. Moreover, the category where unanticipated acquirers had the weakest performance in comparison to other groups was mean 3-day CARs, where the group placed 2nd with a return of 3.3%. As such, the first hypothesis is accepted, as these results suggest that unanticipated acquirers do in fact generally earn the highest CARs of all acquirer groups.

The second hypothesis states that *"Anticipated acquirers earn the lowest statistically significant CARs of all acquirer groups"*. However, it was found that anticipated acquirers (Q_4) only earned the lowest returns in one of the six categories (5-day median: 1.7%) and displayed returns that were superior to acquirers in Q_2 and Q_3 when examining results across all six categories. Moreover, when looking at the mean returns, anticipated acquirers had the highest returns in the 3-day event window (3.6%), the second highest returns in the 5-day event window (3.7%) and tied for the best returns with two other groups in the 7-day event window (2.7%). Although, within the median returns, anticipated acquirers attained returns of around 1% for all event windows, suggesting that the group includes small number of acquirers that had exceptional returns, elevating the mean figures for the group. As such, the second hypothesis is rejected, as

the results suggest that the relationship between CARs and acquisition likelihood is more complex than proposed by Tunyi (2021).

The most fundamental argument proposed by Tunyi (2021) was that short-term CAR studies are not adequate at capturing the true shareholder wealth effect, because likelihood for acquisitions is already priced into publicly listed stocks. However, while it seems that unanticipated acquirers perform better than other acquirers in most circumstances, the returns for anticipated acquirers in this study were higher than expected, and thus, not in line with the arguments put forward by Tunyi (2021). Moreover, the results of this study suggest that the relationship between acquisition likelihood and acquirer returns is not as straightforward as proposed by Tunyi (2021), but rather, another factor that should be considered when performing future event studies.

Furthermore, previous literature has identified factors such as status of the target company (public/private), size of the acquirer, method of payment or market timing that might affect acquirer returns but are not quantified in the results of this study. As such, it must be concluded that because each M&A transaction varies from one another, there are a variety of different variables that should be considered to attain the complete picture for acquirer returns. As such, further studies aiming to examine the effect of acquisition likelihood on CARs upon M&A announcements could focus on including these factors into their research to attain a better understanding on the relationship between acquisition likelihood and CARs.

In practice, the results of this study provide new information that is useful to market participants for two reasons. First, shareholders of publicly listed companies can evaluate the short-term returns upon M&A announcements more holistically, and thus, gain a better picture how the market views e.g., inorganic growth strategies. Second, if a market participant could correctly identify unanticipated acquirers with reasonable accuracy, a quantitative trading strategy could be designed to benefit from their superior returns, and thus, benefit the asset management industry.

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