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Short-term performance of Norwegian serial acquirers

An empirical analysis of bidder announcement returns

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Abstract

This thesis studies the short-term performance of Norwegian serial acquirers by investigating bidder announcement returns. For a long time, there has been no clear evidence of whether the net performance of serial acquirers is positive or negative in the short term. On one hand, when a company engages in numerous acquisitions over time, it may develop strategic momentum and M&A experience that can last over a longer period and create substantial value for its shareholders. On the other hand, factors such as CEO hubris, overconfidence, diminishing returns schedules, and integration problems decrease the probability of deal success. While several studies analyse the performance of serial acquirers, to the best of our knowledge, there is no study on short-term performance on Norwegian serial acquirers.

Applying the event study methodology, we analyse a sample of 377 acquisitions by Norwegian public companies from 1996 to 2020. Based on a firm's M&A strategy in time, the sample is divided into serial-, occasional, and single acquirers. We find evidence that serial acquirers engage in wealth-creating acquisitions with a significant average cumulative abnormal return of 0.861% in the (-1, +1) event window. Comparing average cumulative abnormal returns to both occasional- and single acquirers, serial acquirers perform significantly lower in all event windows ranging from (-3, +3) to (0). Controlling for deal- and firm characteristics, we find that serial acquirers underperform relative to other acquirers by -1.72%. Lastly, captured by bidder-fixed effects, serial acquirers seem to possess some unobserved time-invariant characteristics beyond other types of acquirers.

Preface

This thesis is written as a part of our master's degree with a specialization in Financial Economics at the Norwegian School of Economics. The time writing this thesis has been demanding but exciting as the topic reflects our interest in finance.

First and foremost, we wish to express our sincerest gratitude to our supervisor, Professor Nataliya Gerasimova, for valuable feedback during the writing process. Her support and inputs throughout the semester have been very helpful. Also, we would like to thank Børsprosjektet for their help in collecting financial data.

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1. Introduction

A corporate takeover is one of the most significant investment decisions a company can engage in (Betton, Eckbo, & Thorburn, 2009). In the past twenty years, the level of mergers and acquisitions (M&A) has been an important driver of corporate performance, and the number of deals has steadily increased reaching new highs in 2021 (Yen & André (2010), PWC (2022)). As a result, takeovers have become an attractive research field because they provide a unique opportunity to examine the value effects of managerial decisions (Betton, Eckbo, & Thorburn, 2009). Synergies and growth are noted as ways through which M&A can be wealth enhancing for acquiring firm shareholders (Gaughan, 2018). Public M&A announcements are therefore made with excitement and claims of substantial gains of takeovers through growth, and cost- and revenue synergies by the acquiring firm managers. Comprehensive research on acquirers' average cumulative abnormal return (CAR) shows that shareholders in target firms gain significantly and that wealth is created at the announcement of takeovers, that is, combined bidder and target returns are positive (Andrade, Mitchell, & Strafford, 2001). In contrast, findings concerning the positive effect of takeovers on the shareholders of acquiring firms are ambiguous. Evidence suggests that the acquirer's shareholders earn, on average, a zero abnormal return at the announcement of the acquisition (Bruner, 2004).

At the same time, companies that frequently and systematically pursue acquisitions have in recent years gained more attention and popularity. When a company engages in numerous acquisitions over time, it may develop strategic momentum that can last over a longer period (Amburgey & Miner, 1992), and create substantial value for its shareholders (Rovit & Lemire, 2003). Given the success of some of these acquirers and that serial acquirers account for nearly 25% of all M&A, it is still a relatively unexplored phenomenon (Kengelbach & Roos, 2011). Few have studied the short-term performance of serial acquirers, yet no one to our knowledge has studied the short-term performance of serial acquirers in the Norwegian M&A market.

Prior research on the performance of serial acquirers indicates that serial acquirers conduct wealth-creating acquisitions. Fuller, Netter, and Stegemoller (2002) find that serial acquirers earn a significantly positive average CAR of 1.77%. These findings are supported by Kengelbach et al. (2012). However, do serial acquirers excel compared to other acquirers? For a long time, there has been no clear evidence of whether the net performance of serial acquirers is positive or negative in the short term. Viewed in isolation, several studies find

that acquisition experience is supposed to drive higher M&A performance ((Haleblian & Finkelstein, 1999), (Hayward, 2002), (Aktas, de Bodt, & Roll, 2009), (Aktas, de Bodt, & Roll, 2011)), whereas other studies find that factors such as CEO hubris, overconfidence, diminishing returns schedules, and integration problems decrease the probability of deal success (e.g., (Roll, 1986), (Billett & Qian, 2008), (Schipper & Thompson, 1983)). Kengelbach et al. (2012) address the shortcoming of previous research and find that serial acquirers perform 0.4% lower compared to single acquirers' average CAR.

As for acquirers in general, the performance of serial acquirers is affected by deal- and firm characteristics. Fuller et al. (2002) find that acquirers have significantly negative returns when buying public targets and significantly positive returns when buying private or subsidiary targets. Separating the bids on the method of payment, the authors find that transactions of public targets result in insignificant acquirer returns for cash or combination offers but significantly negative returns to the acquirer when stock is used as the payment method. Yet, for private and subsidiary targets, bidder returns are significantly positive regardless of the payment method.

Although acquirers' performance is affected by deal- and firm characteristics, the overall variation in the returns to acquisition activity remains largely unexplained. For instance, Moeller et al. (2004) investigate over 12 000 M&A deals, and, using a comprehensive list of determinants, explain only 5% of the variation in acquirer returns judged by the adjusted R-squared. Are takeover gains driven by firm-specific skills, or determined by some other factors? IBM, Danaher, and Facebook are to mention some examples of serial acquirers that most people consider to have been persistently successful in their M&A activity. These examples propose that there might exist some firm-specific driver of acquisition success that former studies have neglected. Maggi (2021) replicates the analysis conducted by Golubov et al. (2015) who test whether bidders have some unobservable time-invariant characteristics that can better explain the heterogeneity in bidder returns. Frequent acquirers seem to have unique time-invariant characteristics, captured by bidder fixed effects, that can explain at least 4% in the variation in both bidder's cumulative abnormal dollar return and cumulative abnormal percentage return.

In this paper, using a sample of 377 acquisitions by Norwegian public companies from 1996 to 2020, we answer the following main questions: (1) Whether Norwegian serial acquirers conduct wealth-creating acquisitions; (2) Whether Norwegian serial acquirers excel compared

to other acquirers before and after controlling for deal- and characteristics; (3) Whether Norwegian serial acquirers possess some unobserved time-invariant characteristics beyond other acquirers.

Our research complements the existing literature in various ways. Firstly, it expands the research on serial acquirers which is a relatively unexplored phenomenon. Secondly, the paper adds research on Norwegian serial acquirers and the Norwegian market, which is becoming a hotspot for M&A activity (Helgesen, 2022). Although some research on Norwegian serial acquirers exists, to the best of our knowledge, there is no study on short-term performance. Compared to the U.S. market, the Norwegian market is less liquid, has lower analyst coverage, and is more affected by commodity prices. Thus, there are reasons to believe that the inference might be different from serial acquirers in the U.S.

In sum, we find evidence that serial acquirers engage, on average, in wealth-creating acquisitions. Further, our results indicate that serial acquirers underperform relative to other types of acquirers, which is also the case when controlling for deal- and firm characteristics. Lastly, serial acquirers seem to possess some unobserved time-invariant characteristics beyond other types of acquirers.

The rest of the paper is structured as follows. Section 2 introduces theory related to mergers and acquisitions. Further, Section 2 presents empirical evidence on short-term M&A performance in general and for serial acquirers. Next, Section 3 states the hypothesis development while Section 4 describes the methodology. Section 5 describes the data and sample we use in this paper and section 6 presents the main empirical results. Lastly, Section 7 concludes the paper.

2. Theoretical framework

2.1 Mergers & acquisitions

Mergers and acquisitions are part of what is often referred to as "the market for corporate control" and is defined as when one firm acquires another firm (Brealey, Myers, & Allen, 2017). Hayes (2021) defines M&A as a general term that describes the consolidation of companies or assets through various types of financial transactions, including mergers, acquisitions, consolidations, tender offers, purchase of assets, and management acquisitions. As the definition indicates, there are several different terms within the study of M&A which all differ in meaning. The distinction between these terms is often blurred out, and although they are used interchangeably, it is still important to know the differences between them.

Brealey, Myers & Allen (2017) define the term merger as (1) an acquisition in which all assets and liabilities are absorbed by the buyer, and (2) more generally, any combination of two companies. Gaughan (2018) displays it as two companies A and B that merge into one of the existing companies, yielding A + B = A.

Furthermore, acquisitions are defined as the purchase by one company of a controlling ownership interest in another firm, a legal subsidiary of another firm, or selected assets of another firm. Thus, both companies still exist, whereas only one company ceases to exist legally in a merger (DePamphilis, 2018).

Finally, consolidation is defined as a business combination involving two or more companies joining to form a new company, where none of the combining firms survive (DePamphilis, 2018). More specifically, it is a deal where all original companies cease to exist, and their stockholders automatically become stockholders in the new company. It differs from a merger because a new company, C is created, yielding A + B = C (Gaughan, 2018).

2.1.1 Reasons to do M&A

For most investors, an investment in the stock market is a zero-NPV investment. Still, acquirers usually pay a premium for target companies and still satisfy the requirement that the investment is a positive-NPV investment opportunity (Berk & DeMarzo, 2017). Hence, there is some sort of motives and factors that drives the M&A activity. DePamphilis (2018) lists several theories as reasons for M&A activity, with synergies between the bidder and seller

being cited in empirical studies as the primary motivation. Gaughan (2018) states that the two most cited motives for M&A are growth and synergies.

Growth

One of the most fundamental motives for M&A is growth. Companies seeking to expand are faced with a choice between organic internal growth and growth through M&A (Gaughan, 2018). The main difference between internal growth and growth through M&A is the pace of the process, where M&A growth may be much more rapid. Thus, the motive of growing through M&A may be incentivized by situations where the growth needs to happen fast so that other competitors do not steal the growth potential. M&A is especially a lucrative alternative when a company seeks to expand its business abroad. Rather than pursue growth in a saturating market, companies may use cross-border deals as an advantageous way of tapping another market (Gaughan, 2018).

Synergies

From an M&A perspective, Gaughan (2018) defines synergy as the ability of a corporate combination to be more profitable than the individual parts of the businesses combined. Another definition is the value realized from the incremental cash flows generated by combining two businesses (DePamphilis, 2018). It is the anticipated existence of synergistic benefits that allows firms to incur the expenses of the acquisition process and still be able to afford companies to give target shareholders a premium for their shares (Gaughan, 2018). The two main types of synergies are operating- and financial synergies.

Operating synergy can come from gains that enhance revenues or those that lower costs (Gaughan, 2018). DePamphilis (2018) states that operating synergy consists of economies of scale, economies of scope, and the acquisition of complementary technical assets and skills. Gaughan (2018) states that revenue enhancements can be more challenging to achieve compared to cost-reducing synergies. Reducing per unit costs due to enhancement of staff, factories, technology, etc., is easier to accomplish than developing monopolistic pricing power. As a result, cost-reducing synergies are the optimal operating synergy a company should try to pursue. Financial synergy refers to the possibility that the cost of capital may be lowered by combining one or more companies (Gaughan, 2018). Further, he refers to the research by Higgins & Schall (1975) who look at the debt-coinsurance effect. The effect occurs when two companies with uncorrelated cash flows merge, and in the event of bankruptcy, one of the companies' cash flows offsets the other one's insolvency.

2.1.2 Dubious motives to perform M&A

In their research, Higgins & Schall (1975) maintain that the debt-coinsurance effect does not create any new value but merely redistributes gains among the providers of capital to the firm (Gaughan, 2018). Still, there is no common agreement on this topic among researchers, and hence, it cannot be viewed as a strong motive to perform M&A. Also, diversification which is a debatable topic can be viewed as a dubious motive to do M&A. There is little evidence that investors pay a premium for diversified firms because the single investor can more easily and cheaper diversify himself (Brealey, Myers & Allen, 2017).

2.2 Evidence on wealth effect for Norwegian acquirers

This subsection aims at providing valuable insight into Norwegian acquirers' short-term performance when conducting M&A deals. While previous empirical research is still mainly focused on either the U.S.- or the UK market, the academic field has given less attention to the Nordic market and the Nordic countries individually (Lindholm, 2020). Related to our study, the papers in this subsection follow the event study methodology to investigate bidder returns surrounding the M&A announcement. Additionally, the papers attempt to explain the variation in the abnormal returns by studying both deal- and firm characteristics, indicating what type of characteristics influence the abnormal returns of Norwegian acquirers.

2.2.1 The Nordic market

Roitto (2017) investigates whether M&A transactions are on average a positive net present value investment by looking at cumulative average abnormal returns (CAARs) for the acquirer. Further, she introduces a second hypothesis examining whether there is a difference between deals where the target company is listed compared to the target company being a privately held firm. The study focuses solely on a three-day event window and examines the choice of market model from which she computes the abnormal returns (ARs). The average net present values of all the transactions in the sample have positive ARs and CARs around the announcement day measured with all three methods presented. Though Roitto (2017) finds positive ARs and CARs, the results are not statistically significant. Thus, one cannot claim the ARs and CARs to be greater than zero. The results of the second hypothesis show a positive CAAR for both public-to-private and public-to-public, where public-to-public deals yield a higher positive CAAR compared to public-to-private deals. Additionally, the study provides statistically significant CAARs for the public targets. Thus, from the empirical findings, the author states that the ownership structure of the target has a substantial impact on the acquirer's performance, and that acquirer returns are, on average, higher in public-to-public deals than in public-to-private deals.

Next, the study by Lindholm (2020) finds proof that average abnormal returns (AARs) are positive both on the day of the event and the day after. Compared to Roitto (2017), Lindholm (2020) only uses CAPM as the market model to compute the normal returns. Furthermore, he attempts to distinguish the performance of different observations based on deal characteristics. More specifically, Lindholm (2020) seeks to explain the cumulative abnormal returns

controlling for the method of payment, the internationality of the acquired company, and the relatedness between the bidder and target firm. The results show that acquirer shareholders gain positive and mostly significant CAARs in all event windows, regardless of payment method. Performing a one-way ANOVA test indicates that the difference in CAARs between different payment methods is statistically significant in a (-1, +1) window, suggesting that the method of payment has an impact on acquirers' CARs. Further, Lindholm (2020) finds positive results for the other deal characteristics, however, the results are not significant.

2.2.2 The Norwegian market

Blaauw and Austarheim (2015) examine the announcement returns for Norwegian acquirers of both foreign and domestic targets between 1988 and 2014. Performing event studies, Blaauw and Austarheim (2015) investigate the announcement of the acquisitions by computing CARs and running regressions controlling for domestic- vs. cross-border deals, industry relatedness, target public status, relative size, and method of payment.

Using a (-20, +20) window, they find a significant abnormal return only on the day of the event (day 0) of 1.0915%. Given the result, Blaauw and Austarheim (2015) conclude that the day of interest concerning abnormal returns from M&A is the actual day of the announcement. Controlling for stock as the payment method, as well as relative value squared, yields higher CARs. Conversely, stock as the payment method for international public targets yields lower CARs. Further, Blaauw and Austarheim (2015) find a negative effect between SIC-codes and CARs, proving negative significant CARs when the acquirer and target company have two similar digits in the SIC code of -1.5135%. The negative effect is reduced when the acquirer and target have an identical SIC code to only -0.8628%, indicating that bidders and target firms operating with the same four-digit SIC code dampen the negative impact on CARs.

2.3 Evidence on wealth effect for serial acquirers

This subsection complements the literature review by solely examining the literature on serial acquirers and not acquirers in general. More specifically, the subsection reviews existing literature on serial acquirers' short-term performance and examines different theories on repetitive deal-making, contributing to knowledge on the short-term performance of serial acquirers. Further, to better understand the variation of serial acquirers' short-term performance, we examine literature studying determinants of acquirer performance including bidder-fixed effects. Lastly, as our paper focuses on Norwegian acquirers, we investigate previous studies on Norwegian serial acquirers.

Fuller, Netter, and Stegemoller (2002) study shareholder returns for 3 135 transactions made by U.S. serial acquirers defined as firms that acquired five or more targets within three years between 1990 and 2000. The study examines bidder returns for public, private, and subsidiary targets using stock and cash as the method of payment and observes how the acquirers' returns vary by these characteristics. Fuller et al. (2002) argue that the sample of acquirers enables them to hold firm characteristics constant while examining the pattern of announcement return. Thus, one could attribute most of the variation in the acquirer's returns as due to factors other than new information about the bidder.

Fuller et al. (2002) find that serial acquirers earn a significantly positive average CAR of 1.77%, meaning that serial acquirers in the sample conducted, on average, wealth-creating acquisitions between 1990 and 2000. Additionally, they find that serial acquirers have significantly negative returns when buying public targets and significantly positive returns when buying private or subsidiary targets. When the bids are separated on the method of payment, the authors find that transactions of public targets result in insignificant acquirer returns for cash or combination offers but significantly negative returns to the acquirer when stock is used as a payment method. Yet, for private and subsidiary targets, bidder returns are significantly positive regardless of the payment method.

Before Kengelbach, Klemmer, Schwetzler, and Sperling (2012), most papers investigating serial acquirers examine solely one factor in isolation. Kengelbach et al. (2012) address the shortcoming of previous research on serial acquirers by seeking answers to several relevant topics. First, they examine whether serial acquirers excel, in other words, the net effect of all

positive and negative influences. Viewed in isolation, several studies find that acquisition experience is supposed to drive higher M&A performance ((Haleblian & Finkelstein, 1999), (Hayward, 2002), (Aktas et al., 2009), (Aktas et al., 2011)), whereas other studies find that factors such as CEO hubris, overconfidence, diminishing returns schedules, and integration problems decrease the probability of deal success (e.g., (Roll, 1986), (Billett & Qian, 2008) (Schipper & Thompson, 1983)). Kengelbach et al. (2012) point out that empirical studies assessing the isolation part practically as well as academically are limited to the works of: (Rovit & Lemire, 2003), (Conn et al., 2004), and (Ismail, 2008). However, these studies have some methodological shortcomings such as geographically limited samples, questionable definitions of a serial acquirer, and poor model qualities.

Using a global sample of 20 975 transactions with announcement dates between 1989 and 2010, Kengelbach et al. (2012) follow a three-step approach in their analysis. They find that serial acquirers, defined as firms that execute more than one deal within any rolling three-year period, experience an average cumulative abnormal return of 4%. Compared to single acquirers' (control group) CAAR of 4.4%, serial acquirers perform 0.4% lower. Hence, negative influences such as CEO hubris, integration problems, and diminishing returns schedules seem to exceed the possible benefits of M&A learning. Further, Kengelbach et al. (2012) investigate whether other characteristics that systematically differ between serial and single acquirers can potentially explain the CAR differential. While firm characteristics do not have much of an impact in explaining the performance differential, deal characteristics play an eminent role where the target's public status, as well as the relative deal size, come off as most notably. More specifically, serial acquirers have relative competitive advantages in public target acquisitions and small to mid-sized deals.

Secondly, Kengelbach et al. (2012) investigate whether, and under which conditions, firms can learn how to acquire, i.e., learning hypothesis. The paper finds a declining trend of transactions along the deal sequence, signifying that the bare quantity of acquisitions alone is not adequate to achieve M&A skills. Thus, a rejection of the undifferentiated learning hypothesis, a theory saying that repeated deal-making should naturally improve a firm's transaction performance (Hayward, 2002). On the contrary, the authors document sufficient evidence that acquiring a series of similar firms combined with a suitable generalization of insights is more favourable, hence a validation of the specialized learning hypothesis. Further, the paper finds evidence that a decline in sequential transaction performance cannot be

explained by either a diminishing attractiveness of the opportunity set (e.g., (Conn et al., 2004), (Klasa & Stegemoller, 2007)), rationale CEO bid learning (e.g., (Aktas et al., 2009)) or the program announcement hypotheses (Schipper & Thompson, 1983). Instead, the results by Kengelbach et al. (2012) propose that pronounced post-merger integration problems present an important role in the market's assessment of an announced transaction.

Lastly, the paper studies whether post-merger integration problems adversely affect the performance of multiple acquirers, i.e., the indigestion hypothesis. Kengelbach et al. (2012) find evidence that assent with both finance researchers and M&A professionals in that shortcomings during the post-merger integration period substantially decrease the probability of acquisition success (e.g., (Shrivastava, 1986)). Particularly, the paper finds that shorter periods between two consecutive transactions significantly lower the level of abnormal returns, indicating that the capacity of a firm to integrate is truly a key limiting factor. The evidence favours the indigestion hypothesis. Also, the paper documents that the negative effect of shorter intervals is significantly related to the size of the transaction. Finally, the results of the paper imply that prior deal performance negatively affects the time between two consecutive deals, hence indicating overconfidence as a probable cause for a firm's strategic decision to shorten the time between two consecutive deals in the first place.

We now examine the literature that addresses determinants of acquirer performance. Furthermore, we study papers that investigate if there exist unobserved characteristics that can explain changes in shareholders' total wealth.

Over the last three decades, large sample studies of M&A have discovered several determinants of acquirer performance. However, the overall variation in the returns to acquisition activity remains largely unexplained. For instance, Moeller et al. (2004) investigate over 12 000 M&A deals, and, using a comprehensive list of determinants, explain only 5% of the variation in acquirer returns judged by the adjusted R-squared. Similar but smaller sample studies such as Masulis et al. (2007) and Harford et al. (2012) report comparably low explanatory power. Considering that such an extensive list of regressors only explains a small portion of the variation in acquirer takeover gains, what is the origin of the gains? Are takeover gains driven by firm-specific skills, or determined by some other factors?

In contrast to the commonly held belief that mergers fail to deliver value, anecdotal evidence points out some persistent acquisition successes. Cisco Systems, Berkshire Hathaway, and

Microsoft are to mention some examples of serial acquirers that most observers consider to have been persistently successful in their M&A activity. These examples propose that there might exist some firm-specific driver of acquisition success that former studies have neglected. If there are systematic differences in a firm's capability to create value through acquisitions beyond known regressors, then one should notice significant firm-specific components in acquiring returns.

Maggi (2021) replicates the analysis conducted by Golubov et al. (2015) who test whether bidders have some unobservable time-invariant characteristics that could better explain the heterogeneity in bidder returns. Both papers use the same data provider with a sample period from January 1st, 1990, to December 31st, 2011. In addition, both papers define frequent acquirers as acquirers who completed five or more deals within a three-year window. However, there are some differences in the analyses that need to be enlightened before presenting the results of Maggi (2021).

First, Maggi (2021) has one more restriction than Golubov et al, that is, one-time acquirers are excluded because if included it could artificially increase the adjusted R-squared of the regression. Secondly, Maggi (2021) estimates takeover gains in both dollar- and percentage values, while Golubov et al. (2015) only look at takeover gains in percentage values. According to Maggi (2021), there are several advantages of using dollar returns as the dependent variable in such an analysis. He argues that, unlike cumulative abnormal returns, cumulative abnormal dollar returns capture the changes in the acquiring firm and are a better estimator for the total synergy gains. Lastly, the papers have different definitions of an occasional acquirer. Golubov et al. (2015) define occasional acquirers as those bidders that completed at least two deals in a three-year period, potentially including frequent acquirers as they completed at least two transactions in a three-year window. To better differentiate the unique characteristics between frequent- and occasional acquirers, Maggi (2021) defines occasional acquirers as firms who conducted at least two acquisitions but less than five.

According to Maggi (2021), it appears that time-invariant characteristics can in general, except for frequent acquirers, explain a minimal variation in changes in wealth of the acquiring-firm shareholders. For these acquirers, the variation in takeover dollar gains, explained by bidder fixed effects, is lower than Golubov et al. (2015). Frequent acquirers, conversely, seem to have unique time-invariant characteristics that can explain at least 4% in the variation in both bidder's cumulative abnormal dollar return and cumulative abnormal

percentage return. Taking into consideration that previous studies only were able to explain around 5% of the total variation in acquirer returns, the variation captured by time-invariant characteristics in frequent acquirers' returns is of significant size. Frequent acquirers' time-invariant characteristics occur to explain a larger variation in cumulative abnormal returns as the transaction value increases, i.e., the higher the transaction value the more variation in cumulative abnormal dollar returns can be explained by firm-fixed effects.

Compared to the existing literature, Maggi (2021) provides evidence on how repetitive acquirers, either occasional or frequent acquirers, may on average engage in wealth-creating takeovers. More specifically, the paper finds evidence that frequent acquirers' shareholders earn positive abnormal dollar returns when acquiring targets who are unrelated to their core business or acquire a private target, and the acquisition is financed with cash. These findings contradict Kengelbach et al. (2012), who find that serial acquirers have relative competitive advantages in public target acquisitions. The contradictive findings may be caused by different definitions of a serial acquirer considering an almost identical sampling period. Lastly, the paper shows that industry-fixed effects can explain a portion of the variation in acquirer dollar returns. Except for frequent acquirers, industry settings appear to explain a small variation in cumulative abnormal dollar returns. By substituting bidder-fixed effects with industry-fixed effects, Maggi (2021) finds that for frequent acquirers, industry-fixed effects have similar explanatory power to bidder-fixed effects when using cumulative abnormal dollar returns as the dependent variable in the regression model.

Prior research on serial acquirers focuses mainly on U.S. serial acquirers, while research on Norwegian serial acquirers is lacking. There exist some papers on Norwegian serial acquirers, however, these studies are less comprehensive and do not investigate the short-term performance. Using a sample of 26 Norwegian M&A transactions, Cao and Gauksrud (2019) investigate if serial acquirers perform better than first-time acquirers, focusing on learning and post-integration problems. They perform factor analysis to develop five hypotheses concerning the acquirers' strategic position, operational integration, organizational culture, integration processes, and the overall outcome. The authors find that serial acquirers generally perceive their performance as more successful than first-time acquirers. Moreover, Cao and Gauksrud (2019) argue that learning and experience from previous deals increase the success rate of integration outcomes compared to first-time acquirers, coinciding with findings from

previous research viewing acquisition experience in isolation (e.g., Haleblian & Finkelstein (1999), Hayward (2002), Aktas et al., (2009), Aktas et al., (2011)).

Through semi-structured-in-depth interviews of nine Norwegian serial acquirers, Gulbrandsen and Kirkedam (2017) examine how they utilize learning and experience to mitigate barriers to synergy realization. They find that serial acquirers utilize their ability to learn by centralizing their knowledge into teams and departments, developing a broad amount of codified knowledge over time. Furthermore, the serial acquirers investigated used their experience to develop strategies and activities to deal with the known risks and barriers to synergy realization. The authors argue that new acquisitions bring new experiences into the firms, further developing the acquirers' codified material and updating their processes, and conclude that this seems to increase the success of later acquisitions. The findings support Kengelbach et al. (2012) to some degree, which emphasize that acquiring a series of similar firms combined with a suitable generalization of insights is more favourable and that the bare quantity of acquisition alone is not adequate to achieve M&A skills.

3. Hypotheses development

Do serial acquirers engage in wealth-creating acquisitions? Research on acquirers' average cumulative abnormal return (CAAR) has shown that shareholders in target firms gain significantly and that wealth is created at the announcement of takeovers (Andrade, Mitchell, & Strafford, 2001). In contrast, findings concerning the positive effect of takeovers on the shareholders of acquiring firms are ambiguous. Evidence suggests that the acquirer's shareholders earn, on average, a zero abnormal return at the announcement of the acquisition (Bruner, 2004).

However, anecdotal evidence points out some persistent acquisition successes. Cisco Systems, Berkshire Hathaway, IBM, and Microsoft are to mention some examples of serial acquirers that most observers consider to have been persistently successful in their M&A activity. Kengelbach et al. (2012) investigate global serial acquirers' performance and compute CARs surrounding the announcement date of M&A transactions. Defining a serial acquirer as a firm that conducts at least one deal within any three-year rolling period, Kengelbach et al. (2012) find that serial acquirers, on average, experience CARs of 4%. Subsequently, Fuller et. al (2002) investigate U.S. firms between 1990 and 2000 and find positive CARs of 1.77% for serial acquirers defined as firms that acquired five or more targets within three years. Based on these findings, we test the following hypothesis:

Hypothesis 1: Norwegian serial acquirers do, on average, achieve positive cumulative abnormal returns in the short term.

Do serial acquirers excel compared to other acquirers? When a company engages in numerous acquisitions over time, it may develop strategic momentum that can last over a longer period (Amburgey & Miner, 1992), and create substantial value for its shareholders (Rovit & Lemire, 2003). Several studies support that acquisition experience is supposed to drive higher M&A performance ((Haleblian & Finkelstein, 1999), (Hayward, 2002), (Aktas, de Bodt, & Roll, 2009), (Aktas, de Bodt, & Roll, 2011)). Additionally, Gulbrandsen and Kirkedam (2017) who examine how Norwegian serial acquirers utilize learning and experience to mitigate barriers to synergy realization, argue that new acquisitions bring new experiences into the firms and conclude that this seems to increase the success of later acquisitions.

On the contrary, other studies find that factors such as CEO hubris, overconfidence, diminishing returns schedules, and integration problems decrease the probability of deal success (e.g., (Roll, 1986), (Billett & Qian, 2008), (Schipper & Thompson, 1983)). Furthermore, the performance effect might already be incorporated into the announcement of a firm's M&A program (Schipper & Thompson, 1983), indicating a lower market reaction for serial acquirers. Controlling for both firm- and deal characteristics, Kengelbach et al. (2012) find that compared to single acquirers' CAAR of 4.4%, serial acquirers performed 0.4% lower. Additionally, Kengelbach et al. (2012) reject the undifferentiated learning hypothesis stating that repeated deal-making should naturally improve a firm's transaction performance (see (Hayward, 2002)). Due to the findings presented, we investigate the following hypotheses:

Hypothesis 2A: Norwegian serial acquirers do not, on average, outperform other acquirers in the short term.

Hypothesis 2B: Norwegian serial acquirers do not, on average, outperform other acquirers in the short term when controlling for deal- and firm characteristics.

Are there some fixed effects that influence takeover gains? Most of the variation in the returns to acquisition activity remains unexplained. Moeller et al. (2004) investigate over 12 000 deals, and, using a comprehensive list of determinants, explain only 5% of the variation in acquirer returns judged by the adjusted R-squared. Are takeover gains driven by firm-specific skills, or determined by some other factors? If there are systematic differences in a firm's capability to create value through acquisitions beyond known regressors, then one should notice significant firm-specific components in acquiring returns. Successful serial acquirers such as IBM, Danaher, and Facebook propose that there might exist some firm-specific drivers of acquisition success that former studies have neglected.

Maggi (2021) tests whether U.S. companies observe some bidder-fixed effects that capture some of the variations in CARs. The paper from Maggi (2021) finds that serial acquirers, defined as companies making five or more deals within three years, have unique time-invariant characteristics that can explain at least 4 % of the variation of CARs. Compared to other acquirers, Maggi (2021) finds that the adjusted R-squared for serial acquirers is 60% higher than for the occasional acquirer sample or the full sample. Due to the findings from Maggi (2021), we test the following hypothesis:

Hypothesis 3: Norwegian serial acquirers do possess some unobserved time-invariant characteristics beyond other acquirers.

4. Methodology

In this section, we explain the methodology used to estimate bidder announcement returns and describe the variables used in the regressions.

4.1 Event study

To estimate bidder announcement returns, we apply the standard event study methodology proposed by MacKinlay (1997). Through the years, event studies have been one of the most performed studies to check for possible effects due to different economic events. An event study measures the impact of a specific event on the value of a firm. The usefulness of such a study comes from the fact that, given the rationality in the market, the effects of an event are immediately reflected in security prices (MacKinlay, 1997). When a company conducts a transaction, it should observe a change in its return compared to its expected return without the M&A deal. Consequently, the company would experience some abnormal returns. Thus, there are three key components for performing an event study: an estimation window for calculating the company's expected return, an event window for analyzing the impact of the event, and an abnormal return to quantify the impact of the event. MacKinlay (1997) lays out the event study timeline as follows:

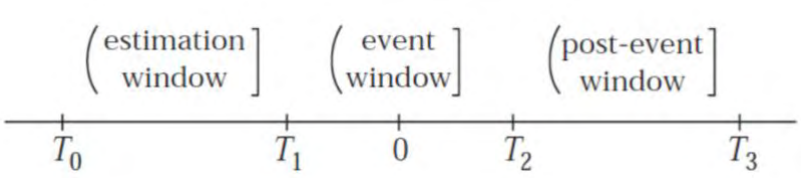

Figure 1 – Event study

The initial task when performing an event study is to define the event of interest and identify the period over which the security prices of the firms involved in this event are examined (MacKinlay, 1997). Studying Norwegian acquirers' enhanced performance, the events of interest are M&A deals performed by Norwegian companies, and we define the event date as the date when the deal is announced. Due to the possibility of information being leaked to the market before the event, and to catch the full effect after the event, the period of interest is often expanded to multiple days (MacKinlay, 1997). MacKinlay (1997) also addresses the problem of the event date being identified with certainty, and that it may be difficult to identify the exact date of interest. Similar to information leakage, the problem is solved by expanding

the event window. Following MacKinlay's (1997) suggestions, we perform event studies with the main event window containing three days, (-1, +1). Additionally, we test the robustness of the results by performing the event studies on multiple event windows, namely (0), and (-3, +3).

The estimation window is created to compute the expected return of a company in the absence of an event. The most common choice of an estimation window, when feasible, is to use the period before the event to get the best proxy for the company's normal return (MacKinlay, 1997). He further suggests not including the event window in the estimation period. It is typical for the two windows not to overlap such that the estimators provided for the parameters of the normal return are not influenced by the returns around the event. Including the event window in the estimation of the normal model parameters could lead to the event returns having a large influence on the normal return measure. There is no standard for the number of days being included in the estimation window. However, there is little reason to expect a large difference in the relationship between returns to stock and a selected market index if an estimation window runs for sixty days or one year before the event, assuming that the company did not undergo a major change in its profitability or line of business (Krivin, Patton, Rose, & Tabak, 2003). MacKinlay (1997) suggests an estimation window of 120 days when using daily data and the market model. We follow MacKinlay (1997) and use an estimation window of 120 days before the announcement, with a 10-day break before the event window.

Once the estimation window is defined the normal return can be computed, and the abnormal return can be calculated in the event window. Abnormal return is defined as the actual ex-post return of the security over the event window minus the normal return of the firm over the event window (MacKinlay, 1997). More technically, for a company *i* and event date *t*, the abnormal return is:

$$AR_{it} = R_{it} - E(R_{it}|X_t) \tag{4.1}$$

Where AR_{it}, R_{it}, and $E(R_{it}|X_t)$ are the abnormal-, actual-, and normal/expected return, respectively. MacKinlay (1997) lists several different approaches that can be used to calculate the normal return of a given security, in which we apply the market model. The market model is a statistical model which relates the return of any given security to the return of the market portfolio (MacKinlay, 1997). For any security *i*, the market model is:

$$E(R_{it}) = \alpha_i + \beta_i R_{mt} \tag{4.2}$$

Using the market model to measure the normal return, the sample abnormal return for firm *i* at date *t* is:

$$AR_{it} = R_{it} - \hat{\alpha}_i - \hat{\beta}_i R_{mt} \tag{4.3}$$

Where α_i, and β_i are market model parameters for security *i*, and R_{it}, and R_{mt} is the actual return of the security and market index, respectively. To calculate the normal returns, we apply the ordinary least squares regression method (OLS) to compute the market model parameters and use the OSEBX index as a proxy for the market return.

Using event windows of multiple days, it is common to aggregate the abnormal returns over the whole event window. The concept of a cumulative abnormal return is necessary to accommodate a multiple-period event window (MacKinlay, 1997). In the event of information being leaked prior, or that the market is slow to capture the whole effect of the event, the use of cumulative abnormal returns is more likely to capture the total effects of the event. We define CAR (t_1, t_2) as the sample cumulative abnormal return equal to the sum of the abnormal returns in the period $t_1 - t_2$, yielding:

$$CAR_i(t_1, t_2) = \Sigma_{t_1}^{t_2} AR_{it} \tag{4.4}$$

Looking at N events, the average CAR, CAAR, is given by:

$$CAAR_i(t_1, t_2) = \frac{1}{N} \Sigma_{i=1}^{N} CAR_i(t_1, t_2) \tag{4.5}$$

4.2 Regression

After computing bidder announcement returns for the individual acquisitions, we conduct several regression analyses using bidder CARs as the dependent variable to answer the hypotheses. In the following subsections, a general description of the control variables and fixed effects will be provided.

4.2.1 Independent variables

As shown in previous research (e.g., Kengelbach et al. (2012) and Maggi (2021)), the announcement return of the acquiring firm is dependent on a various number of deal- and firm characteristics. Consistent with prior research on both serial acquirers and bidder returns, and given the available data, the following control variables are included in the analyses.

Acquiror size

Several studies investigate the size effect on acquisition announcement returns. Moeller et al. (2004) find that small firms, measured in market capitalization, fare significantly better than large firms when they announce an acquisition. The authors find that large (small) acquirers experience a significantly negative (positive) average CAR of -1.68% (0.92%). Moreover, they find that the size effect is robust to firm and deal characteristics, and it is not reversed over time. These findings are supported by other studies such as Bradley and Sundaram (2006) and Betton et al. (2009), who also find that bidder returns are negatively correlated with the size of the acquiring firm. Based on the following findings, we control for the acquirer size following the method of Maggi (2021) by using the natural logarithm of the market capitalization of the acquiring firm on the announcement date.

Relative size

Prior research on the relationship between bidder returns and the relative size of the target is ambiguous. Studies such as Asquith et al. (1983), Jarrell and Poulson (1989), and Loderer and Martin (1990) find that bidder CARs increase with the target's relative size. Additionally, Golubov et al. (2015) and Kengelbach et al. (2012) find a positive relationship between acquirer CARs and relative size for occasional- and frequent acquirers. In contrast, studies such as Travlos (1987) find a negative relationship between bidder CARs and the target's relative size. The results in Travlos (1987) are to some extent supported by Eckbo and Thorburn (2000), who find that the abnormal returns for bidders are negatively correlated to

the target's relative size. Furthermore, Moeller et a. (2004) find that announcement returns for large (small) acquirers are negatively (positively) related to the target's relative size.

To account for the difficulties in measuring abnormal returns due to the larger size of bidders relative to the size of their targets described in Travlos (1987), we calculate the relative size variable following the method of several studies such as Travlos (1987) and Golubov et al. (2015), by dividing the value of the transaction by the acquirer's market capitalization.

Industry relatedness

Morck et al. (1990) investigate among other things the relative attractiveness of related and unrelated acquisitions using a sample of 326 acquisitions. One measure they use to differentiate related and unrelated acquisitions is the 4-digit SIC codes of the three main lines of business, by sales, that the firm operates. If the bidder and the target have a 4-digit industry in common among the top three they operate in, Morck et al. (1990) classify the corresponding acquisition as related. Otherwise, the acquisition is unrelated. The authors find that the average bidder CAR for related acquisition is 2.38% and for unrelated it is -1.89%, however, they are not statistically significantly different from 0 nor each other.

A more recent study conducted by Akbulut and Matsusaka (2010) also investigates the relationship of relatedness on acquirer CARs using a sample of 4 764 acquisitions. Akbulut and Matsusaka (2010) define a related acquisition as an acquisition where the acquirer and target have at least one 4-digit SIC code in common. They find significantly negative average bidder CARs of -0.6% for diversifying acquisitions and -1.3% for related acquisitions, thus suggesting that diversifying acquisitions are less harmful. Studies that investigate serial acquirers (e.g., Kengelbach et al. (2012) and Golubov et al. (2015)) did not find any significant relationship between serial acquirers and the relatedness of the acquisitions. To control for differences in related and unrelated acquisitions, we use a dummy variable indicating the value "1" if the bidder and the target share the same 4-digit SIC code and "0" otherwise.

Target's public status

Numerous studies investigate the effect of the public status of the target on bidder returns. Moeller et al. (2004) find significantly negative average bidder CARs for public targets of -1.02%, while significantly positively average bidder CARs for private targets of 1.50% in the U.S. The findings of Moeller et al. (2004) correspond with more recent research by Bradley and Sundaram (2006) and Kengelbach et al. (2012). The latter study shows that the negative

relationship between average bidder CARs and public targets also applies to the subsamples of occasional- and serial acquirers and not only to the entire sample. We control for the target's public status by creating a dummy variable taking the value "1" if the target is a public firm and "0" if the target is private or a subsidiary.

Domestic vs. cross-border acquisitions

Several studies investigate the difference in how cross-border acquisitions differ from domestic acquisitions in terms of bidder performance. Eckbo and Thorburn (2000) study the performance of over 1 800 domestic and U.S. (foreign) bidder firms acquiring Canadian targets between 1964 and 1983. The authors find that domestic bidders earn a significantly positive average CAR, more specifically, they report an average CAR of 1.13% (1.81%) using a pre-event (post-event) estimation period. In contrast, foreign bidder returns are indistinguishable from zero. The findings are supported by Moeller and Schlingemann (2005), who investigate 4 430 acquisitions between 1985 and 1995 from the perspective of U.S. acquirers. They find that U.S. firms who acquire cross-border targets compared to domestic targets experience significantly lower announcement stock returns of around 1%.

To control for the difference between domestic and cross-border acquisition, we include a dummy variable taking the value "1" if the target is a domestic firm and "0" if the target is foreign.

Cash to assets and return to assets

Based on Jensen (1986), Harford (1999) develops and tests the hypothesis that managers of cash-rich firms waste the excess free cash flow on acquisitions. Harford (1999) finds that cash-rich firms are more likely than other firms to engage in acquisitions and that acquisitions by cash-rich firms are value-decreasing. More specifically, he finds that cash-rich acquirers destroy seven cents in value for every excess dollar of cash reserves held. These findings are supported by Kengelbach et al. (2012), who find a significant negative relationship between bidder CARs and cash to assets. Further, Kengelbach et al. (2012) use return on asset as a control variable in their regressions. The authors find a positive relationship between the acquirer's profitability and CARs for both the entire sample and for serial acquirers, but neither of the relationships are significant.

To control for the acquirer's cash richness and its profitability, we follow Kengelbach et al. (2012). Cash to assets is calculated by dividing cash and closely related equivalents by the

last twelve months' total assets, while return to assets is calculated by scaling earnings before interest and taxes (EBIT) with the last twelve months' total assets.

Method of payment

Myers and Majluf (1984) investigate among other things, the difference in bidder returns for acquisitions made with different payment methods. The authors claim that bidders will use stocks as a method of payment if the firm views its stock as overvalued. Thus, announcing acquisitions with stocks as the method of payment often leads to negative bidder returns. Previous research such as Travlos (1987) coincides with Myers and Majluf (1984) and finds that acquirers making cash offers experience an insignificantly positive average CAR of 0.24% while acquirers using only stock offers experience a significantly negative average CAR of -1.47%. The findings of Travlos (1987) is later supported by Asquith et al (1990). Asquith et al (1990) also find that bidders offering a hybrid of cash and stock experience a significantly negative average CAR of -1.47%. Given the findings, we control for the method of payment by including dummy variables for cash- and hybrid offers.

4.2.2 Fixed effects

Entity-fixed effects

Stock and Watson (2020) describe fixed effects regression as a method for controlling for omitted variables in panel data when the omitted variables vary across entities but do not change over time. The model has *n* different intercepts, one for each entity, and can be used when each entity has two or more time observations. Consider the regression model in Equation 4.6 with the dependent variable and observed regressor denoted as Y_{it} and X_{it} accordingly:

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 Z_i + u_{it}, \tag{4.6}$$

where Z_i is an unobserved variable that differs from one entity to the next but does not change over time. One wants to estimate β_1 holding the unobserved entity characteristics Z constant. Since Z_i differs between entities but is constant over time, the population regression in Equation 4.6 can be explained as having *n* intercepts, one for each entity. Hence, Equation 4.6 becomes

$$Y_{it} = \beta_1 X_{it} + \alpha_i + u_{it}, \quad (4.7)$$

Equation 4.7 is the fixed effects regression model in which $\alpha_1,\ldots,\alpha_n$ are treated as unknown intercepts to be estimated, one for each entity. The interpretation of α_i as an entity-specific intercept in Equation 4.7 comes from seeing the population regression line for the i^{th} entity. The slope coefficient of the population regression line, β_1, is equal for all the entities, but the intercept of the population regression line differs between the entities. Considering that the intercept α_i can be viewed as the "effect" of being in entity *i,* the terms $\alpha_1, \ldots, \alpha_n$ are known as entity-fixed effects. The entity-specific intercepts in the fixed effects regression model can also be expressed using binary variables to denote individual states.

Time-fixed effects and both entity- and time-fixed effects

Stock and Watson (2020) emphasize that as entity-fixed effects control for variables that are constant over time but differ across entities, time-fixed effects can control for variables that are constant across entities but emerge over time.

$$Y_{it} = \beta_1 X_{it} + \lambda_t + u_{it} \quad (4.8)$$

The model has, for each period, a different intercept, λ_t. The intercept λ_t in Equation 4.8 can be viewed as the "effect" on *Y* of year *t*, so the terms $\lambda_1, \ldots, \lambda_T$ are known as time-fixed effects. Like the entity-fixed effects, the time-fixed effects regression model can be represented using T - 1 binary indicators. Additionally, the authors point out that if some omitted variables are constant over time but differ across states, while others are constant across states but differ across time, then both entity- and time effects are suitable to include.

5. Data

This section presents how the final sample is generated based on specific criteria and filtering. Further, we discuss and define serial-, occasional-, and single acquirers and present descriptive summaries including both deal- and firm characteristics.

5.1 Data sample

The data set on daily stock prices is provided by Børsprosjektet which contains daily adjusted closing prices on stocks traded on the Oslo Stock Exchange up till November 27th, 2020. Børsprosjektet also provides data on the daily closing prices of the OSEBX index from when it was introduced at the beginning of 1996. We choose the OSEBX index as it represents stocks traded at the Oslo Stock Exchange. Since both stock- and market returns are needed to estimate the abnormal returns on the announcement date and the estimation starts 130 trading days before the announcement, the sample period of M&A transactions is restricted from June 30th, 1996. We analyse three different event windows with the largest one being the (-3, +3) window. To be able to calculate the CARs during the whole event window, the event itself can happen no later than November 24th, 2020, resulting in a sample period from June 30th, 1996, to November 24th, 2020. The M&A transaction data are provided by the Securities Data Company (SDC) Platinum M&A database, which covers approximately 1.3 million global M&A transactions since the 1970s. Following the work of papers such as Fuller et al. (2002), Golubov et al. (2015), and Maggi (2021), we set the following criteria for the sample:

1. The acquirer must be a Norwegian publicly listed company. The target can either be a publicly listed-, private-, or a subsidiary company
2. The acquisition must be completed
3. The transaction value must exceed $1 million
4. The acquirer must acquire a minimum of 50% of the target
5. Multiple deals with the same announcement date by the same firm are excluded

The acquirers in the data sample consist only of Norwegian publicly listed companies, that is, the company was either traded on the Oslo Stock Exchange, Euronext Expand (formerly “Oslo Axess”), or Euronext Growth (formerly named “Merkur Market”) in the sampling period. To get a diverse and broad sample representing Norwegian acquirers, any further restrictions on which marketplace the firm must have been traded on are not imposed.

Next, the sample is restricted to only have completed acquisitions, meaning that the transaction is accepted by both parties and successfully completed. By doing so, we avoid deals that are unconditional, partially completed, or pending. Lastly, to avoid wrong inferences due to little or no market reaction, only transaction values above $1 million are included. Imposing the first three criteria yields an initial sample of 955 deals.

Fuller et al. (2002) restrict their sample to transactions where the bidder must acquire a minimum of 50% of the target firm. In comparison, the work of Golubov et al. (2015) and Maggi (2021) states that the bidder must own less than 50% of the target at the announcement date and attain 100% after. Defining an acquisition as a purchase of a controlling ownership interest in another firm, we follow Fuller et al. (2002) and restrict our sample to transactions where a minimum of 50% of the target firm is acquired. Following Fuller et al. (2002) yields a more extensive sample, as it includes all firms that purchased a controlling interest and achieved ownership of the target firm between 50-100% and not merely 100% ownership. Imposing the restrictions provides a sample of 687 deals.

Since we are collecting data from two different databases, a unique company ID is being used to merge the two datasets correctly. We choose to use the acquirers' primary ticker symbol as the ID. Due to lack of information, 14 transactions are dropped, leaving us with 673 deals. Another problem when merging the two datasets is the lack of historical data on companies that have changed their ticker symbol. Manually correcting for these tickers leads us to keep an additional 178 deals. A challenge when performing event studies on M&A deals is that some acquirers may announce multiple acquisitions on the same date. Since one is not able to distinguish the effects of two announcements on the same day, one must remove multiple deals with the same announcement date by the same firm. The restriction eliminates 36 deals conducted by 13 unique companies, shrinking the sample to 637 deals. Another challenge is other corporate event announcements such as a new product line or a new CEO in the period used to calculate CARs. We do not investigate whether there have been announced other corporate events in the period used to calculate CARs, reflecting a limitation in our analysis.

Another requirement when looking at M&A events' impact on the acquirers' performance, is data information on daily stock prices for the bidder. By removing transactions with insufficient data that does not meet the conditions for both the estimation-, and event window (see Section 4.1), we are left with 410 deals. Lastly, numerous deals that lack information on firm characteristics are excluded, yielding a sample of 377 transactions made by 119 unique

acquirers. This is also the case for deal characteristics, lacking information on the method of payment for 146 deals. Due to the possible loss of these observations, we choose to only include the sample including the method of payment as a robustness test and use the sample of 377 transactions as our final sample.

5.2 Variable definition

Before conducting the analyses, we must define a serial-, occasional-, and single acquirer. Kengelbach et al. (2012) define serial acquirers as firms that execute more than one deal within any rolling three-year period. In contrast, Fuller et al. (2002) define serial acquirers as firms that acquired five or more targets within three years between 1990 and 2000. The definition by Fuller et al. (2002) is further supported and used by both Golubov et al. (2015) and Maggi (2021). We follow the definition by Fuller et al. (2002) and define serial acquirers as firms that acquire five or more targets within a rolling three-year period, reflecting firms that frequently and systematically pursue acquisitions to a higher degree. The definition of a serial acquirer yields a subsample of 16 serial acquirers who conducted 127 acquisitions.

Golubov et al. (2015) define occasional acquirers as bidders that complete at least two deals in a three-year period, potentially including serial acquirers as they complete at least two transactions in a three-year window. In contrast, Maggi (2021) defines occasional acquirers as firms that conduct at least two acquisitions but less than five. We follow Maggi (2021) to better differentiate the unique characteristics between serial- and occasional acquirers and define occasional acquirers as firms who conduct at least two acquisitions but less than five within a rolling three-year period. The definition of an occasional acquirer yields a subsample of 65 unique occasional acquirers who conducted 172 acquisitions. Lastly, single acquirers are defined as firms that conduct one deal within a rolling three-year window, yielding a subsample of 61 unique acquirers who conducted 78 acquisitions.

Using a rolling window rather than the entire period as one window allows the definitions to be based on firms' ongoing M&A strategy. Consequently, a firm can be defined as one type of acquirer in one window and another type in the next. Thus, it gives better-represented subsamples of different acquirers.

5.3 Descriptive summary

5.3.1 Sample

Table 5.1 presents a summary of the final sample including all deals in the sample and the distribution of the subsamples for each five-year period between 1996 and 2020. As the table shows, our sample of the Norwegian M&A market is stable over the last 25 years, with its first peak being reached between 2006 and 2010. In general, the global M&A market was highly active during the years before the financial crisis in 2007/2008, and the Norwegian market follow this trend. Looking at Table 5.1, the next merger wave in the Norwegian market started in 2016, which also coincides with the global M&A market (IMAA-institute, 2021).

Table 5.1: Descriptive summary of sample

Year	All acquirers	Serial acquirers	Occasional acquirers	Single acquirers
1996-2000	58	20	29	9
2001-2005	90	30	50	10
2006-2010	111	42	52	17
2011-2015	49	9	25	15
2016-2020	69	26	16	27
Total	377	127	172	78

5.3.2 Deal characteristics

Table 5.2 presents a summary of the deal characteristics that will be used in the regression analyses.

Table 5.2: Descriptive summary of deal characteristics

Panel A: Related vs. unrelated acquisitions				
	All acquirers	**Serial acquirers**	**Occasional acquirers**	**Single acquirers**
Related	110	39	46	25
Unrelated	267	88	126	53
Total	377	127	172	78
Panel B: Domestic vs. cross-border acquisitions				
	All acquirers	**Serial acquirers**	**Occasional acquirers**	**Single acquirers**
Domestic	160	45	70	45
Cross-border	217	82	102	33
Total	377	127	172	78
Panel C: Public vs. private targets				
	All acquirers	**Serial acquirers**	**Occasional acquirers**	**Single acquirers**
Public	29	4	19	6
Private	348	123	153	72
Total	377	127	172	78

Panel A in Table 5.2 displays the distribution of related and unrelated transactions. Unrelated deals appear to be the most frequent type of acquisition with 71% of all transactions being unrelated. Looking at the different types of acquirers, none of the three subsamples deviates from the pattern, varying from 68% for single acquirers to 73% for occasional acquirers.

Panel B demonstrates the share of domestic and cross-border acquisitions. The sample tends to be skewed toward cross-border transactions with a 58% share for the full sample and occasional acquirers. For the other two subsamples, serial acquirers appear to have a more skewed distribution with 65% cross-border deals, while single acquirers engage less in cross-border deals with a share of 42%.

Panel C from Table 5.2 shows the target's public status. 92% of our final sample consists of private targets, with serial acquirers experiencing the share of private deals to be 97%. While the same goes for single acquirers who conduct 92% private deals, the trend is more dampened for occasional acquirers with a share of private deals of 89%. The skewness towards private deals is of such an extent that it may limit our results to not be representative.

5.3.3 Firm characteristics, deal value, and relative size

Table 5.3 presents a summary of firm characteristics, deal value, and relative size that are going to be used as control variables in the analyses and Table 5.4 reports differences in means between the subsamples. Both mean and variance are affected by outliers, and the outliers can have a great impact on statistical efficiency and the robustness of statistical inferences. To minimize the influence of outliers for the different firm characteristics, we winsorize the observations at the 5th and 95th percentile. Winsorization matches those extreme values outside of the threshold to the upper and lower percentile specified.

Table 5.3: Descriptive summary of firm characteristics, deal value, and relative size

	All acquirers			Serial acquirers			Occasional acquirers			Single acquirers		
	Mean	**Median**	**SD**	**Mean**	**Median**	**SD**	**Mean**	**Median**	**SD**	**Mean**	**Median**	**SD**
Market cap ($ mill)	4 691	571	10 492	5 885	573	12 521	3 316	517	7 687	5 777	849	11 915
Return on assets	6%	7%	10%	5%	6%	7%	6%	7%	11%	6%	5%	13%
Cash to assets	16%	11%	15%	18%	12%	15%	16%	10%	17%	15%	11%	13%
Deal value ($ mill)	110	20	212	77	11	209	125	29	215	130	47	206
Relative size	18%	4%	49%	5%	2%	9%	24%	5%	61%	25%	6%	52%

Table 5.4: Descriptive summary of differences in means

	(2) Serial		(3) Occasional		(4) Single		(2) – (3) Difference	(2) – (4) Difference	(3) – (4) Difference
	N	**Mean**	**N**	**Mean**	**N**	**Mean**	**t-stat**	**t-stat**	**t-stat**
Market cap ($ mill)	127	5 885	172	3 316	78	5 777	2.045**	0.062	-1.673*
Return on assets	127	5%	172	6%	78	6%	-0.787	-0.511	0.009
Cash to assets	127	18%	172	16%	78	15%	0.813	1.593	0.830
Deal value ($ mill)	127	77	172	125	78	130	-1.922*	-1.784*	-0.194
Relative size	127	5%	172	24%	78	25%	-4.096***	-3.405***	-0.120

The average (median) acquirer's market capitalization of all the acquirers is USD 4 691 (571) million and differs greatly along the subsamples. Table 5.3 shows that serial acquirers have, on average, the largest market capitalization of 5 885 million followed by single- and occasional acquirers with an average market capitalization of USD 5 777 million and USD 3 316 million, respectively. Table 5.4 shows a significant difference in means amongst serial- and occasional acquirers, and occasional- and single acquirers, but not between serial- and single acquirers. However, looking at the median, the size difference between the subsamples reduces considerably. Further, Table 5.3 shows large standard deviations, indicating that the subsamples have some outliers, especially serial acquirers, having the highest standard

deviation. To avoid skewness and to improve the fit of the model, we use the natural logarithm of the acquirer's market capitalization in the analyses (see Section 4.2.1).

The average return on assets (ROA) for the entire sample is 6%, while the median ROA is 7%. Table 5.3 displays that serial acquirers have, on average, a ROA of 5%, while both occasional- and single acquirers achieve an average ROA of 6%. Although, as seen in Table 5.4, one cannot state differences in ROA between the subsamples. Further, we see that the subsamples' means are roughly equal to their corresponding median, indicating few outliers. The average cash to assets for the entire sample is 16%, while the median is 11%. As seen in Table 5.3, serial acquirers have, on average, the highest cash to assets, although, Table 5.4 displays no significant differences between the subsamples.

The average (median) deal value for the entire sample is USD 110 (20) million with a standard deviation of 212. Tables 5.3 and 5.4 show that serial acquirers have, on average, executed smaller deals compared to both occasional- and single acquirers. The average deal values appear to be affected by extreme values as the median deal for the entire sample, as well as for the subsamples, are considerably lower with high corresponding standard deviations. In terms of relative size, the average (median) ratio for the entire sample is 18% (4%) with a standard deviation of 49%. Serial acquirers appear to engage in smaller acquisitions relative to their size with an average deal-to-market value of 5% compared to both occasional- and single acquirers with values of 24% and 25%, respectively. By looking at the standard deviation of the subsamples, serial acquirers seem to consistently conduct smaller deals compared to their size.

6. Empirical results

This section presents the main results of this paper and is divided into three subsections. In the first part, the daily average abnormal returns and the average cumulative abnormal returns from the event studies are presented and discussed. In the second part, the results of the regressions with cumulative abnormal returns as the dependent variable and deal- and firm characteristics as independent variables are presented. Lastly, the findings from regressions controlling for fixed effects are given.

6.1 Bidder announcement returns

To gain insight into the nature of abnormal returns, a natural starting point is to investigate daily average abnormal returns (AAR), before examining the average cumulative abnormal returns (CAAR) for the different event windows.

Hypothesis 1 states that Norwegian serial acquirers do, on average, achieve positive cumulative abnormal returns in the short term. Table 6.1 visualize average abnormal returns around the takeover announcement for the full sample and the subsamples serial-, occasional-, and single acquirers. Panel A from Table 6.1 shows the daily AAR in the event window (-3, +3) with the corresponding test statistics, indicating the likelihood of the observed AAR being different from zero. When looking at daily abnormal returns before the event day, there seems to be a positive trend pattern starting three days before the announcement for all-, serial- and single acquirers. The daily AAR for the full sample for both three days and one day prior to the event are significantly positive with values of 0.259% and 0.200%. Panel A reveals that serial acquirers have positive but insignificant daily AAR on the days before the announcement, while single acquirers have significantly positive AAR of 0.544% one day before the announcement. Thus, indicating that there might be information leakage to the market. Panel B in Table 6.1 confirms that there is in fact information leakage as the full sample, serial-, and single acquirers have significantly positive CAAR in the window (-3, -1).

Panel A shows a significantly positive AAR for the full sample and the corresponding subsamples on the announcement day. Panel C in Table 6.1 concludes that the AARs in the event window (0) are different between the subsamples. Single acquirers have the highest AAR with a value of 4.768% followed by occasional- and serial acquirers with values of 1.607% and 0.483%, respectively. Implying a lower market reaction on the day of

announcement for serial acquirers compared to both occasional- and single acquirers. In contrast to AARs on the days prior to the announcement, we observe a negative trend for both serial acquirers and single acquirers post-announcement. The daily AAR for serial acquirers on the second day after the announcement is significantly negative with a value of -0.398%, while single acquirers have a significantly negative AAR of -0.657% on the third day after the announcement. Panel C demonstrates that single acquirers have significantly negative CAAR of -0.918% in the window (1, 3), indicating a possible correction after the announcement. This is not the case for serial acquirers, as their CAAR in the window (1, 3) is insignificant.

Panel B in Table 6.1 presents the average cumulative abnormal returns (CAARs) for the different event windows with the corresponding test statistics. The event windows are used to capture the immediate market reaction to the takeover announcements. As seen from Panel B, the CAARs in the event windows (-3, +3), (-2, +2), and (-1, +1) are positive and significant for all-, occasional- and single acquirers. Suggesting that Norwegian acquirers engage, on average, in wealth-creating acquisitions. The CAARs for all acquirers are consistent with Anwar (2020) reporting CAARs for Norwegian bidders in the windows (-3, +3), (-2, +2), and (-1, +1). Furthermore, the sign and significance are consistent with other more cited studies that use a (-2, +2) and (-1, +1) event window such as Fuller et al. (2002) and Moeller et al. (2004). Looking at serial acquirers, we observe positive CAARs for the three windows (-3, +3), (-2, +2), and (-1, +1) with corresponding values of 0.710%, 0.530%, and 0.861%, however, only the latter value is significant. Comparing serial acquirers' CAAR of 0.530% with Fuller et al. (2002), reporting CAAR for frequent acquirers in the event window (-2, +2) of 1.77%, we see that both CAARs are positive but of different magnitude. More importantly, the CAAR reported by Fuller et al. (2002), is significant at a 1% level, while serial acquirers' CAAR of 0.530% is insignificant.

To summarize the findings, Norwegian serial acquirers have positive and significant cumulative abnormal returns for the event windows (-1, +1) and (0). From this, we accept Hypothesis 1 stating that serial acquirers do, on average, achieve positive cumulative abnormal returns.

Hypothesis 2A states that Norwegian serial acquirers do not, on average, outperform other acquirers in the short term. Single acquirers have the highest CAARs for the respective windows, followed by occasional- and serial acquirers. When comparing the different

acquirers, we observe a large difference in the magnitude of CAARs, for instance, using the event window (-1, +1), we notice CAARs ranging from 0.861% to 5.102%. Panel C demonstrates that serial acquirers' CAARs are significantly lower than both occasional - and single acquirers in the event windows (-3, +3), (-2, + 2), (-1, +1), coinciding with the findings of Kengelbach et al. (2012).

Based on this, we accept Hypothesis 2A stating that Norwegian serial acquirers do not, on average, outperform other acquirers in the short term.

There might be several explanations why serial acquirers underperform compared to non-frequent acquirers. Firstly, negative influences such as CEO hubris, post-integration problems, and diminishing returns schedules can exceed the possible benefits of M&A learning (Kengelbach et al., 2012). Another explanation could be that the overall performance effect is already incorporated into the announcement of a firm's M&A program (Schipper & Thompson, 1983), giving serial acquirers a lower market reaction compared to non-frequent acquirers, especially single acquirers. Lastly, when relying on market reactions to measure value creation, the results tend to be skewed towards larger deals, which have the heft to affect share prices, and underrepresent smaller ones. Additionally, it can underestimate the amount of value created by multi-deal strategies whose real worth develops over time (Rehm, Uhlaner, & West, 2012). Looking at Tables 5.3 and 5.4, we see that single- and occasional acquirers conduct, on average, deals of a larger absolute- and relative size compared to serial acquirers, strengthening the latter explanations of why serial acquirers underperform compared to non-serial.

Table 6.1: Average abnormal return around the takeover announcement

We use the event study method with marked adjusted returns. The estimation period is 120 days, ending 10 days prior to the announcement day which is day 0. The sample consists of 377 acquisitions from January 1997 to November 2020. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Panel A: Daily average abnormal returns in the event window (-3, +3)

	All acquirers		Serial acquirers		Occasional acquirers		Single acquirers	
Day	**AAR (%)**	**t-stat**	**AAR (%)**	**t-stat**	**AAR (%)**	**t-stat**	**AAR (%)**	**t-stat**
-3	0.259*	1.645	0.248	1.042	0.160	0.809	0.498	1.006
-2	0.061	0.418	0.068	0.311	-0.005	-0.025	0.195	0.486
-1	0.200*	1.408	0.197	0.949	0.047	0.239	0.544*	1.323
0	1.883***	4.875	0.483**	1.778	1.607***	4.153	4.768***	3.054
1	0.065	0.372	0.181	0.759	0.104	0.367	-0.211	-0.507
2	-0.165	-1.086	-0.398**	-1.838	-0.045	-0.196	-0.051	-0.127
3	-0.095	-0.572	-0.068	-0.297	0.141	0.511	-0.657**	-1.839
N	377	377	127	127	172	172	78	78

Panel B: Average cumulative abnormal returns for the different event windows

	All acquirers		Serial acquirers		Occasional acquirers		Single acquirers	
Window	**CAAR (%)**	**t-stat**	**CAAR (%)**	**t-stat**	**CAAR (%)**	**t-stat**	**CAAR (%)**	**t-stat**
(-3, -1)	0.521**	2.042	0.512*	1.384	0.202	0.632	1.237*	1.523
(-3, +3)	2.208***	3.854	0.710	1.039	2.008***	2.906	5.088***	2.541
(-2, +2)	2.043***	4.012	0.530	0.944	1.708***	3.135	5.245***	2.749
(-1, +1)	2.148***	4.881	0.861**	1.992	1.758***	3.716	5.102***	3.037
(0)	1.883***	4.875	0.483**	1.778	1.607***	4.153	4.768***	3.054
(1, 3)	-0.195	-0.662	-0.285	-0.645	0.199	0.421	-0.918*	-1.409
N	377	377	127	127	172	172	78	78

Panel C: t-tests for different acquirer CAARs

	(2) Serial	(3) Occasional	(4) Single	(2)-(3) Difference	(2)-(4) Difference
Window	**Mean (%)**	**Mean (%)**	**Mean (%)**	**t-stat**	**t-stat**
(-3, +3)	0.710	2.008	5.088	-1.336*	-2.069**
(-2, +2)	0.530	1.708	5.245	-1.505*	-2.371***
(-1, +1)	0.861	1.758	5.102	-1.401*	-2.445***
(0)	0.483	1.607	4.768	-2.379***	-2.705***

6.2 Regression analysis

6.2.1 Controlling for deal- and firm characteristics

Hypothesis 2B states that Norwegian serial acquirers do not, on average, outperform other acquirers in the short term when controlling for deal- and firm characteristics. Purely looking at CAARs in the event windows without controlling for deal- and firm characteristics can lead to misguided inferences. For instance, serial acquirers might underperform occasional- and single acquirers because they on average conduct smaller deals and not due to the number of transactions identifying them as serial acquirers. This subsection looks at CARs controlling for both deals and firm characteristics, previously shown to affect bidder announcement returns, dealing with the possibility of wrong inferences. More specifically, the analysis focus on the (-1, +1) event window, as the window isolates the M&A event to a higher degree and according to Panel B in Table 6.1 seems to capture the full announcement effect compared to longer event windows such as (-2, +2) and (-3, +3). The regressions are standard OLS regression, and we assume every transaction to be an exogenous and independent event. To control for the non-constant variance of the error terms, we apply robust standard errors.

Table 6.2 shows the regression analysis on bidder CARs for the full sample with and without the dummy variable indicating that the acquirer is a serial acquirer. In addition, the same regression is run on the subsample only containing serial acquirers.

Table 6.2: Regressions of bidder CARs with control variables

Table 6.2 presents the results of the regression models of acquirer cumulative abnormal returns for the merger announcements along a broad set of selected deal- and firm characteristics. Model 1 and Model 2 includes M&A transactions from all acquirers and serial acquirers, respectively. Model 3 represents the full sample with the dummy variable indicating that the acquirer is a serial acquirer. ***, **, and * denote significance at the 1%, 5%, and 10% levels. Standard errors are based on White (1980) heteroskedasticity adjusted standard errors.

	Dependent variable:		
	CARs (-1, +1)		
	(1)	**(2)**	**(3)**
	All acquirers	**Serial acquirers**	**All acquirers**
Relatedness	0.0149	0.0137*	0.0151
	t = 1.5396	t = 1.7132	t = 1.5629
Domestic	0.0107	-0.0166*	0.0094
	t = 1.2662	t = -1.7363	t = 1.1180
Public	-0.0022	-0.0524***	-0.0052
	t = -0.1123	t = -3.0712	t = -0.2630
Relative size	0.0202*	0.1775***	0.0174
	t = 1.7552	t = 5.2863	t = 1.6161
Market cap (Log)	0.0017	0.0007	0.0018
	t = 0.6712	t = 0.2620	t = 0.7029
Return on assets	-0.0721	0.0747	-0.0731
	t = -1.5653	t = 1.3690	t = -1.5845
Cash to assets	0.0224	0.0205	0.0251
	t = 0.7410	t = 0.5968	t = 0.8257
Serial			-0.0172**
			t = -2.1076
Constant	-0.0016	-0.0088	0.0044
	t = -0.0868	t = -0.3635	t = 0.2453
Observations	377	127	377
R^2	0.0290	0.1492	0.0376
Adjusted R^2	0.0105	0.0992	0.0166

Model 1 in Table 6.2 represents the full sample without controlling for different types of acquirers. Thus, the constant is interpreted as an unrelated, foreign transaction of a private target company. The model for our full sample corresponds to prior research on the same topic. The R-squared of 2.90% is similar to Kengelbach et.al (2012) who got an R-squared of 3.00% The model shows a negative CAR for these transactions, however, this result is insignificant. Compared to Kengelbach et al. (2012), the control variables are more often insignificant than not, which might be due to our limited sample of 377 deals compared to their sample of 20 975 deals. Looking at the different control variables, the variable indicating relatedness is similar to Kengelbach et. al (2012) being positive and insignificant. More interesting is the control variable for relative size which is positive and significant at the 10%-level, coinciding with Kengelbach et. al (2012) who found a positive significant impact from the deal size, indicating a higher CAR when the deal value increases. Thus, based on the regression in Model 1, the only conclusion is that as the relative size increases, the CAR increases for transactions regardless of the type of acquirer.

Regression Model 2 in Table 6.2 shows the same regression in Model 1, now performed on serial acquirers. Interpreting the constant as serial acquirers conducting an unrelated, foreign transaction of a private target company. Compared to prior research, regression Model 2 experiences an adjusted R-squared of 9.92%, which is higher than the adjusted R-squared for Fuller et. al (2002) who got an adjusted R-squared of 4.43%. Similar to the results from Model 3 in Table 6.2, serial acquirers experience a negative CAR, however, the result is insignificant. Controlling for the same variables as in Model 1, their impact is stronger when looking solely at serial acquirers. Both relatedness and domestic deals are significant at the 10% level, being positive and negative, respectively. Additionally, deals involving public targets experience a significantly lower CAR of -5.24% compared to private targets at a 1% level. In general, serial acquirers who conduct cross-border transactions of private targets that are related to the acquirer, experience a higher CAR compared to serial acquirers doing the opposite, ceteris paribus. Lastly, compared to the full sample, the variable for relative size has an even greater, and more significant impact on serial acquirers' CARs, having a value of 17.75% which is significant at the 1% level.

Regression Model 3 in Table 6.2 shows the same regression model made on the same sample as Model 1, but in addition, we control for the acquirer being a serial acquirer. By using a dummy variable indicating that the transaction is made by a serial acquirer, the constant is

interpreted as non-serial acquirers conducting an unrelated, foreign acquisition of a private target company. The results of regression Model 3 show that the dummy variable for serial acquirers is significant at the 5% level. Compared to non-serial acquirers, serial acquirers experience a lower CAR of -1.72%. Looking at the other control variables in regression Model 3, neither of them is statistically significant. However, based on Model 3, we accept Hypothesis 2B stating that serial acquirers do not, on average, outperform non-serial acquirers after controlling for deal- and firm characteristics.

6.2.2 Controlling for fixed effects

Hypothesis 3 declares that serial acquirers, on average, possess some unobserved time-invariant characteristics beyond other acquirers. To investigate whether there exist systematic differences in a firm's capability to create value through acquisitions beyond included regressors, we include fixed effects. When controlling for fixed effects, we follow Maggi (2021), in which the paper replicates the study by Golubov et al. (2015). In contrast to Maggi (2021) who investigates whether time-invariant characteristics can explain part of the variation in takeover gains in both percentage and dollar returns, we only look at percentage returns as the findings on serial acquirers by Maggi (2021) are consistent with whether they are expressed in percentage or dollar returns. Moreover, we impose the same restriction on the sample as Maggi (2021) excluding single acquirers to control for the mechanical increase in the R-squared values. If bidder-fixed effects were applied to single acquirers, it would capture the difference between the non-zero constant and the actual value. Consequently, for single acquirers, fixed effects would explain the full variation in shareholder gains, creating a bias. Excluding single acquirers reduces the final sample of 377 transactions to 299.

Table 6.4 contains the results from different regression models controlling for fixed effects using the final sample of 299 transactions. Model 1 reports a model that includes only bidder-fixed effects as the main regressor. Model 2 adds year-fixed effects to the regressors of Model 1. Next, Model 3 includes bidder- and year-fixed effects along with variables controlling for deal-specific characters. Finally, Model 4 includes all the previous regressors and variables controlling for bidder-specific characters. Displayed in all panels are the F-statistics relative to the overall significance of the regression models.

Table 6.3: Regressions controlling for fixed effects

Table 6.3 reports the results of the regression models of acquirer cumulative abnormal returns for the merger announcement for the three different samples. Panel A contains the full sample. Panel B and Panel C contains only the sample of occasional acquirers and serial acquirers, respectively. Bidder CARs are regressed on fixed effects and included control variables specified in columns (1)-(4). Deal characteristics include relatedness, domestic/foreign deal status, target's public status and relative size. Acquirer characteristics include acquirer size (the natural logarithm of the market capitalization of the acquiring firm), return to assets and cash to assets. The F-statistics report the joint significance of the regression model. The R^2 and adjusted R^2 are reported. ***, **, and * denote significance at the 1%, 5%, and 10% levels. Standard errors are based on White (1980) heteroskedasticity adjusted standard errors.

	Dependent variable:			
	CARs (-1, +1)			
	(1) None	**(2) Year FE**	**(3) Deal char., year FE**	**(4) Acquirer and deal char., year FE**
Panel A: Non-single acquirers				
Bidder FE	Y	Y	Y	Y
Year FE	N	Y	Y	Y
Observations	299	299	299	299
R^2	0.212	0.300	0.310	0.345
Adjusted R^2	-0.048	-0.044	-0.043	-0.012
F-statistic	0.816	0.873	0.878	0.967
Panel B: Occasional acquirers				
Bidder FE	Y	Y	Y	Y
Year FE	N	Y	Y	Y
Observations	172	172	172	172
R^2	0.326	0.448	0.470	0.494
Adjusted R^2	-0.077	-0.125	-0.120	-0.123
F-statistic	0.809	0.782	0.797	0.800
Panel C: Serial acquirers				
Bidder FE	Y	Y	Y	Y
Year FE	N	Y	Y	Y
Observations	127	127	127	127
R^2	0.347	0.391	0.444	0.509
Adjusted R^2	0.259	0.147	0.194	0.254
F-statistic	3.933^{***}	1.605^{**}	1.778^{**}	2.000^{***}

Moving from Model 1 to Model 4 in Panel A of Table 6.3, the R-squared increases by nearly 63%, from 21.2 % to 34.5%. Compared to Maggi (2021), non-single acquirers' R-squared statistics are higher, but not of any significant size. However, when looking at the more unbiased measurement of the explanatory power, adjusted R-squared, the results change dramatically. Moving from Model 1 to Model 4, the adjusted R-squared statistics are negative and increase by almost 25 %, from -4.8% to -1.2%. In our case, including bidder-fixed effects, reduce the sum of squared residuals by such a small amount that this reduction fails to offset the factor which penalizes the adjusted R-squared for predictors that are not significant. The result is a negative adjusted R-squared, implying that the cumulative abnormal returns are minimally explained by time-invariant characteristics. In contrast to Maggi (2021), non-single acquirers' adjusted R-squared values are negative, and the F-statistics are insignificant. The reason for the difference could potentially lie in the size of the sample, as when the R-squared is small relative to the ratio of parameters to observations, the adjusted R-squared becomes negative. Since our sample size accounts for nearly 3% of the sample size used by Maggi (2021), the ratio of parameters to observations is considerably smaller, hence the models might be over-parameterized and may be improved with an increase in sample size. Another explanation could be due to different samples and sampling periods, that is, Maggi investigates acquirers from the U.S. in the period between 1990 and 2011, while we investigate Norwegian acquirers in the period between 1996 and 2020. Therefore, it is not unreasonable that the results differ.

Further, Panel A in Table 6.3 demonstrates that including year-fixed effects as well as both deal-and bidder characteristics increases the adjusted R-squared, coinciding with the findings of Maggi (2021). Furthermore, by looking at the changes in the adjusted R-squared amongst the different models, we see that the variables controlling for bidder characteristics explain a larger part of the variation in takeover gains than the other variables included.

Inspecting occasional acquirers in Panel B, the adjusted R-squared values are not dramatically different compared to Panel A. In contrast to Maggi (2021), the adjusted R-squared values are negative, and the F-statistics are insignificant. Thus, as with non-single acquirers, the cumulative abnormal returns for occasional acquirers are minimally explained by time-invariant characteristics. Model 2 in Panel B shows that including year-fixed effects reduces the adjusted R-squared, contradicting the findings of Maggi (2021). The difference might be due to different samples and sampling periods. Furthermore, we see that the variables

controlling for deal characteristics increase the adjusted R-squared, while variables controlling for bidder characteristics decrease the adjusted R-squared. The latter does not coincide with Panel A or previous research, indicating insignificant coefficients for bidder characteristics for occasional acquirers.

Finally, studying serial acquirers in Panel C of Table 6.3, the adjusted R-squared values are dramatically different compared to both Panels A and B. From having negative adjusted R-squared values and insignificantly F-statistics in Panels A and B, we now observe positive adjusted R-squared statistics and significantly F-statistics. The findings coincide with Maggi (2021), however, the different adjusted R-squared values shown in Panel C are considerably higher. Moving from Model 1 to Model 4 in Panel C the R-squared decreases by approximately 2%, from 25.9 % to 25.4%. Model 1 indicates that serial acquirers possess some unique characteristics captured by bidder-fixed effects. Model 2 from Panel C shows that including year-fixed effects reduces the adjusted R-squared, contradicting the findings of Maggi (2021). As previously discussed, the difference might be due to different samples and sampling periods. Lastly, similar to previous studies, we see that the variables controlling for deal- and bidder characteristics increase the adjusted R-squared.

By comparing Model 1 from the different panels, we see that serial acquirers are the only type of acquirer that have both a positive adjusted R-squared and a significant F-statistic. Thus, we accept Hypothesis 3 stating that serial acquirers, on average, possess some unobserved time-invariant characteristics beyond other acquirers.

6.3 Robustness

To examine how robust our regression coefficient estimates are, we perform several robustness tests. First, we conduct the same regression models on different event windows, namely (0) and (-3, +3). Secondly, to control for extreme CAR values, we compute the regression models in the (-1, +1) event window with winsorized CARs on the 5th and 95th percentile. Lastly, we include the method of payment as a control variable in the (-1, +1) window, limiting the number of observations to 231.

Exhibits A and B in the Appendix display the results of the regression models in Table 6.2 using a (0)- and (-3, +3) window, respectively. Firstly, the signs for the explanatory variables in Model 1 for both Exhibits A and B are consistent with Model 1 in Table 6.2. Relative size is no longer significant in the (0) window for the full sample, whereas the relative size in the (-3. +3) window remains significant. Looking at Model 2 in Exhibits A and B, neither of the constants are significant, meaning that CARs for serial acquirers are not statistically significantly different from zero in the tested event windows. Finally, looking at Model 3 in Exhibits A and B, the included dummy variable is negative and significant, which is consistent with Model 3 in Table 6.2.

Exhibit C in the Appendix shows the results of the regression models in Table 6.2 when controlling for extreme values. As the table shows in regression Model 3, neither the dummy variable for serial acquirers nor the constant representing non-serial acquirers is statistically significant. Stating that neither type of acquirer no longer yields CARs different from zero nor each other possibly due to extreme values.

Exhibit D in the Appendix shows the regression with the inclusion of the method of payment. It appears that the smaller sample and the inclusion of the payment method yield a positive significant CAR of 3.73% for all acquirers. Both the cash- and mix control variables are negative and significant at the 1%-, and 5% level, respectively, stating that transactions paid with stock yield higher CARs. Looking at Model 3 in Exhibit D, the dummy variables for the method of payment are both negative and significant which seem to offset the negative significant CAR of 1.72% for serial acquirers in Model 3 in Table 6.2. This could possibly be explained by a smaller sample.

Exhibits E, F, G, and H show the results from the fixed-effects model with the (0)-, and (-3, +3) window, winsorized CARs, and the inclusion of the method of payment, respectively.

In contrast to the main model (Table 6.3), occasional acquirers in Model 1 from Exhibit E have a significant F-statistic. Additionally, the adjusted R-squared coefficient is now positive equal to 14%. The results for serial acquirers coincide with the main model, having the greatest F-statistic in all models and the highest adjusted R-squared values, except for Model 2 from Exhibit E no longer being statistically significant. The results in Exhibit F are interpreted in the same way as the main model, with only serial acquirers having significant F-statistics, yielding adjusted R-squared values below the values in the main model.

Exhibit G also yields the same interpretation for serial acquirers in the main model, only now the adjusted R-squared values are higher. In addition, Models 2, 3, and 4 for the non-single acquirer sample are statistically significant, yielding adjusted R-squared values between 8.5% and 11.4%.

Finally, Panel A in Exhibit H shows the same interpretation as in Table 6.3, indicating that the smaller sample does not affect the findings. Subsequently, Model 1 in Panel C from Exhibit H demonstrates that including bidder-fixed effects gives an adjusted R-squared of 29.6% and a significant F-statistic similar to Panel C from Table 6.3, indicating that serial acquirers possess some unique characteristics captured by bidder-fixed effects regardless of the smaller sample. In contrast to Panel C from Table 6.3, we observe insignificant F-statistics from Model 2 to Model 4.

To summarize, by performing several robustness tests, the main inferences remain the same for different event windows. Conversely, looking at Exhibits C and D, the dummy indicating serial acquirer is no longer significant, which could be explained by extreme values and a smaller sample, respectively.

7. Conclusion

The purpose of this thesis is to study Norwegian serial acquirers' short-term performance by examining bidder announcement returns surrounding an M&A event in a (-1, +1) event window. Additionally, the study analyses Norwegian serial acquirers' short-term performance relative to both occasional- and single acquirers.

Firstly, we conclude that serial acquirers conduct wealth-creating deals. Calculating the average cumulative abnormal returns for serial acquirers yield a positive CAAR of 0.861% in the (-1, +1) event window. The result is significant at the 5% level.

Compared to other types of acquirers, serial acquirers perform worse in the short term. By performing t-tests for the difference in the subsamples' CAARs, we find that serial acquirers have statistically significantly lower CAAR compared to occasional- and single acquirers on the 10% and 1% level in the (-1, +1) event window. Consequently, we conclude that serial acquirers, on average, underperform relative to other types of acquirers. Running regressions on CARs with both deal- and firm characteristics as explanatory variables provides the same inference. The inclusion of the control variables yields a statistically significantly negative CAR for serial acquirers of -1.72% relative to non-serial acquirers at the 5% level. The findings suggest that serial acquirers, on average, underperform other types of acquirers when controlling for deal- and firm characteristics.

Finally, excluding single acquirers, we control for bidder-fixed effects for non-single-, occasional-, and serial acquirers. Among the three subsamples, only serial acquirers achieve positive adjusted R-squared values and significant F-statistics with the inclusion of entity-fixed effects. Thus, implying that serial acquirers possess some unobserved time-invariant characteristics beyond other acquirers.

8. Future work

Rehm et al. (2012) discuss several explanations of why serial acquirers underperform compared to non-frequent acquirers in the short term. Measuring the value to shareholders that M&A create is an inaccurate science. Typical analyses, including this paper, compare share prices before and after an M&A transaction is announced, using short-term reactions to indicate the degree of M&A success. On one hand, the approach makes it possible to measure the expected value unaffected by other variables such as changes in leadership and subsequent acquisitions. On the other hand, when relying on market reactions to measure value creation, the results tend to be skewed towards larger deals, which have the heft to affect share prices, and underrepresent smaller ones. Additionally, it can underestimate the amount of value created by multi-deal strategies whose real worth develops over time.

To address the shortcomings, one must take a longer-term look at M&A value creation. Laamanen and Keil (2008) investigate the performance effects of an entire acquisition program. They examine excess market returns to acquirer shareholders over longer periods, using excess returns over the same-period market index over a three-year period. They find that, in the long run, frequent acquirers (median of 12.6% per year) outperformed the less frequent acquirers (median of -3.9% per year). In addition, the authors find that the longer-term 10 to 13-year performance of frequent acquirers is significantly higher than the performance of less frequent acquirers. Consultancy firms such as McKinsey, BCG, and Kearney have also examined the long-term performance of serial acquirers and their capabilities. They find evidence supporting the results from Laamanen and Keil (2008).

Several papers study the long-term performance of serial acquirers, yet no one to our knowledge studies the long-term performance of Norwegian serial acquirers. Thus, we suggest performing a long-term analysis on Norwegian acquirers and comparing the performance between different types of acquirers: serial-, occasional-, and single acquirers. This could potentially clarify whether Norwegian firms create higher value by frequently and systematically conducting M&A deals. Additionally, it would be interesting to get better insight into the risk and return characteristics of these Norwegian serial acquirers. Moreover, we suggest investigating whether other corporate events were announced during the event windows possibly affecting the bidder announcement returns from the short-term analysis.

9. Appendix

Exhibit A: Table 6.2 repeated with (0) event window

***, **, and * denote significance at the 1%, 5%, and 10% levels. Standard errors are based on White (1980) heteroskedasticity adjusted standard errors.

	Dependent variable:		
	CARs (0)		
	(1)	**(2)**	**(3)**
	All acquirers	**Serial acquirers**	**All acquirers**
Relatedness	0.0141	0.0076	0.0144
	t = 1.6015	t = 1.4763	t = 1.6339
Domestic	0.0179**	-0.0105**	0.0165**
	t = 2.3946	t = -1.9781	t = 2.2476
Public	-0.0094	-0.0427***	-0.0125
	t = -0.6078	t = -3.4378	t = -0.8064
Relative	0.0183	0.1083***	0.0154
	t = 1.6174	t = 4.1926	t = 1.4498
Market cap (Log)	0.0010	-0.0007	0.0011
	t = 0.4285	t = -0.4409	t = 0.4673
Return on assets	-0.0333	0.0977*	-0.0344
	t = -0.8773	t = 1.8538	t = -0.9029
Cash to assets	0.0078	0.0292	0.0107
	t = 0.3044	t = 1.2241	t = 0.4096
Serial			-0.0183***
			t = -2.7028
Constant	-0.0012	-0.0029	0.0052
	t = -0.0739	t = -0.2032	t = 0.3453
Observations	377	127	377
R^2	0.0351	0.1843	0.0477
Adjusted R^2	0.0168	0.1363	0.0270

Exhibit B: Table 6.2 repeated with (-3, +3) event window

***, **, and * denote significance at the 1%, 5%, and 10% levels. Standard errors are based on White (1980) heteroskedasticity adjusted standard errors.

	Dependent variable:		
	CARs (-3, +3)		
	(1) **All acquirers**	**(2)** **Serial acquirers**	**(3)** **All acquirers**
Relatedness	0.0195	0.0275**	0.0197
	t = 1.4879	t = 2.2111	t = 1.5016
Domestic	0.0055	-0.0146	0.0041
	t = 0.4797	t = -0.9466	t = 0.3561
Public	-0.0004	-0.0359	-0.0036
	t = -0.0169	t = -1.2295	t = -0.1696
Relative	0.0276**	0.1718***	0.0246**
	t = 2.2179	t = 2.7783	t = 2.1267
Market cap (Log)	-0.0005	0.0007	-0.0004
	t = -0.1374	t = 0.1621	t = -0.1087
Return on assets	-0.0673	-0.0072	-0.0685
	t = -1.1089	t = -0.0565	t = -1.1118
Cash to assets	0.0107	0.0054	0.0137
	t = 0.2755	t = 0.1089	t = 0.3487
Serial			-0.0188*
			t = -1.6676
Constant	0.0143	-0.0084	0.0209
	t = 0.5529	t = -0.2236	t = 0.8341
Observations	377	127	377
R^2	0.0253	0.0756	0.0313
Adjusted R^2	0.0068	0.0212	0.0103

Exhibit C: Table 6.2 repeated with winsorized CARs on the 5th and 95th percentile

***, **, and * denote significance at the 1%, 5%, and 10% levels. Standard errors are based on White (1980) heteroskedasticity adjusted standard errors.

	Dependent variable:		
	Winsorized CARs (-1, +1)		
	(1) **All acquirers**	**(2)** **Serial acquirers**	**(3)** **All acquirers**
Relatedness	0.0123**	0.0118	0.0123**
	t = 2.2476	t = 1.5814	t = 2.2592
Domestic	0.0063	-0.0128	0.0058
	t = 1.2579	t = -1.6131	t = 1.1665
Public	-0.0074	-0.0537***	-0.0085
	t = -0.8060	t = -3.3248	t = -0.9244
Relative	0.0121**	0.1690***	0.0111**
	t = 2.0932	t = 5.1088	t = 1.9987
Market cap (Log)	-0.0006	0.0010	-0.0005
	t = -0.4202	t = 0.3971	t = -0.3961
Return on assets	-0.0141	0.0852*	-0.0145
	t = -0.5394	t = 1.8620	t = -05540
Cash to assets	0.0100	0.0263	0.0110
	t = 0.6191	t = 0.8109	t = 0.6871
Serial			-0.0063
			t = -1.2528
Constant	0.0102	-0.0110	0.0125
	t = 0.9425	t = -0.5108	t = 1.1286
Observations	377	127	377
R^2	0.0359	0.1608	0.0395
Adjusted R^2	0.0176	0.1114	0.0187

Exhibit D: Table 6.2 repeated including the method of payment

***, **, and * denote significance at the 1%, 5%, and 10% levels. Standard errors are based on White (1980) heteroskedasticity adjusted standard errors.

	Dependent variable:		
	CARs (-1, +1)		
	(1) **All acquirers**	**(2)** **Serial acquirers**	**(3)** **All acquirers**
Relatedness	0.0106	0.0163	0.0105
	t = 0.9855	t = 1.2980	t = 0.9727
Domestic	0.0215*	-0.0098	0.0204*
	t = 1.7942	t = -0.7655	t = 1.7475
Public	-0.0053	-0.0822***	-0.0070
	t = -0.2171	t = -3.2979	t = -0.2905
Relative size	0.0113	0.2116***	0.0095
	t = 1.3943	t = 5.9970	t = 1.1890
Market cap (Log)	0.0008	0.0009	0.0009
	t = 0.2565	t = 0.2490	t = 0.2779
Return on assets	-0.0447	0.1072	-0.0412
	t = -0.7736	t = 0.7169	t = -0.7237
Cash to assets	0.0086	0.0307	0.0109
	t = 0.2987	t = 0.7068	t = 0.3829
Cash	-0.0501***	-0.0163	-0.0506***
	t = -3.0470	t = -1.1090	t = -3.0669
Mix	-0.0351**	-0.0126	-0.0353**
	t = -2.3033	t = -0.7503	t = -2.3163
Serial			-0.0123
			t = -1.5921
Constant	0.0373*	-0.0003	0.0418**
	t = 1.7869	t = -0.0089	t = 1.9692
Observations	231	79	231
R^2	0.0821	0.1955	0.0863
Adjusted R^2	0.0447	0.0905	0.0448

Exhibit E: Table 6.3 repeated with (0) event window

The F-statistics report the joint significance of the regression model. The R^2 and adjusted R^2 are reported. ***, **, and * denote significance at the 1%, 5%, and 10% levels. Standard errors are based on White (1980) heteroskedasticity adjusted standard errors.

	Dependent variable:			
	CARs (0)			
	(1) None	**(2) Year FE**	**(3) Deal char., year FE**	**(4) Acquirer and deal char., year FE**
Panel A: Non-single acquirer				
Bidder FE	Y	Y	Y	Y
Year FE	N	Y	Y	Y
Observations	299	299	299	299
R^2	0.279	0.331	0.343	0.367
Adjusted R^2	0.041	0.003	0.006	0.023
F-statistic	1.173	1.009	1.018	1.068
Panel B: Occasional acquirers				
Bidder FE	Y	Y	Y	Y
Year FE	N	Y	Y	Y
Observations	172	172	172	172
R^2	0.462	0.528	0.545	0.565
Adjusted R^2	0.140	0.039	0.039	0.034
F-statistic	1.437**	1.079	1.076	1.063
Panel C: Serial acquirers				
Bidder FE	Y	Y	Y	Y
Year FE	N	Y	Y	Y
Observations	127	127	127	127
R^2	0.263	0.333	0.392	0.458
Adjusted R^2	0.163	0.066	0.120	0.178
F-statistic	2.640***	1.248	1.440*	1.632**

Exhibit F: Table 6.3 repeated with (-3, +3) event window

The F-statistics report the joint significance of the regression model. The R^2 and adjusted R^2 are reported. ***, **, and * denote significance at the 1%, 5%, and 10% levels. Standard errors are based on White (1980) heteroskedasticity adjusted standard errors.

	Dependent variable:			
	CARs (-3, +3)			
	(1) None	**(2) Year FE**	**(3) Deal char., year FE**	**(4) Acquirer and deal char., year FE**
Panel A: Non-single acquirer				
Bidder FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Observations	299	299	299	299
R^2	0.234	0.331	0.338	0.359
Adjusted R^2	-0.018	0.003	-0.001	0.010
F-statistic	0.927	1.010	0.998	1.029
Panel B: Occasional acquirers				
Bidder FE	Y	Y	Y	Y
Year FE	N	Y	Y	Y
Observations	172	172	172	172
R^2	0.355	0.558	0.572	0.594
Adjusted R^2	-0.030	0.100	0.097	0.099
F-statistic	0.921	1.219	1.204	1.200
Panel C: Serial acquirers				
Bidder FE	Y	Y	Y	Y
Year FE	N	Y	Y	Y
Observations	127	127	127	127
R^2	0.304	0.398	0.430	0.453
Adjusted R^2	0.210	0.157	0.175	0.170
F-statistic	3.237^{***}	1.650^{**}	1.685^{**}	1.601^{**}

Exhibit G: Table 6.3 repeated with winsorized CARs on the 5th and 95th percentile

The F-statistics report the joint significance of the regression model. The R^2 and adjusted R^2 are reported. ***, **, and * denote significance at the 1%, 5%, and 10% levels. Standard errors are based on White (1980) heteroskedasticity adjusted standard errors.

	Dependent variable:			
	Winsorized CARs (-1, +1)			
	(1) None	**(2) Year FE**	**(3) Deal char., year FE**	**(4) Acquirer and deal char., year FE**
Panel A: Non-single acquirers				
Bidder FE	Y	Y	Y	Y
Year FE	N	Y	Y	Y
Observations	299	299	299	299
R2	0.290	0.386	0.393	0.426
Adjusted R2	0.056	0.085	0.082	0.114
F-statistic	1.238	1.283*	1.264*	1.367**
Panel B: Occasional acquirer				
Bidder FE	Y	Y	Y	Y
Year FE	N	Y	Y	Y
Observations	172	172	172	172
R2	0.372	0.516	0.528	0.567
Adjusted R2	-0.004	0.015	0.004	0.038
F-statistic	0.989	1.031	1.007	1.071
Panel C: Serial acquirers				
Bidder FE	Y	Y	Y	Y
Year FE	N	Y	Y	Y
Observations	127	127	127	127
R2	0.368	0.421	0.471	0.541
Adjusted R2	0.283	0.189	0.234	0.303
F-statistic	4.311***	1.816**	1.985***	2.276***

Exhibit H: Table 6.3 repeated including the method of payment

The F-statistics report the joint significance of the regression model. The R^2 and adjusted R^2 are reported. ***, **, and * denote significance at the 1%, 5%, and 10% levels. Standard errors are based on White (1980) heteroskedasticity adjusted standard errors.

	Dependent variable:			
	CARs (-1, +1)			
	(1) None	**(2) Year FE**	**(3) Deal char., year FE**	**(4) Acquirer and deal char., year FE**
Panel A: Non-single acquirers				
Bidder FE	Y	Y	Y	Y
Year FE	N	Y	Y	Y
Observations	174	174	174	174
R^2	0.276	0.392	0.413	0.445
Adjusted R^2	-0.119	-0.169	-0.167	-0.157
F-statistic	0.699	0.699	0.712	0.739
Panel B: Occasional acquirers				
Bidder FE	Y	Y	Y	Y
Year FE	N	Y	Y	Y
Observations	95	95	95	95
R^2	0.534	0.726	0.749	0.806
Adjusted R^2	-0.019	-0.119	-0.181	-0.142
F-statistic	0.966	0.859	0.806	0.850
Panel C: Serial acquirers				
Bidder FE	Y	Y	Y	Y
Year FE	N	Y	Y	Y
Observations	79	79	79	79
R^2	0.431	0.498	0.577	0.600
Adjusted R^2	0.296	0.111	0.194	0.157
F-statistic	3.182^{***}	1.286	1.509	1.354

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