Family Firms and M&A Performance: Evidence from Two Decades of Nordic Acquisitions

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Master's Thesis in Finance
Stockholm School of Economics
June 2025

Abstract

We examine if, when and why family ownership affects acquisition outcomes in the Nordic M&A landscape, using 983 transactions conducted by 351 listed acquirers across Sweden, Denmark, Norway, and Finland between 2004 and 2024. Our results show that family firms tend to underperform their non-family counterparts. We mainly attribute this underperformance to family firms' pursuit of objectives beyond maximizing net present value. Contrary to our expectations, there is no evidence of a non-linear relationship between ownership levels and value creation within family firms. Notably, family firms generate higher CARs in relatively larger acquisitions, which is consistent with their greater risk aversion. Our results also suggest that same-industry acquisitions are more value-creating for family firms, which we explain through the owner's concentrated wealth in the firm. Moreover, the negative impact of a discrepancy between voting and cash flow rights appears to be mitigated in family firms, likely due to reputational concerns. We find no evidence that stock-financed deals or the presence of a family CEO affect value creation. Our results are robust across alternative definitions of family firms and when accounting for illiquidity.

Keywords: Acquirer returns, Family firms, Mergers & Acquisitions

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Acknowledgments: We would like to express our sincere gratitude to our supervisor, Mark Sanctuary, for his invaluable guidance and support.

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1. Introduction

Acquisitions represent a critical decision for firms, often serving as a means to achieve growth, diversification, or a shift of strategic direction. Moreover, acquisitions stand as one of the most prominent and observable forms of corporate investment. At the same time, family-owned firms are among the most common ownership structures and are characterized by a set of unique features. For instance, these firms often have a long-term orientation and prioritize preserving family wealth for future generations (James, 1999). Moreover, prior research has documented that factors such as inherent risk aversion and the potential for wealth extraction may impair family firms' ability to create value through acquisitions (Caprio et al., 2011).

Despite family firms' significant role in the economy, they have received limited academic attention due to difficulties in obtaining reliable data (Villalonga & Amit, 2006). While some studies have examined the performance of family firms in general and there is extensive literature on acquisition performance more broadly, the intersection of these two areas remains relatively underexplored. Furthermore, in the Nordic markets, where family ownership is common (La Porta et al., 1999), the literature is even more limited, presenting a compelling opportunity to contribute new insights into how family ownership affects acquisition performance.

In view of the limited attention, this thesis investigates the performance of family-owned acquirers between 2004 and 2024 across the Nordic markets of Sweden, Norway, Denmark, and Finland. Firms are classified as family-owned if the largest shareholder is an individual or a family holding at least 25% of the voting rights.

The contributions to the literature are threefold. First, to the best of our knowledge, this is the first multi-country, two-decade study of acquisition performance in Nordic family firms. Second, we not only examine whether family firms create more or less value than their non-family counterparts, but also move beyond the classic binary classification by analyzing when family firms create value. We do so by explicitly investigating how deal and firm characteristics known to influence acquisition outcomes interact with family ownership. Third, we apply a robust methodological framework for event studies on smaller, less liquid stock exchanges by adjusting the cumulative abnormal return (CAR) for illiquidity in all regressions, thereby enhancing the reliability of our findings. Given the importance of family firms, particularly in the Nordic region, understanding if, when, and why they create or destroy value through acquisitions yields valuable insights. These insights can help inform investment

decisions, contribute to the refinement of governance models, and support the development of public policies related to ownership and control in family firms.

Our results show that family firms tend to underperform in acquisitions compared to non-family firms. We propose that this difference is primarily attributable to family firms pursuing alternative objectives, which may lead them to deviate from strictly maximizing net present value (NPV). No evidence of a non-linear relationship between ownership levels and value creation in acquisitions within family firms is observed. Thus, our results do not support the expected shift from entrenchment effects dominating at low levels of family ownership to alignment of interest becoming dominant at higher levels.

Furthermore, there is no evidence that having a family member serve as CEO affects acquisition outcomes. This finding suggests that the opposing effects of the owner–manager conflict (Agency Problem I) and private benefit extraction (Agency Problem II), as discussed by Villalonga and Amit (2006), along with talent pool limitations (Anderson & Reeb, 2003; Villalonga & Amit, 2006), may offset one another. Another possible explanation is that the heterogeneity among CEOs weakens the effects, leading to statistically insignificant results.

Notably, family firms create more value in larger acquisitions relative to their market capitalization. We explain this through family firms' greater reluctance to pursue larger acquisitions due to their heightened risk aversion. As a result, their conviction of success must be higher to engage in larger acquisitions. Similarly, our results suggest that same-industry acquisitions are more value-creating when the acquirer is a family firm. These results are consistent with the idea that the concentrated wealth of families leads them to pursue same-industry acquisitions only when the conviction of success is high.

Our results also indicate that the extent to which the wedge between voting rights and cash flow rights is used to extract private benefits depends on the type of ownership. A plausible explanation for these findings is the reputational concerns that family firms face. However, it should be noted that the statistical power of the link between ownership and wedge, as well as that of same-industry acquisitions, varies depending on the type of robustness check conducted. Lastly, we find no link between the method of payment and whether the firm is family-owned or not. One potential explanation is that other factors, such as capital structure constraints, have a more substantial influence on the choice of payment method, thereby weakening the relationship. Another possible explanation is that our sample's low number of stock-financed deals may limit statistical power and distort the relationship.

2. Literature Review

The literature is structured around five key themes that collectively form the theoretical foundation for our analysis. First, we explore the unique characteristics of family firms and the role of having a family member as CEO. This provides the theoretical basis for understanding how family firms may behave differently from non-family firms in acquisitions. Second, we review prior studies on family firms as acquirers. Although this literature is limited and not focused on the Nordic market, it provides the closest empirical precedent for our research. Third, we outline broader M&A literature, focusing on the transaction and firm characteristics that have been shown to influence acquisition performance. This clarifies which factors should be controlled for in our analysis and identifies where interactions with family ownership may occur. Fourth, we consider the literature on non-linear effects of family ownership to present a theoretical foundation for how varying levels of ownership may affect acquisition performance in family firms. Finally, we discuss the various family firm definitions employed in prior research, highlighting the importance of classification and providing support for our chosen definition.

2.1 Family Firm Characteristics

Shleifer and Vishny (1997) argue that family-owned firms face an elevated risk of wealth extraction through mechanisms such as excessive compensation, related-party transactions, and special dividends. However, James (1999) proposes that managers in family firms have longer investment horizons than those in non-family firms. As a result, the author argues that family firms dominate as a business form since the longer investment horizon leads to greater investment efficiency. Moreover, Anderson and Reeb (2003) note that family firm owners often have much of their wealth concentrated in the firm due to significant and undiversified ownership stakes. Caprio et al. (2011) further argue that this causes family firms to be more risk averse. Consequently, Caprio et al. (2011) suggest that family firms may forgo positive NPV opportunities if such investments are perceived to increase the overall risk.

Beyond the implications of wealth concentration, Anderson and Reeb (2003) highlight that a family's reputation is likely to have long-lasting economic implications and argue that these reputational concerns create incentives for the families to enhance firm performance. In addition to the explicit reputational concern facing family firms, Davis et al. (1997) propose that family members take a stewardship role and tend to identify strongly with the firm. Thus,

the authors propose that family members view the firm's performance as an extension of their well-being.

Adding to the discussion on family firm characteristics, Carney (2005) identifies key characteristics that can aid in understanding the particular decisions of family firms. He finds that family firms tend to use resources cautiously, driven by the fact that the decisions affect the family's wealth. Moreover, Carney (2005) finds that family owners may incorporate personal criteria in decision-making, leading to flexible decisions but with the drawback of reduced importance of objective assessments.

2.2 The Role of the Family CEO

Anderson and Reeb (2003) examine the link between family ownership and firm performance on the S&P 500 between 1992 and 1999. Their results indicate that family firms outperform non-family firms, with the effect driven by firms led by a family-member CEO. The authors propose that a possible explanation for these results is that family members may possess greater knowledge of the business and view themselves as stewards of the firm. However, they further highlight that a potential drawback of having family members in top management positions is that it can restrict the talent pool, which may result in not hiring the best managers.

Villalonga and Amit (2006) provide further insight into the effects of having a family member serve as CEO. They examine Fortune 500 companies between 1994 and 2000 and aim to explain what they describe as mixed results on the performance of family firms by focusing on the CEO. The authors distinguish between Agency Problem I and Agency Problem II, asking which of the problems is more detrimental to shareholder value. Villalonga and Amit (2006) explain Agency Problem I as the classic owner-management conflict, while Agency Problem II refers to using the controlling position to extract private benefits at the expense of smaller shareholders. They find that family management reduces or even eliminates Agency Problem I, which is positive for the performance. However, the authors highlight that this positive effect may be offset if hired professionals outside the family are better managers. Moreover, Villalonga and Amit (2006) find that family management increases the incentives to extract private benefits, which may cause Agency Problem II to outweigh the positive effects of mitigating Agency Problem I.

2.3 Family Firms as Acquirers

Caprio et al. (2011) find that family firms are less likely to acquire but find no evidence that they destroy value when they do acquire. Moreover, they highlight risk aversion, extraction of

private benefits, and diversification in the context of acquisitions. Their findings show that family firms may use M&A to extract private benefits or increase diversification even when it is suboptimal for the firm. They also suggest that family firms tend to be more cautious in their acquisition strategy than non-family firms due to their greater risk aversion. In addition, they discuss the reluctance of family firms to acquire if the family's ownership stake is too small to ensure continued control.

Basu et al. (2009) further support the view that family firms prioritize control, showing that this preference is reflected in their choice of payment method in acquisitions. Their results suggest that family firms with lower ownership levels are more likely to use cash to finance their acquisitions rather than diluting their ownership by paying with shares.

While Caprio et al. (2011) find no evidence of value destruction, Bauguess and Stegemoeller (2008) report that family firms tend to destroy value when engaging in acquisitions. Moreover, they find that this effect is stronger when families have greater resources available and their decisions are less visible.

The unique characteristics of family firms, along with the limited and mixed empirical evidence on their acquisition performance, underscore the need for further research into if, when, and why they differ from non-family firms as acquirers.

2.4 Transaction Characteristics

Focusing on the broader M&A literature, Chang (1998) examines acquisitions of privately held targets and finds that acquirers experience a positive abnormal return in stock offers while experiencing no abnormal return in cash offers. This finding is consistent with Fuller et al. (2002), who also report that acquirers earn positive abnormal returns when acquisitions are paid using stock. Contrary to these findings, Travlos (1987) finds that firms that finance acquisitions with equity experience lower announcement day returns than those using cash. He attributes this to the signaling hypothesis, which suggests that firms paying with equity view their stock as overvalued. Similarly, firms reluctant to finance acquisitions with equity believe that their stock is undervalued.

Eckbo and Thorburn (2000) study M&A transactions involving Canadian companies. They find that when domestic bidders acquire Canadian targets, bidders earn a positive and statistically significant abnormal return. However, when the acquiring firm is of US origin and the transaction becomes cross border, the abnormal return around the announcement is indistinguishable from zero. Similarly, Moeller and Schlingemann (2005) find that US firms

acquiring cross border targets earn a lower cumulative abnormal return (CAR) than those acquiring domestic targets.

In addition to cross-border acquisitions, Eckbo (1983) demonstrates that acquirers earn a positive abnormal return around M&A announcements when the acquirer and target operate in the same industry. Along similar lines, Morck et al. (1990) find that certain acquisition types, such as those motivated by diversification, systematically yield lower and predominantly negative abnormal returns for the acquirer.

In addition to diversification, the size of the transaction relative to the acquiring firm has been identified as an important determinant of acquisition outcomes. Moeller et al. (2004) report that smaller acquirers tend to achieve higher announcement day returns than their larger counterparts. Furthermore, they find that smaller firms tend to engage in larger acquisitions relative to their size, suggesting a positive relationship between the relative size of the acquisition and announcement day performance. Consistent with these findings, Asquith et al. (1983) observe the same relationship between the relative size of the deal and announcement day returns.

Besides relative size, the ownership status of the target has been shown to influence announcement day returns. Fuller et al. (2002) examine firms engaged in frequent acquisitions and find that bidders gain when acquiring private firms, whereas acquisitions of public firms tend to result in losses. They propose that this disparity may occur due to a liquidity discount, which allows bidders to acquire private firms at relatively more favorable prices due to their inherently lower liquidity. Furthermore, Chang (1998) introduces the limited competition hypothesis, suggesting that if competition for private firms is limited, the benefits to the acquirer should be greater.

2.5 Firm Characteristics

Harford (1999) finds that acquisitions from "cash-rich" firms are value-destroying. These results support the free cash flow hypothesis from Jensen (1986), arguing that the agency conflict between owners and managers is greater when excess free cash flow is available. Such conflicts reduce managers' incentives to distribute surplus capital to shareholders, leading them to invest the excess cash in non-shareholder value-maximizing projects. However, Opler et al. (1999) observe that firms accumulate excess cash beyond what is predicted, often as a strategic reserve to sustain investments during periods of low cash flow. Moreover, they find limited support for the idea that excess cash substantially increases acquisition activity. These results therefore contradict the predictions of Jensen's (1986) free cash flow hypothesis.

Tangent to Jensen's (1986) free cash flow hypothesis, leverage is frequently incorporated into multivariate regressions of announcement returns (see Bauguess & Stegemoeller, 2008; Uysal, 2011; Villalonga & Amit, 2006). For instance, Uysal (2011) examines the link between capital structure and acquisition choices, finding that leverage influences both the ability to engage in acquisitions and the quality of those acquisitions. Specifically, firms with leverage above that of the target capital structure, so-called "overleveraged" firms, pursue fewer acquisitions. However, when overleveraged firms engage in acquisitions, they tend to be the most value-enhancing ones. For underleveraged firms, Uysal (2011) finds the opposite to be true.

Alongside leverage, Tobin's Q has been shown to be significant in explaining abnormal returns. However, empirical results on the relationship between Tobin's Q and abnormal returns are mixed. Lang et al. (1991) identify a positive relationship between Tobin's Q and abnormal returns in acquisitions of listed companies and in tender offer acquisitions. These findings suggest that firms with higher Q-values perform better when acquiring publicly traded targets. In contrast, Moeller et al. (2004) and Masulis et al. (2007) report an inverse relationship.

Lastly, Caprio et al. (2011) argue that a greater discrepancy between cash flow rights and voting rights, referred to as a wedge, can incentivize the largest shareholder to extract private benefits. They highlight that such benefits can arise in acquisitions and often come at the cost of minority shareholders. Similarly, but outside the M&A context, Claessens et al. (2002) examine the same phenomenon across eight East Asian economies and find that firm value falls when the control rights of the largest shareholder exceed the cash flow rights.

2.6 Non-linear Dynamics of Family Ownership

Anderson and Reeb (2003) examine how varying ownership levels of family firms affect operating performance through return on assets (ROA) and Tobin's Q. The authors find a non-linear relationship between family firm performance and ownership levels, with performance initially increasing before declining. Specifically, the optimal ownership level for performance is identified at around 30%, after which performance deteriorates.

Moreover, Basu et al. (2009) find that acquirers with low family ownership earn lower abnormal returns in acquisitions than those with high ownership levels. The paper discusses two opposing effects of family ownership. On the one hand, higher family ownership improves the alignment of interest between the family and the minority shareholders. On the other hand, increased family ownership can lead to entrenchment, allowing the family to pursue value-

destroying policies without fearing shareholder activism. Based on their empirical results, Basu et al. (2009) suggest that the entrenchment effect dominates at low levels of family ownership, whereas the alignment-of-interest effect dominates at higher levels.

2.7 Defining Family Firms

The definition of a family firm is not homogeneous, and various definitions have been used in the literature. Anderson and Reeb (2003), Caprio et al. (2011), and Miller et al. (2007), among others, have highlighted the lack of a homogeneous definition. Moreover, Miller et al. (2007) suggest that empirical findings may be sensitive to how family firms are defined.

2.7.1 Ownership and Voting Thresholds

Several studies propose different thresholds based on either the ownership of outstanding shares or voting rights. Claessens et al. (2002) employ an effective control definition, setting the threshold at 10% voting rights. Similarly, Caprio et al. (2011) also use a 10% threshold. However, Claessens et al. (2002) discuss how other authors often apply different thresholds, typically 20% or 25%. They argue that variations in the threshold are of limited importance as the number of family firms in their dataset does not change substantially with a higher threshold. Nonetheless, they implement different thresholds as part of a robustness check.

Other studies use higher thresholds. La Porta et al. (1999) define a controlling shareholder as an individual or family that, directly or indirectly, holds voting rights exceeding 20%, arguing that this level of ownership typically confers effective control over a firm. Barth et al. (2005) employ a higher threshold and define family firms as those where an individual or a family owns at least 33% of shares. Faccio and Lang (2002) follow a similar approach to La Porta et al. (1999), first defining ultimate ownership and then family ownership, applying thresholds of both 5% and 20%.

2.7.2 Criteria Beyond Ownership and Voting Thresholds

While ownership and voting thresholds are common, some studies incorporate additional criteria beyond these. Often, such studies tend to have a lower threshold combined with additional criteria. Villalonga and Amit (2006) define family firms in accordance with Anderson and Reeb (2003), specifying that the founder or a family member is an officer, director, or blockholder. They further extend their definition by requiring this individual to hold at least 20% of the votes and be the largest shareholder or vote holder. Similarly, Miller et al. (2007) define a family firm as one in which multiple family members either serve as

officers or directors or hold at least 5% of the equity. Along similar lines, Basu et al. (2009) define family firms as those in which the founder or their descendants hold at least 5% of the outstanding shares or are actively involved in management.

In addition to the definitions proposed in academic literature, the European Commission (2009) defines family firms as those in which 25% or more of the voting rights are held by the founder, the acquirer, their family members, or descendants. The definition was developed through an expert group study incorporating the national guidelines of the 27 EU member states at the time and other EEA and candidate countries from 2007 to 2009.

3. Hypotheses and Empirical Design

3.1 Hypotheses

Given the unique characteristics of family firms and the limited and mixed empirical findings on whether they outperform or underperform their non-family counterparts in acquisitions, we test the following hypothesis:

H_1: Family firms generate cumulative abnormal returns that are different from those of non-family firms.

The literature is also divided on whether having a family member as CEO positively or negatively affects acquisition outcomes. Therefore, the following hypothesis is tested:

H_2: Among family firms, those led by a family CEO exhibit different cumulative abnormal returns than those led by a non-family CEO.

Additionally, to better understand when family firms create or destroy value, we examine how their unique characteristics interact with a set of factors shown to affect CAR in the broader M&A literature. Formally, our hypotheses take the following form:

H_3: The positive relationship between relative size and cumulative abnormal returns is stronger for family firms than for non-family firms.

H_4: The cumulative abnormal returns are greater for family firms than for non-family firms when acquiring within the same industry.

H_5: The negative effect of a wedge between voting rights and cash flow rights is smaller for family firms than for non-family firms.

H_6: The cumulative abnormal returns for family firms in stock-financed acquisitions are higher than for non-family firms.

We also expect a non-linear relationship between family ownership and CAR, with lower CARs at low levels of ownership and higher CARs at high levels of ownership. This aligns

with the view that entrenchment effects outweigh the alignment of interests at lower family ownership levels, whereas the reverse holds at higher ownership levels. Accordingly, we formulate the following hypothesis:

H_7: The relationship between family ownership and cumulative abnormal return is convex, with cumulative abnormal returns increasing at higher levels of ownership.

3.2 Empirical Design

We specify the following main model to test H_1 to H_6:

$$\begin{aligned} CAR_{\mathrm{i}} = {} & \beta_1 FAMILY_{\mathrm{i}} + \beta_2 FAMILYCEO_{\mathrm{i}} \\ & + \beta_3(FAMILY_{\mathrm{i}} \times RELATIVE\ SIZE_{\mathrm{i}}) \\ & + \beta_4(FAMILY_{\mathrm{i}} \times WEDGE_{\mathrm{i}}) \\ & + \beta_5(FAMILY_{\mathrm{i}} \times SAME\ INDUSTRY_{\mathrm{i}}) \\ & + \beta_6(FAMILY_{\mathrm{i}} \times STOCK\ DEAL_{\mathrm{i}}) + \gamma' X_{\mathrm{i}} + \varepsilon_{\mathrm{i}} \end{aligned} \quad (1)$$

Where β_i represents the coefficient for each respective variable of interest, X_i denotes a vector of the control variables, as defined in Table 1, γ' is the corresponding row vector of coefficients, and ε_{i} is the error term capturing variation in CAR_{i} not explained by the independent variables.

Moreover, we specify the following model to capture potential non-linear relationships between family ownership and CAR, as hypothesized in H_7:

$$\begin{aligned} CAR_i = {} & \beta_1 FAMILY\ OWNERSHIP_i + \beta_2 FAMILY\ OWNERSHIP_i^2 \\ & + \beta_3 FAMILY\ CEO + \gamma' X_i + \varepsilon_i \end{aligned} \quad (2)$$

Where β_i represents the coefficient for each respective variable of interest, X_i denotes a vector of the control variables, as defined in Table 1, γ' is the corresponding row vector of coefficients, and ε_{i} is the error term capturing variation in CAR_{i} not explained by the independent variables.

3.3 Standalone Variables of Interest

Based on the mixed evidence in the literature, we expect that family firms will generate CARs that are different from those of non-family firms, without a precise prediction about the direction of FAMILY.

We also include the variable FAMILY CEO, which enables us to examine whether having a family member as the CEO influences the acquisition performance. Similar to the

mixed empirical evidence and competing theoretical arguments regarding the overall acquisition performance of family firms relative to non-family firms, the literature is mixed regarding the impact of having a family member as the CEO. Therefore, we anticipate a difference in the CAR among family firms, depending on whether the CEO is a family member. However, given the mixed findings in prior literature, we do not explicitly predict the sign of the relationship.

In addition to the dummy variables FAMILY and FAMILY CEO, we examine whether a non-linear relationship exists within family firms between ownership levels and CAR using the continuous variable FAMILY OWNERSHIP and its squared term in model (2). In line with Basu et al. (2009), we expect FAMILY OWNERSHIP to be negative, while the squared term is expected to be positive. This is consistent with the view that entrenchment effects dominate the alignment of interest at lower family ownership levels, whereas the reverse holds at higher ownership levels. Although Anderson and Reeb (2003) do not document this effect, the results from Basu et al. (2009) are more applicable in our context, as they focus on M&A outcomes.

3.4 Control Variables

As seen in models (1) and (2), X_i denotes the included control variables. We incorporate PUBLIC TARGET based on the findings of Chang (1998) and Fuller et al. (2002). Additionally, following the empirical evidence provided by Asquith et al. (1983) and Moeller et al. (2004), we include RELATIVE SIZE. To ensure that the variable is not influenced by information leakage related to the acquisition, we define RELATIVE SIZE as the transaction value divided by the acquirer's market capitalization at the end of the estimation window. Given the systematically lower returns associated with cross-industry acquisitions documented by Eckbo (1983) and Morck et al. (1990), we include the variable SAME INDUSTRY. The industry classification is provided by S&P Capital IQ, which uses the Global Industry Classification Standard (GICS). This classification is used consistently throughout our analysis.

To capture the potential agency problems related to excess cash demonstrated by Opler et al. (1999), Harford (1999) and Jensen (1986), we construct the variable LIQUID ASSETS. Following the approach of Opler et al. (1999), this variable is defined as the cash and cash equivalents divided by the total assets minus the cash and cash equivalents. In line with Harford (1999) and guided by the findings from Uysal (2011), we include LEVERAGE. This variable is calculated following Harford (1999) as the ratio of the book value of debt to the sum of the book value of debt and the market value of equity. Furthermore, empirical evidence from

Moeller and Schlingemann (2005) and Eckbo and Thorburn (2000) supports the inclusion of CROSS BORDER in our model. This variable is defined using the country designation assigned by S&P Capital IQ, which is determined by the location of the firm's headquarters.

To account for the impact of payment methods documented by Chang (1998), Fuller et al. (2002), and Travlos (1987), CASH DEAL and STOCK DEAL are added to our model. Adopting the approach of Travlos (1987), the reference category in our analysis is a mixed payment method composed of cash and stock.

We further choose to control for TOBINS Q based on the findings from Lang et al. (1991), Moeller et al. (2004) and Masulis et al. (2007). Following the definition provided by Masulis et al. (2007), TOBIN'S Q is computed as the ratio of the market value of assets to the book value of assets, where the market value of assets is defined as the sum of the book value of debt and the market value of equity. To maintain consistency across variables, the market value of equity is determined at the end of the estimation window. Moreover, we include the variable WEDGE to capture the effect documented by Caprio et al. (2011) and Claessens et al. (2002). This variable is calculated based on the approach of Caprio et al. (2011) as the difference between the voting rights and the cash flow rights held by the largest owner.

3.5 Interaction Variables of Interest

As previously noted, family firms possess a set of unique characteristics. We hypothesize that these unique attributes will influence the effect of specific transaction and firm factors on acquisition outcomes. To examine this, we include interaction terms between FAMILY and the variables RELATIVE SIZE, SAME INDUSTRY, WEDGE and STOCK DEAL. Below, we outline the theoretical foundation underlying these interaction effects.

First, Anderson and Reeb (2003) and Caprio et al. (2011) discuss how family firms exhibit a heightened risk aversion compared to their non-family-owned peers. They primarily attribute this phenomenon to the concentration of family wealth within the firm. Relatively larger acquisitions arguably entail a greater risk, as the outcome of such transactions will have a greater impact on the firm. While the failure of a smaller acquisition may have a limited impact, an unsuccessful large-scale acquisition can significantly affect the firm's future trajectory, potentially harming long-term success and the family's future wealth.

Based on the aforementioned reasoning, we hypothesize that family firms will be less inclined to pursue larger acquisitions compared to non-family firms. Hence, when family firms engage in larger acquisitions, they must be highly convinced that the acquisition will be successful and value-creating. Otherwise, they would not assume the increased risk associated

with a larger transaction. This reasoning aligns with the findings of Carney (2005), who suggests that family firms tend to utilize resources more cautiously than non-family firms, as their decisions directly affect the family's wealth. Consequently, family firms should approach larger acquisitions with greater conviction. Therefore, we hypothesize that the interaction between FAMILY and RELATIVE SIZE will be positive. Put differently, larger acquisitions relative to the firm's market capitalization are expected to generate greater value creation for family firms than non-family firms.

Second, building on the idea that families have their wealth concentrated in the firm, we focus on acquisitions within the same industry. This concentration incentivizes family firms to pursue acquisitions, promoting diversification while avoiding transactions that would further increase the family's concentration. Similar to the reasoning for relative size, we propose that for family firms to pursue an acquisition that enhances their concentration and thus their risk, they must be particularly confident in the transaction's potential for success and value creation. Hence, we hypothesize that the coefficient for the interaction between FAMILY and SAME INDUSTRY will be positive. In other words, acquisitions within the same industry should generate greater value for family firms than non-family firms.

Third, we hypothesize that the wedge between voting and cash flow rights has different implications in the M&A context depending on whether the firm is family-owned. A wedge is typically considered an opportunity for the majority shareholder to extract private benefits at the expense of the minority shareholders. We expect that even when the opportunity to extract private benefits exists, family firms will likely be less incentivized to do so. This is due to the reputational concerns highlighted by Anderson and Reeb (2003).

Our view is that the long-term nature of family firm involvement can explain the prioritization of reputation. Unlike outside investors, families can have multi-generational ties to a firm and are thus likely to be concerned with sustaining the firm's legacy and ensuring the future longevity of the firm. Damaging the reputation by extracting private benefits could jeopardize the firm's future and thus the access to future cash flows. Consequently, maintaining good standing and reputation ensures benefits that have a greater chance of remaining over the long term, and should reasonably be more important than short-term benefits extraction. The argument that family firms are less prone to wealth extraction is further supported by Davis et al. (1997), who proposed that family members often adopt a stewardship role, identifying closely with the firm and linking the firm's performance to their well-being. Based on the above, we hypothesize that the negative effect of a wedge should be smaller for family firms

than for non-family firms. Accordingly, the interaction between FAMILY and WEDGE should be positive.

Lastly, switching focus to the relationship between ownership and method of payment, we anticipate that family firms' desire to retain control influences the method of payment. Caprio et al. (2011) demonstrate that family firms are less likely to pursue acquisitions when such transactions may result in a partial loss of control. These results are consistent with those of Basu et al. (2009), who find that firms with lower levels of family ownership are more prone to use cash to finance acquisitions to avoid dilution of control. Building on this reasoning, we hypothesize that the reluctance to dilute control is connected to the method of payment, particularly to stock deals. Given the reluctance to give up control, we anticipate that a family firm that opts to pay with stock must be particularly confident in the acquisition's prospective success and value creation. Hence, the interaction between FAMILY and STOCK DEAL should be positive.

Table 1 Overview of Standalone Variables

Variable	Expected Sign	Definition
Dependent Variable		
CAR		Cumulative abnormal return calculated over a [-1, 1] event window
Variables of Interest		
FAMILY	+ / -	Dummy variable that equals 1 if the acquirer is classified as a family firm, defined as an individual or a family being the largest owner with at least 25% of the voting rights.
FAMILY OWNERSHIP	+ / -	Voting rights if the acquirer is classified as a family firm, defined as an individual or family being the largest owner with at least 25% of the voting rights.
FAMILY CEO	+ / -	Dummy variable, defined only for family firms, that equals 1 if the CEO of the acquirer is a member of the owning family.
Control Variables		
PUBLIC TARGET	-	Dummy variable that equals 1 if the target is public.
RELATIVE SIZE	+	Transaction value divided by the acquirer's market value of equity at the end of the estimation window.
SAME INDUSTRY	+	Dummy variable that equals 1 if the acquirer and target operate in the same industry.
LIQUID ASSETS	-	Cash and cash equivalents divided by the book value of assets minus cash and cash equivalents.
LEVERAGE	+	Book value of debt divided by the sum of book value of debt and market value of equity at the end of the estimation window.
CROSS BORDER	-	Dummy variable that equals 1 if the acquirer and target are located in different countries.
CASH DEAL	+ / -	Dummy variable that equals 1 if the transaction is paid using cash only.
STOCK DEAL	+ / -	Dummy variable that equals 1 if the transaction is paid using stock only.
TOBINS Q	+ / -	Market value of assets divided by the book value of assets at the end of the estimation window.
WEDGE	-	Difference between voting rights and cash flow rights.

This table defines all individual variables used in the regression models throughout the thesis. The table is divided into variables of interest, which explain family firm performance, and control variables, which account for other factors that may influence acquisition outcomes. FAMILY and FAMILY OWNERSHIP are not included in the same regression models. As part of the robustness analysis, we re-estimate the regressions using alternative voting thresholds for the FAMILY variable instead of the baseline 25% threshold. We also recalculate CAR using an alternative event window of [-2, 2] rather than the baseline [-1, 1]. The expected sign (+/-) for FAMILY OWNERSHIP reflects the anticipated non-linear relationship, with a negative sign for the linear term and a positive sign for the quadratic term. SAME INDUSTRY is based on the Global Industry Classification Standard (GICS), accessed through S&P Capital IQ. CROSS BORDER is defined using the country designation assigned by S&P Capital IQ, which is based on the location of the firm's headquarters.

Table 2 Overview of Interaction Variables

Interaction Variables	Expected Sign	Rationale for Inclusion
FAMILY x RELATIVE SIZE	+	Family firms' heightened risk aversion makes them reluctant to engage in relatively large acquisitions. When they do undertake such acquisitions, they must be highly confident that it will pay off. Hence, we expect the positive effect of relative deal size on CAR to be stronger for family firms.
FAMILY x WEDGE	+	A wedge between voting and cash-flow rights enables the extraction of private benefits. However, family firms are mindful of their reputation and thus less likely to extract such benefits. Therefore, we anticipate that the negative impact of the wedge on CAR will be mitigated when the acquirer is a family firm.
FAMILY x SAME INDUSTRY	+	Same-industry acquisitions increase the family's already concentrated wealth. As a result, pursuing such a deal requires high conviction and is theorized to positively affect CAR.
FAMILY x STOCK DEAL	+	Stock financing dilutes control, which families typically seek to avoid. Due to their reluctance to give up voting power, family firms are likely to issue equity only when they have strong confidence in the deal's value creation. Consequently, the negative effect of stock financing on CAR should be less pronounced for family firms.

This table presents all interaction variables used in the regression analysis and explains the rationale behind their inclusion. Given their dependence on FAMILY, these variables are only included in model (1). FAMILY is a dummy variable that equals 1 if the acquirer is classified as a family firm, defined as an individual or a family being the largest owner with at least 25% of the voting rights. As part of the robustness analysis, we re-estimate the regressions and interactions using alternative voting thresholds for the FAMILY variable instead of the baseline 25% threshold.

4. Data

4.1 Collection of Data

As highlighted by Villalonga and Amit (2006), studies on family ownership require reliable data that is often difficult to obtain. Moreover, the data needed to define and track family firms often requires extensive manual collection, making empirical research increasingly challenging and time-consuming. The inherent difficulty in researching family firms may partly account for the limited empirical research on the topic. For our analysis, we manually collected CEO and ownership-related data from the Holdings database. In instances where Holdings did not provide comprehensive information regarding a company's ownership or ultimate parent, the dataset was supplemented with information from Valu8 and company filings. To mitigate the risk of errors associated with manual data collection, all ownership data was verified against Holdings twice. Acquisition and stock price data, as well as the necessary data for the variables included in our regressions, have been collected from S&P Capital IQ.

For the screening of acquisitions, the following criteria have been applied:

1. The acquirer must be publicly listed on a Swedish, Norwegian, Finnish, or Danish stock exchange.
2. The transaction must have been announced between January 2004 and December 2024 and subsequently closed.
3. Acquirer and target firms operating in the real estate, financials, or utilities sectors are excluded.
4. A majority ownership stake in the target must have been acquired.
5. Certain special transactions, such as those involving special purpose acquisition vehicles (SPACs), are excluded.
6. Only transactions with a transaction value exceeding USD 1m are included.

The applied criteria are consistent with existing praxis and literature. We restrict the sample to transactions involving publicly listed acquirers to ensure sufficient data and compatibility with the standard practice of using CAR to measure value creation. Excluding companies in the real estate, financial, and utility sectors is justified by the fact that these industries operate under distinct accounting practices and regulatory frameworks compared to other sectors. Exclusion of specific industries is a common practice in academia, as seen by Fuller et al. (2002) and Caprio et al. (2011), amongst others. Moreover, Fuller et al. (2002) implement a minimum

transaction value of USD 1m and require a majority stake acquisition. Excluding special transactions is consistent with Alexandridis et al. (2013). For a list of the specific special transaction types excluded in our screen, we refer to Appendix Table A1. This initial screening yields 2379 transactions carried out by 610 acquirers. 622 of these transactions lack complete and accessible ownership data, resulting in a sample of 1757 transactions conducted by 567 acquirers. Of these transactions, 700 (39.8%) were undertaken by family firms and 1057 (60.2%) by non-family firms.

In addition to the initial screening, it is important to ensure that no other major event occurs within the given event window to avoid distortion of the results, a point emphasized by Chang (1998). Consistent with this approach, all transactions in which more than one acquisition occurs within a [-2, 2] event window are excluded from our dataset. A similar exclusion of transactions involving more than one acquisition within the event window is employed by Fuller et al. (2002). Moreover, all transactions in which a financial report was released within a [-2, 2] event window are excluded. These exclusions are made to ensure the validity of the result and minimize the impact of events that are not directly related to the transaction. This results in a sample of 1511 transactions conducted by 509 acquirers, of which 625 (41.4%) were conducted by family firms and 886 (58.6%) by non-family firms. Lastly, due to missing data in the regression variables, the final sample is reduced to 983 transactions conducted by 351 acquirers, of which 391 (39.8%) are conducted by family firms and 592 (60.2%) by non-family firms.

4.2 Descriptive Statistics and Sample Composition

Table 3 reveals that 45 of the family firms have a family member serving as the CEO. Moreover, acquisitions within the same industry are common for both family and non-family firms, although slightly more frequent for non-family firms. As expected, it is less common for family firms to engage in stock-financed acquisitions than non-family firms, further supporting our hypothesis that family firms are more reluctant to stock deals. Table 3 also shows that very few transactions involve public targets, only 2 for family firms and 5 for non-family firms. Since our sample is mainly composed of acquisitions involving private targets, the findings may not be fully generalizable to transactions involving public targets. Lastly, Table 3 reveals that non-family firms are somewhat more likely to engage in cross-border acquisitions than family firms.

Table 3 Descriptive Statistics of Dummy Variables

	Family Count		Non-Family Count	
Variable of Interest	Yes	No	Yes	No
FAMILY CEO	45	346	-	-
Control Variables				
SAME INDUSTRY	292	99	454	138
STOCK DEAL	12	379	55	537
PUBLIC TARGET	2	389	5	587
CASH DEAL	324	67	373	219
CROSS BORDER	96	295	198	394

This table summarizes the distribution of 0 and 1 outcomes for each individual dummy variable used in the regression models, split between family and non-family firms. Out of the 983 transactions in our sample, 391 (39.8%) are carried out by family firms and 592 (60.2%) by non-family firms. Firms are classified as family or non-family based on whether the largest shareholder is an individual or a family holding at least 25% of the voting rights. Variables are categorized as either variables of interest, which explain family firm performance, or control variables, which account for other factors that may influence acquisition outcomes. FAMILY CEO is only defined for family firms. Therefore, no corresponding count is reported for non-family firms.

Table 4 shows that, in our sample, the average and median family ownership are around 41.0% and 37.8%, respectively. Moreover, it shows that the average and median relative deal sizes are smaller for family firms than non-family firms, supporting the hypothesis that family firms are more conservative in their acquisition strategies due to greater risk aversion. Additionally, the wedge between voting rights and cash flow rights is, on average, larger for family firms than non-family firms. Moreover, family firms exhibit slightly lower leverage but also hold fewer liquid assets. Both the average and median Tobin's Q are higher for non-family firms, highlighting that their assets are valued higher by the market in relation to their book value. With the exception of the wedge, non-family firms display larger interquartile ranges between the first and third quartiles across all variables.

Table 4 Descriptive Statistics of Continuous Variables

	Average		Median		Q1		Q3	
Variable of Interest	Family	Non-Family	Family	Non-Family	Family	Non-Family	Family	Non-Family
FAMILY OWNERSHIP	40.95%	-	37.84%	-	29.56%	-	49.86%	-
Control Variables								
RELATIVE SIZE	11.43%	25.09%	3.23%	4.71%	0.90%	1.33%	11.83%	17.08%
WEDGE	11.78%	2.16%	9.75%	0.00%	0.00%	0.00%	20.63%	0.00%
LEVERAGE	17.59%	14.38%	14.46%	9.63%	7.23%	2.32%	24.71%	21.10%
TOBIN'S Q	2.29	2.51	1.54	1.63	1.13	1.07	2.44	2.81
LIQUID ASSETS	19.42%	24.36%	8.65%	9.89%	3.84%	4.82%	15.03%	24.37%

This table presents descriptive statistics for all individual continuous variables used in the regression models. Variables are categorized as either variables of interest, which explain family firm performance, or control variables, which account for other factors that may influence acquisition outcomes. Firms are classified as family or non-family based on whether the largest shareholder is an individual or a family holding at least 25% of the voting rights. The variable FAMILY OWNERSHIP is only defined for family firms. Therefore, no corresponding values are reported for non-family firms. Q1 and Q3 denote the first and third quartiles, respectively.

Table 5 presents a country-level breakdown of family and non-family firm transactions, based on the location of the firm's headquarters. Sweden accounts for most transactions, while Denmark, Finland, and Norway exhibit a more balanced distribution. One contributing factor to Sweden's overrepresentation is a limitation in the Holdings database, which offers more comprehensive coverage of Swedish firms than those from the other countries in the earlier years of the sample. Furthermore, non-family transactions dominate in all countries, although Sweden's distribution is relatively more balanced.

Table 5 Country-Level Distribution of Transactions

	Count		Share of Country Deals		Share of Total Sample	
Country	Family	Non-Family	Family	Non-Family	Family	Non-Family
Denmark	29	59	33%	67%	3%	6%
Finland	31	59	34%	66%	3%	6%
Norway	11	51	18%	82%	1%	5%
Sweden	320	423	43%	57%	33%	43%

This table presents the number of transactions in the family and non-family groups for each country. It also reports each group's share of country-specific transactions and of the total sample. Firms are classified as family or non-family based on whether the largest shareholder is an individual or a family holding at least 25% of the voting rights.

Table 6 presents the distribution of transactions across the different industries of our sample. Industrials is the industry that most commonly occurs for both family firms and overall transactions, whereas information technology is the most common industry for non-family firms.

Table 6 Industry-Level Distribution of Transactions

	Number of Observations		**Share of Industry Deals**		**Share of Total Sample**	
Industry	Family	Non-Family	Family	Non-Family	Family	Non-Family
Industrials	173	145	54%	46%	18%	15%
Information Technology	52	168	24%	76%	5%	17%
Healthcare	52	94	36%	64%	5%	10%
Communication Services	32	61	34%	66%	3%	6%
Consumer Discretionary	30	63	32%	68%	3%	6%
Materials	21	32	40%	60%	2%	3%
Consumer Staples	31	29	52%	48%	3%	3%

This table presents the number of transactions in the family and non-family groups for each industry. It also reports each group's share of industry-specific transactions and of the total sample. Firms are classified as family or non-family based on whether the largest shareholder is an individual or a family holding at least 25% of the voting rights.

5. Methodology

5.1 Event Study

We measure value creation using cumulative abnormal returns (CARs), calculated following the event study approach described by Brown and Warner (1985). MacKinlay (1997) discusses the usefulness of event studies in measuring the value impact of a specific event on a firm. The usefulness lies in the assumption that, given rationality, the effects of an event will be immediately reflected in the stock price. Additionally, Bruner (2002) examines the various measurements of M&A profitability used in prior literature and concludes that the event study methodology has dominated the field since the 1970s, further validating our choice of methodology.

The estimation of normal returns is conducted using the market model described by Brown and Warner (1985) and MacKinlay (1997). The formal equation for the market model is:

$$R_{i,t} = \alpha_i + \beta_i \cdot R_{m,t} + \varepsilon_{i,t} \tag{3}$$

Where α_i represents the intercept term capturing the firm-specific expected return component not explained by market movements for firm i, β_i captures the sensitivity of firm i's returns to market returns, $R_{m,t}$ is the market return at time t, and $\varepsilon_{i,t}$ is the error term, capturing firm-specific shocks at time t.

Subsequently, abnormal returns are calculated as:

$$AR_{i,t} = R_{i,t} - \left(\widehat{\alpha_i} + \widehat{\beta_i} \cdot R_{m,t}\right) \tag{4}$$

Where $R_{i,t}$ is the actual return for firm i at time t, $\widehat{\alpha_i}$ and $\widehat{\beta_i}$ are the estimated intercept and market beta for firm i, and $R_{m,t}$ is the market return at time t.

CARs over the event window $[\tau_1, \tau_2]$ are thereafter computed as:

$$CAR_{i,[\tau_1,\tau_2]} = \sum_{t=\tau_1,}^{\tau_2} AR_{i,t} \tag{5}$$

Where $\sum_{t=\tau_1,}^{\tau_2} AR_{i,t}$ is the sum of abnormal returns for firm i over the event window from time τ_1 to τ_2.

Consistent with Moeller et al. (2004) and Bauguess and Stegemoeller (2008), among others, we choose a [-1, 1] event window. Nevertheless, for increased robustness, we re-estimate the results using an event window of [-2, 2], the main event window employed by Masulis et al.

(2007). Furthermore, in accordance with Chang (1998) and Masulis et al. (2007), we use an estimation window of [-210, -11].

5.2 Market Benchmark Selection

Asset pricing theory generally supports using the world market as the appropriate benchmark for asset pricing analyses. However, academic practice often deviates from this perspective by employing country-specific indices. For instance, Caprio et al. (2011) use country-specific benchmarks. Furthermore, Griffin (2002) observes that domestic factor models perform better than a world factor model in explaining time series variations of stock prices. Based on the above, we employ different indices depending on the country where the acquirer is listed. Specifically, we use the SIX Return Index (SIXRX), Oslo Stock Exchange All Share Index (OSEAX), Helsinki All Share Index (OMXHPI), and the OMX Copenhagen Cap GI Index (OMXCCAPGI) as benchmarks for Swedish, Norwegian, Finnish, and Danish stocks, respectively. All of the aforementioned are total return indices. In addition to total return indices, we use dividend-adjusted stock prices. Using dividend-adjusted stock prices and total return indices ensures that differences in dividend payout policies do not distort abnormal return calculations.

5.3 Multivariate Regression Analysis

Extending the analysis beyond an event study to a multivariate regression analysis is a well-established approach in the literature and has been done by Basu et al. (2009), Moeller and Schlingemann (2005), and Masulis et al. (2007), among others. As previously discussed, various variables have been found to affect CAR. We control for these factors to isolate the effect of family ownership, enhancing the robustness of our results. To account for unobserved heterogeneity through time and across industries, we also incorporate time and industry-fixed effects. The use of fixed effects is standard practice in the literature, as demonstrated by Caprio et al. (2011), Villalonga and Amit (2006), and Anderson and Reeb (2003), among others. Our approach, which employs two-way fixed effects for industry and time, is consistent with studies such as Anderson and Reeb (2003) and Moeller et al. (2004). Additionally, following Villalonga and Amit (2006), we use firm-level clustered standard errors in all regressions to account for potential correlation in residuals across transactions by the same acquirer.

5.4 Defining Family Firms

Drawing on the prior literature, we classify family firms as those where the largest owner is an individual or a family that holds at least 25% of the voting rights. Although slightly higher, the 25% threshold is in line with Faccio and Lang (2002) and La Porta et al. (1999). Moreover, it is the same threshold used by the European Commission. Recognizing the inherent challenge in finding and selecting an optimal threshold, we also perform robustness checks by re-estimating our results using alternative thresholds of 30% and 20%. Furthermore, consistent with Claessens et al. (2002), the voting rights of all family members are aggregated and counted collectively.

Following Faccio and Lang (2002) and La Porta et al. (1999), we also focus on the ultimate owner. A challenge with focusing on the ultimate owner is that ownership structures can be complex, with companies held through ownership chains. These cases have been carefully dissected and tracked to the ultimate owner manually. Additionally, some companies in our sample are controlled by foundations, whose treatment has not been extensively addressed in prior literature. Consequently, guidance on how to handle such entities remains limited. Because foundations do not embody traditional ownership, we have evaluated the board composition to assess whether families exert de facto control. We classify foundations as having de facto control in cases where substantial evidence points to one specific family controlling them. One such example is Knut och Alice Wallenbergs Stiftelse, whose board at the time of our analysis comprises chairman Peter Wallenberg, vice-chairman Marcus Wallenberg, and board member Jacob Wallenberg. This foundation demonstrates strong ties to the Wallenberg family and is therefore considered under their de facto control.

5.5 Illiquidity Considerations

Most prevalent studies evaluating CARs around acquisition announcements are based on US data, where stocks are frequently traded. Therefore, these studies typically do not need to acknowledge potential illiquidity or adjust for it. In contrast, all the stock exchanges used in this thesis are considered small in a global context, and a large portion of the stocks on these exchanges are thinly traded. This requires careful consideration of how illiquidity is handled to ensure an effective methodology and reliable results. In cases where a stock is not traded on a given day, its adjusted closing price is carried over from the preceding day, thereby registering a return of zero. This can distort abnormal return calculations both indirectly by biasing the estimation of normal returns, and directly when non-trading occurs within the event window. Maynes and Rumsey (1993) underscore this issue by demonstrating that infrequent

trading complicates the estimation of normal returns and the accurate measurement of abnormal returns. Similarly, Scholes and Williams (1977) document that traditional estimators for alpha and beta become biased and inconsistent when stocks trade infrequently.

In our sample, we find that illiquidity is prevalent to a great extent, as seen in Appendix Table A2. This suggests that merely acknowledging illiquidity as a potential issue in a Nordic market event study may affect the accuracy of the results. Consequently, we explicitly address illiquidity in all of our multivariate regressions. By doing so, we contribute to the existing literature by applying a more robust econometric approach to event studies on smaller, less liquid stock markets, thereby enhancing transparency on the effects of illiquidity.

We address illiquidity using two distinct approaches and re-estimate our results to assess its potential impact. In the first approach, we leave the data unadjusted. The rationale behind this approach lies in the assumption of semi-strong market efficiency, as proposed by Fama (1970). If markets are semi-strong efficient, stocks should trade when relevant information is available, meaning zero returns should not be adjusted. Nonetheless, whether these zero returns predominantly indicate a lack of trading activity or an absence of new information remains debatable.

Accordingly, we also employ the trade-to-trade approach. Dimson (1979) proposes this method as a suitable technique when share prices suffer from infrequent trading. The method is further elaborated on by Maynes and Rumsey (1993), who suggest that the trade-to-trade approach should be used when conducting event studies involving infrequently traded stocks. Moreover, Bartholdy et al. (2007) analyze the implications of performing an event study on a small stock exchange with thinly traded stocks using data from the Copenhagen Stock Exchange (CSE). The paper highlights the potential issues of applying an event study approach to small stock exchanges dominated by thinly traded stocks. A primary finding of the paper is that the trade-to-trade approach should be used when conducting event studies on smaller stock exchanges characterized by thinly traded stocks.

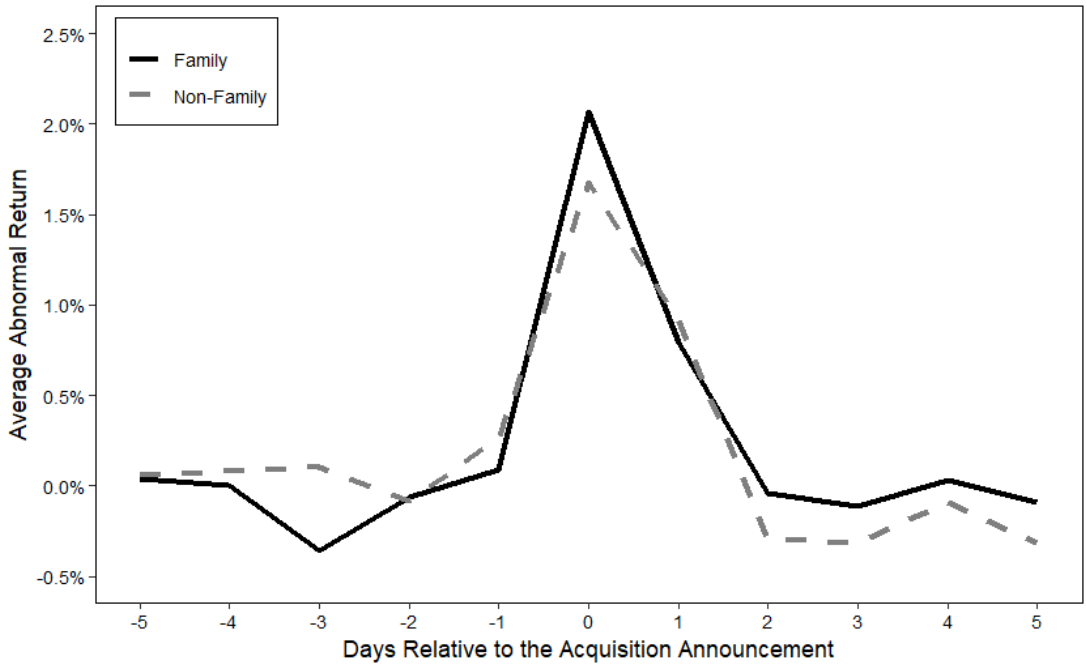
While the trade-to-trade approach accounts for illiquidity when estimating normal returns, it does not address the issue of zero-return observations in the event window. Therefore, when adjusting for illiquidity, all transactions where the stock has at least one day with a zero return in the event window are excluded.

6. Empirical Overview of Abnormal Returns

6.1 Graphical Overview of Abnormal Returns

As shown in Figure 1, both family and non-family firms experience a pronounced spike in average abnormal returns on the day of the acquisition announcement. This suggests that, on average, acquisitions are associated with value creation for both family and non-family firms. Furthermore, only minor movements are observed in the days preceding and following the announcement, which supports the validity of the event study methodology and confirms that a [-1, 1] event window is appropriate.

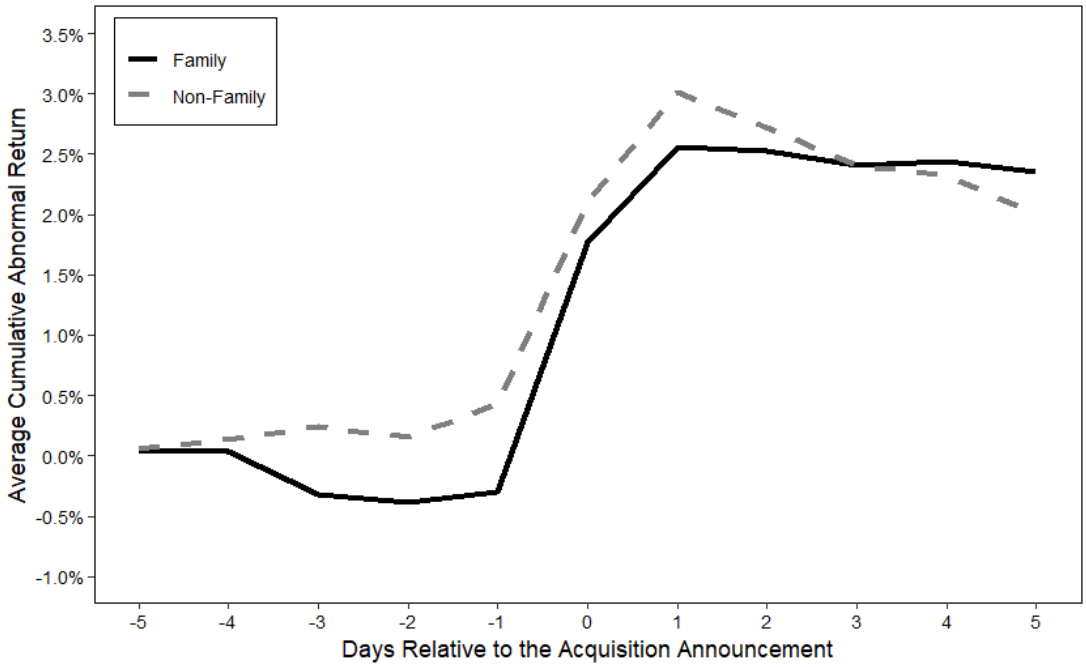
Figure 1 Average Abnormal Returns Around the Announcement [-5, +5 days]



This figure presents the average abnormal return for family and non-family firms from five days before to five days after the acquisition announcement, where day 0 denotes the announcement day. Firms are classified as family or non-family based on whether the largest shareholder is an individual or a family holding at least 25% of the voting rights.

In addition to the average abnormal returns, Figure 2 illustrates that both family and non-family firms exhibit a similar pattern in CAR, with a positive spike at the time of the announcement. Prior to the announcement, there is little evidence of significant leakage, as deviations are close to zero for both family and non-family firms. Moreover, the CARs remain relatively flat following the announcement, although the CAR for non-family firms decreases slightly.

Figure 2 Average Cumulative Abnormal Returns Around the Announcement [-5, +5 days]



This figure presents the average cumulative abnormal return for family and non-family firms from five days before to five days after the acquisition announcement, where day 0 denotes the announcement day. Firms are classified as family or non-family based on whether the largest shareholder is an individual or a family holding at least 25% of the voting rights.

6.2 Univariate Analysis of Cumulative Abnormal Returns

Table 7 presents key statistics of CARs calculated over the full sample period for family and non-family firms, along with the results of univariate tests comparing the two groups. The findings indicate that, on average, acquisitions by both non-family and family firms create value. Both groups show average CARs that are economically meaningful and statistically significant at the 1% level. While family firms exhibit a higher average CAR than non-family firms, the Welch t-test shows that the difference is not statistically significant.

The results from the Wilcoxon signed rank tests indicate that, consistent with the mean, the median acquisition return is positive for both family and non-family firms. As with the t-tests, the results are economically meaningful and statistically significant at the 1% level. The Mann-Whitney U test reveals that the difference in median CARs between family and non-family firms is not statistically significant. Additionally, as can be seen from the first and third quartiles, CARs are more dispersed for non-family firms than for family firms.

To complement the aggregated analysis in Table 7, Appendix Table A3 presents a yearly breakdown of CARs for family and non-family firms over the full sample period. The

mean and median CAR remains positive across family and non-family firms for close to all years. Overall, there is no clear trend over time. Moreover, the interquartile ranges reveal that substantial variation in CAR exists within both family and non-family firms across the entire period.

Table 7 Univariate Analysis of Cumulative Abnormal Returns

CAR Statistic	Family	Non-Family	Difference
Average	2.94%***	2.86%***	0.08%
Median	1.54%***	1.75%***	-0.21%
Q1	-0.53%	-0.70%	
Q3	5.23%	5.78%	
Count	391	592	

This table presents key statistics of cumulative abnormal returns (CARs) for family and non-family firms, calculated over the full sample period. Within each group, the statistical significance of the average CAR is assessed using a t-test, and the statistical significance of the median CAR is assessed using the Wilcoxon signed-rank test. For differences between groups, the Welch t-test is used for averages and the Mann-Whitney U test for medians. CARs are calculated using the [-1, 1] main event window. Firms are classified as family or non-family based on whether the largest shareholder is an individual or a family holding at least 25% of the voting rights. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

7. Empirical Results and Discussion

This section presents and discusses the empirical findings from our multivariate regressions. In Section 7.1, we address hypotheses H_1 through H_6, followed by the results and discussion for H7 in Section 7.2. While both unadjusted and trade-to-trade (T2T) adjusted regression results are reported in all tables, Sections 7.1 and 7.2 present and discuss only the unadjusted estimates. In each table, unadjusted coefficients appear in column (1), while T2T-adjusted results are shown in column (2). Section 7.3 presents our robustness checks and discusses the T2T-adjusted results. It also presents our findings using an alternative event window of [-2, 2] and redefining family firms based on 20% and 30% voting rights thresholds, instead of the baseline 25%. For variables included in interaction terms with FAMILY, the standalone coefficient represents the effect for non-family firms. Furthermore, the interaction term captures the difference in effect between family and non-family firms, meaning that the total effect for family firms is calculated by summing the standalone and interaction coefficients.

7.1 Main Multivariate Regression Results

Our results support H_1 and provide evidence of a difference in CAR between family and non-family firms. Although Table 7 shows only small and statistically insignificant differences in both average and median CARs, the regression results reveal an economically and statistically significant effect after controlling for other variables. Table 8 shows that family firms experience a 2.6 percentage point lower CAR than their non-family counterparts, with the estimated coefficient statistically significant at the 1% level.

One potential explanation for the observed underperformance of family acquirers is the elevated risk of wealth extraction, as discussed by Shleifer and Vishny (1997). However, given the reputational concerns highlighted by Anderson and Reeb (2003), we would argue that it is unlikely that wealth extraction is the primary driver of the observed effect. Instead, increased risk aversion may offer a more plausible explanation. This risk aversion could lead family firms to deviate from optimal acquisition strategies, driven by considerations beyond the maximization of the NPV. Carney (2005) further supports this reasoning, demonstrating that family owners may integrate personal criteria into their decision-making processes. Although incorporating personal criteria can increase flexibility in decision-making, it diminishes reliance on objective frameworks. We argue that a reduced emphasis on objective decision-making causes family firms to be inclined to pursue acquisitions differently than non-family firms. In turn, this distinctive difference may contribute to the underperformance observed.

Furthermore, the hypothesized positive effect from family firms having longer investment horizons (James, 1999) does not appear sufficient to offset potential deviations from maximizing NPV.

Regarding the effect of a family member serving as CEO, we find no evidence supporting H_2. The coefficient on FAMILY CEO is positive but both economically and statistically insignificant. Agency Problem I and II, as discussed by Villalonga and Amit (2006), along with the talent pool limitations (Villalonga & Amit 2006; Anderson & Reeb 2003), could be influencing the outcome. On aggregate, these opposite effects may offset each other, resulting in a net effect that is not statistically distinguishable from zero. We also offer an alternative explanation for the observed results related to CEO heterogeneity. It is reasonable to assume that CEOs differ in competence and suitability for the role. Some may be highly capable and well-suited, while others may be less so. While CEO quality may sometimes be linked to family status, we argue that substantial heterogeneity likely exists among family and non-family CEOs. This underlying heterogeneity among CEOs may dilute the effects of having a family CEO, leading to statistically insignificant results.

Focusing on relative size, we find that the results are consistent with H_3. Since RELATIVE SIZE is defined as the ratio of transaction value to the acquirer's market capitalization, interpreting the coefficient based on a one-unit increase is not representative of a typical transaction. This would correspond to analysing the effect on CAR of an acquisition equal to 100% of the acquirer's market value. Therefore, we report the effect of a 10-percentage point increase. For non-family firms, such an increase corresponds to a 0.2-percentage point rise in CAR, in line with the positive relationship documented by Moeller et al. (2004) and Asquith et al. (1983). Moreover, the interaction term indicates that family firms gain an additional 0.9-percentage point in CAR for the same increase in relative size compared to non-family firms. Consequently, the total effect for a 10-percentage point increase in relative size for family firms amounts to a 1.1-percentage point gain in CAR. The coefficients for RELATIVE SIZE and its interaction term are both economically meaningful and statistically significant at the 1% level.

Additionally, to formally assess the joint effect for family firms, we test the linear combination, which confirms that the total effect is statistically significant at the 1% level. See Table 9 for all formal tests of the linear combinations. Altogether, our results confirm that when family firms engage in large acquisitions relative to their market capitalization, these transactions generate more value than those undertaken by non-family firms. We attribute this empirical discovery to the hypothesized impact of family firms' heightened risk aversion. This

heightened risk aversion places higher requirements on acquisition performance, driving family firms to only pursue larger acquisitions in high-conviction cases.

Turning to industry-relatedness, our results are in line with H_4. We find that acquisitions within the same industry negatively affect the CAR by 2.1 percentage points for non-family firms. This effect for non-family firms is statistically significant at the 1% level and diverges from Eckbo (1983), who documented positive abnormal returns for acquirers targeting firms within the same industry. The results are also inconsistent with Morck et al. (1990), who found that diversifying acquisitions systematically destroy value. However, the interaction term between FAMILY and SAME INDUSTRY shows that family firms earn a 2.6-percentage point higher CAR than non-family firms in same-industry acquisitions. Moreover, this coefficient is statistically significant at the 1% level. Thus, same-industry acquisitions are associated with a 0.5 percentage point increase in CAR for family firms. Although the difference between family and non-family firms is statistically significant at the 1% level, the test of the linear combination shows that the positive total effect for family firms is not itself statistically significant. We interpret these findings as evidence that the value impact of industry-relatedness in acquisitions is contingent on family ownership. This aligns with the theory that family firms require a higher conviction to pursue same-industry acquisitions due to their concentrated wealth and, thus, these acquisitions are more value-creating.

Shifting to the wedge between voting rights and cash flow rights, we find support for H_5. Similar to RELATIVE SIZE, we choose to interpret WEDGE in terms of a 10-percentage point increase to make the interpretation of the results more meaningful. This is because a one-unit increase would imply an implausible situation in which a shareholder holds 100% of the voting rights but none of the cash flow rights. For non-family firms, a 10-percentage point increase in the disparity between voting rights and cash flow rights is linked to a 1.0-percentage point reduction in CAR. However, for family firms, the negative effect of the wedge is substantially mitigated by 0.8 percentage points, with a 10-percentage point increase resulting in only a 0.2-percentage point decrease in CAR. These results align with the findings of Caprio et al. (2011) and Claessens et al. (2002) and highlight how the wedge acts as a mechanism for majority shareholders to extract private benefits at the expense of minority shareholders. However, this effect appears to be mitigated for family firms, consistent with the reputational concerns highlighted by Anderson and Reeb (2003). Although the coefficient for WEDGE is statistically significant at the 1% level, it should be noted that the interaction term is statistically significant only at the 10% level. While these results support H_5, we are more cautious about

making strong inferences on the difference between family and non-family firms due to the relatively weak statistical significance of the interaction. However, the test of the linear combinations indicates that the combined effect is not statistically different from zero, strengthening the case that, for family firms, a larger wedge does not serve as a tool for extracting private benefits.

As for H_6, we anticipated that the method of payment would have an impact on value creation. However, the results reveal that this is not the case. Our findings show that both CASH DEAL and STOCK DEAL are negative and statistically insignificant. While the interaction between FAMILY and STOCK DEAL is positive, which aligns with our expectations, neither the interaction term nor the total effect for family firms is statistically significant. Thus, the expected effect of control retention in family firms is weaker than anticipated. One possible explanation for this result is that our sample's limited occurrence of stock-financed deals leads to noisier estimates and reduced statistical power.

Furthermore, we suggest that other factors may have a greater impact on the method of payment, thereby limiting the influence of the desire to retain control. For instance, financial constraints and capital structure considerations arguably play a significant role in the choice of payment method. A family firm with high leverage or one that believes its stock is overvalued may still pay with equity, even if the family ideally would not want to dilute its voting rights. Furthermore, the motivation to dilute ownership may not be as pronounced if the family still has effective control after the acquisition, even when stock is used. In other words, the effect may only arise in transactions where the deal results in an actual loss of control, rather than a reduction in ownership. Thus, while the absence of significant effects could suggest that the method of payment does not interact meaningfully with family ownership, it may also reflect a more complex interplay of factors.

Table 8 Main Regression Results

	(1) Unadjusted	(2) T2T
Variables of Interest	Coefficient	Coefficient
FAMILY	-0.026***	-0.029***
	(0.010)	(0.010)
FAMILY CEO	0.010	0.000
	(0.010)	(0.010)
FAMILY x RELATIVE SIZE	0.086***	0.086***
	(0.011)	(0.010)
FAMILY x WEDGE	0.082*	0.108**
	(0.043)	(0.043)
FAMILY x SAME INDUSTRY	0.026***	0.025**
	(0.010)	(0.011)
FAMILY x STOCK DEAL	0.033	0.049
	(0.031)	(0.037)
Control Variables		
RELATIVE SIZE	0.021***	0.020***
	(0.005)	(0.005)
WEDGE	-0.099***	-0.103***
	(0.035)	(0.032)
SAME INDUSTRY	-0.021***	-0.018***
	(0.007)	(0.007)
STOCK DEAL	-0.017	-0.023
	(0.021)	(0.021)
PUBLIC TARGET	-0.040	-0.037
	(0.039)	(0.045)
LEVERAGE	0.002	0.008
	(0.019)	(0.021)
TOBINS Q	0.001	0.001
	(0.001)	(0.002)
LIQUID ASSETS	0.000	0.000
	(0.001)	(0.004)
CASH DEAL	-0.009	-0.010
	(0.006)	(0.007)
CROSS BORDER	0.005	-0.003
	(0.006)	(0.006)
N	983	802
Adj. R2	0.159	0.185

This table presents the results from multivariate regressions where the cumulative abnormal return (CAR), calculated using a [-1, 1] event window, is the dependent variable. Variables are categorized as variables of interest, which explain family firm performance, and control variables, which account for other factors that may influence acquisition outcomes. FAMILY is a dummy variable equal to 1 if the largest shareholder is an individual or a family holding at least 25% of the voting rights. Both the unadjusted and T2T-adjusted regressions include year and industry fixed effects. In the T2T column, alpha and beta are estimated using the trade-to-trade approach, and transactions where the stock exhibited infrequent trading during the event window, resulting in returns of 0%, are excluded. Standard errors are clustered at the firm level and reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 9 Joint Significance Tests

Linear Combination	Chi-squared	P-value
RELATIVE SIZE + FAMILY x RELATIVE SIZE	123.98	0.00
WEDGE + FAMILY x WEDGE	0.36	0.55
SAME INDUSTRY + FAMILY x SAME INDUSTRY	0.48	0.49
STOCK DEAL + FAMILY x STOCK DEAL	0.43	0.51

This table reports Wald tests of joint significance for each main effect and its interaction with FAMILY. FAMILY is a dummy variable equal to 1 if the largest shareholder is an individual or a family holding at least 25% of the voting rights. The null hypothesis is that the coefficients on both the main effect and the interaction term are jointly equal to zero.

7.2 Non-Linear Effect of Family Ownership

Contrary to H_7, Table 10 shows no evidence of a non-linear relationship between the level of family ownership and the CAR. Neither the linear term nor the quadratic term is statistically significant. These results contradict Basu et al. (2009), who report a convex relationship. Therefore, our results do not support a shift from a dominating entrenchment effect at low levels of family ownership to the effect of alignment of interest becoming dominant at high levels of family ownership. Moreover, the results diverge from those of Anderson and Reeb (2003), who find a concave relationship. A potential explanation for the divergence from Anderson and Reeb (2003) is that their study focuses on operational performance, whereas ours examines abnormal returns around acquisition announcements. It is also worth noting that, in contrast to our results, their findings indicate that family firms tend to outperform non-family firms. This likely also affects the results of the tested non-linear relationship of ownership levels within family firms.

Another possible explanation behind the contrasting results to those of both Basu et al. (2009) and Anderson and Reeb (2003) is that their studies are based on a different geographical market. It is possible that the costs and benefits of family ownership may be amplified or mitigated by local governance factors, which could affect the pattern observed. Moreover, Basu et al. (2009) and Anderson and Reeb (2003) analyse earlier time periods. It may also be the case that governance standards have improved since then, potentially reducing the influence of the entrenchment effect and affecting any non-linear relationship.

Table 10 Non-linear Regression Results

	(1) Unadjusted	(2) T2T
Variables of Interest	Coefficient	Coefficient
FAMILY OWNERSHIP	0.024	-0.156
	(0.185)	(0.213)
FAMILY OWNERSHIP^2	-0.027	0.184
	(0.195)	(0.223)
FAMILY CEO	0.011	0.003
	(0.011)	(0.012)
Control Variables		
RELATIVE SIZE	0.108***	0.106***
	(0.010)	(0.009)
WEDGE	-0.022	-0.018
	(0.031)	(0.037)
SAME INDUSTRY	0.003	0.000
	(0.007)	(0.008)
STOCK DEAL	0.021	0.034
	(0.028)	(0.036)
PUBLIC TARGET	-0.157***	-0.147***
	(0.019)	(0.022)
LEVERAGE	0.001	-0.026
	(0.037)	(0.044)
TOBINS Q	0.000	0.001
	(0.002)	(0.002)
LIQUID ASSETS	0.004	0.001
	(0.003)	(0.004)
CASH DEAL	-0.007	-0.007
	(0.013)	(0.015)
CROSS BORDER	0.007	-0.001
	(0.008)	(0.010)
N	391	323
Adj. R2	0.229	0.238

This table presents the results from multivariate regressions estimated only on the sample of family firms, where the cumulative abnormal return (CAR), calculated using a [-1, 1] event window, is the dependent variable. Variables are categorized as variables of interest, which explain family firm performance, and control variables, which account for other factors that may influence acquisition outcomes. Firms are classified as family firms if the largest shareholder is an individual or a family holding at least 25% of the voting rights. FAMILY OWNERSHIP is defined as the percentage of voting rights held by the largest individual or family shareholder. Both the unadjusted and T2T-adjusted regressions include year and industry fixed effects. In the T2T column, alpha and beta are estimated using the trade-to-trade approach, and transactions where the stock exhibited infrequent trading during the event window, resulting in 0% returns, are excluded. Standard errors are clustered at the firm level and reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

7.3 Robustness

To test the robustness of our findings, all results are re-estimated using the data adjusted for illiquidity. These results are displayed in column (2) of all tables and labeled T2T. As previously discussed, this adjustment involves excluding transactions with zero returns in the event window due to illiquidity and estimating alphas and betas using the trade-to-trade approach.

The re-estimated main results reported in Table 8 suggest that the analysis is robust to potential illiquidity issues. No coefficients exhibit any material changes, preserving the interpretation of our analysis. A slight shift in statistical significance is noted as the interaction between FAMILY and WEDGE is now statistically significant at the 5% level rather than at the 10% level. Moreover, the interaction between FAMILY and SAME INDUSTRY is statistically significant at the 5% level instead of at the 1% level. Furthermore, accounting for illiquidity raises the adjusted R-squared from 15.9% to 18.5%, suggesting that this adjustment enhances the explanatory power of the model by reducing noise associated with illiquid stocks.

As shown in Table 10, no non-linear relationship is detected when adjusting for illiquidity. Both the linear and quadratic terms are still statistically insignificant. Notably, the sign and magnitude of the linear and quadratic terms change, underscoring that no clear relationship between different levels of family ownership and CAR exists in our data.

We further examine the robustness of our results by applying alternative definitions of family firms. The literature review highlighted the lack of consensus regarding the definition of a family firm. To account for variation in definitions, we alter the threshold for the voting rights required to classify as a family firm. Relative to our base definition of 25% voting rights, we use both a lower threshold of 20% and a higher threshold of 30%. The re-estimated regressions with a 20% threshold are displayed in Appendix Table A4. In comparison, the equivalent results with the 30% threshold are presented in Appendix Table A5. The findings indicate that an increased or decreased threshold primarily affects statistical power, with the signs and magnitudes of the coefficients remaining largely unchanged compared to the main results.

For the 20% threshold, all variables of interest retain the same sign as in the main results. However, FAMILY, alongside the interaction with WEDGE and SAME INDUSTRY, loses statistical significance when not adjusting for illiquidity, whereas they remain statistically significant when adjusting for illiquidity. With the 30% threshold, all variables of interest again retain their original signs. However, similar to the 20% threshold, FAMILY and the interaction with SAME INDUSTRY are statistically insignificant. However, when adjusting for illiquidity, FAMILY regains statistical significance, albeit only at the 10% level.

All regressions based on model (1) are also re-estimated using an extended event window of [-2, 2] instead of the baseline [-1, 1]. These results are presented in Appendix Tables A6, A7, and A8. The primary conclusion drawn from changing the event window is that our main analysis's overall pattern and implications remain unchanged. However, the statistical power is lower compared to our main results. This aligns with the substantial drop in adjusted

R-squared for the larger event window, indicating that it introduces more noise unrelated to the acquisitions. While our main results show a minimal difference when adjusting for illiquidity, the effect generally appears stronger when altering the threshold, event window, or both.

In summary, the robustness checks indicate that the statistical significance of the coefficients for SAME INDUSTRY and WEDGE varies depending on the robustness check applied, with the effect from both being less pronounced than observed in our main results. Moreover, the finding that family firms exhibit lower CARs than their non-family counterparts remain robust, although the statistical significance varies across the different robustness checks. Extending the event window generally weakens the statistical significance of the coefficients for FAMILY and its interactions with SAME INDUSTRY and WEDGE. The absence of a strong effect from a family member serving as CEO and from stock-financed acquisitions holds across all robustness checks. Notably, the positive effect of family firms undertaking larger acquisitions relative to their market capitalization is consistently strong, both economically and statistically, regardless of the robustness check applied.

7.4 Limitations and Future Research

Our sample is disproportionately weighted toward Swedish transactions, partly due to data limitations in Holdings. This implies that the results may be influenced by an overrepresentation of institutional features specific to Sweden.

Moreover, our results focus solely on CARs and do not consider the long-term performance of acquisitions. While long-term performance can be challenging to define and measure, it can help provide a more complete picture of acquisition outcomes for family firms compared to non-family firms. Consequently, evaluating the long-term performance of family and non-family firm acquisitions could be interesting for future research.

It should also be noted that our results are limited to public acquirers and may not necessarily hold for private acquirers, which would need to be tested in future research. However, such an analysis would require alternative measures of acquisition performance, as the CAR methodology relies on the availability of stock prices.

Although we distinguish between family firms based on whether a family member serves as CEO, additional dimensions of heterogeneity within family firms could be considered. Future research could seek to further disentangle the drivers of the observed differences between family and non-family firms by examining heterogeneity within the family firm group. For instance, acquisition performance may vary with factors such as firm age, generational stage, or board independence.

8. Conclusion

We examine how family firms differ from non-family firms in the M&A context across the Nordic markets of Sweden, Denmark, Norway, and Finland from 2004 to 2024. Our findings suggest that family firms tend to underperform their non-family counterparts in acquisitions, which we attribute primarily to their pursuit of objectives beyond maximizing NPV. Contrary to our expectations, neither having a family member as CEO nor using stock as the method of payment affects the value creation in acquisitions. We also show that relatively larger acquisitions are more value-creating for family firms than for non-family firms, consistent with the idea that greater risk aversion makes family firms more selective in such transactions. Similarly, family firms tend to generate higher CARs than non-family firms when acquiring within the same industry, supporting the idea that the family's wealth concentration in the firm requires greater conviction in the success of these deals. Moreover, wealth extraction through a wedge between voting and cash flow rights appears mitigated in family firms, likely due to reputational concerns. Furthermore, within family firms, we do not find evidence of a non-linear relationship between ownership levels and value creation in acquisitions.

Taken together, our findings provide insight into if, when, and why family firms differ from non-family firms in the context of acquisitions. Given the economic importance of family firms, particularly in the Nordic region, our findings can help inform investment decisions, contribute to the refinement of governance models, and support the development of public policies related to ownership and control in family firms.

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10.Appendix

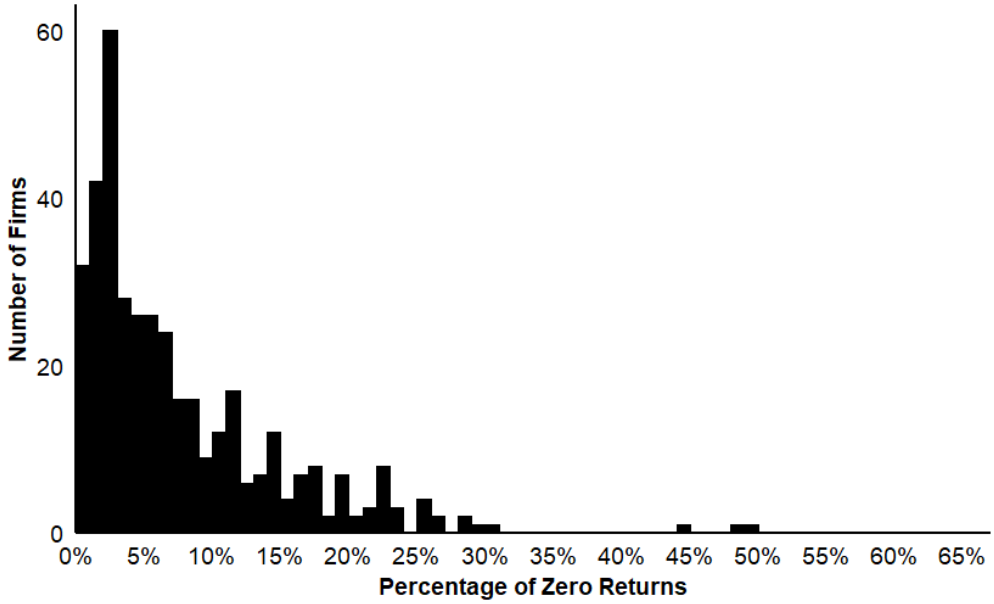
Appendix Table A1 Special Transaction Types Excluded

Excluded Transaction Type
Consolidation / Roll-Up
Reverse Merger – Backdoor IPO
Acquisition of Joint Venture
Acquisition of Joint Venture Interests
Acquisition of Joint Venture Partner
Reverse Merger – Other
Reverse Morris Trust

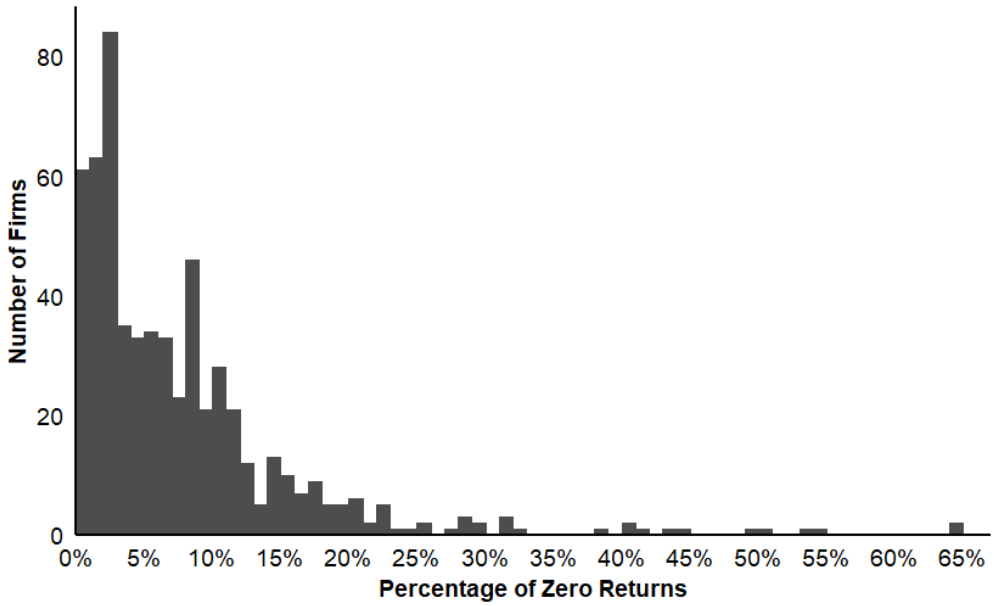
This table outlines the special transaction types that are excluded from our sample. Reverse Merger - Other refers to reverse mergers not classified as Backdoor IPOs or Reverse Morris Trust according to Capital IQ.

Appendix Table A2 Distribution of Zero Returns for Family and Non-Family Firms

Panel A: Family Firms



Panel B: Non-Family Firms



These figures present the distribution of zero returns for family firms in Panel A and non-family firms in Panel B, with each bar showing the number of firms by their percentage of zero returns across the estimation window of [-240, -11] and event window of [-2, 2]. Firms are classified as family or non-family based on whether the largest shareholder is an individual or a family holding at least 25% of the voting rights. To improve readability, the x-axis is truncated. Only one family firm and five non-family firms fall beyond the displayed range.

Appendix Table A3 Yearly Breakdown of Cumulative Abnormal Returns

	Family					Non-Family				
Year	**Deal Count**	**Mean**	**Median**	**Q1**	**Q3**	**Deal Count**	**Mean**	**Median**	**Q1**	**Q3**
2004	3	-2.76%	-1.51%	-5.37%	0.48%	1	3.95%	3.95%	3.95%	3.95%
2005	7	3.36%	1.98%	1.02%	4.39%	10	-0.09%	0.81%	-3.51%	1.23%
2006	6	1.64%	1.01%	-0.74%	2.57%	17	0.39%	0.55%	-0.67%	3.19%
2007	5	2.20%	0.78%	-0.92%	5.87%	16	1.07%	1.68%	-0.85%	2.65%
2008	6	2.63%	-0.87%	-2.02%	0.17%	9	-0.42%	-0.72%	-1.91%	-0.27%
2009	1	2.15%	2.15%	2.15%	2.15%	5	0.38%	-0.09%	-3.36%	4.25%
2010	14	4.51%	1.81%	0.86%	7.63%	13	4.09%	0.76%	-1.87%	5.81%
2011	18	1.70%	1.98%	-2.48%	6.09%	12	4.16%	3.54%	-0.48%	8.14%
2012	16	1.33%	0.93%	-2.13%	4.33%	17	1.61%	0.53%	-0.65%	2.20%
2013	8	1.11%	0.47%	-0.33%	1.93%	9	0.54%	-1.20%	-3.00%	2.54%
2014	19	1.18%	1.04%	-0.87%	3.47%	15	1.47%	0.11%	-1.06%	4.00%
2015	13	2.72%	1.67%	-0.85%	6.44%	19	5.57%	4.60%	1.25%	9.88%
2016	17	7.05%	2.07%	0.83%	8.30%	39	2.82%	0.51%	-0.71%	4.52%
2017	15	1.66%	1.69%	-1.10%	3.04%	37	1.47%	2.23%	0.17%	5.61%
2018	25	1.62%	1.31%	0.01%	1.93%	34	1.42%	0.97%	-2.77%	3.96%
2019	32	2.79%	1.45%	-0.07%	4.93%	39	3.49%	2.64%	-0.47%	8.05%
2020	37	2.28%	1.58%	0.08%	6.36%	55	5.25%	4.53%	-0.02%	9.82%
2021	64	5.70%	3.07%	0.34%	8.45%	95	2.47%	2.45%	-0.24%	6.21%
2022	39	1.30%	0.75%	-1.49%	3.20%	67	2.18%	2.25%	-0.12%	5.76%
2023	25	2.93%	0.56%	-1.72%	5.83%	56	3.84%	1.49%	-0.42%	6.33%
2024	21	3.25%	2.38%	1.05%	4.28%	27	6.34%	2.09%	-0.06%	7.28%

This table presents a yearly breakdown of cumulative abnormal returns (CARs) for family and non-family firms. CARs are calculated using the [-1, 1] main event window. Firms are classified as family or non-family based on whether the largest shareholder is an individual or a family holding at least 25% of the voting rights. Q1 and Q3 denote the first and third quartiles, respectively.

Appendix Table A4 Regression Results — 20% Threshold and [-1, 1] Event Window

	(1) 20% Threshold [-1, 1]	(2) T2T 20% Threshold [-1, 1]
Variables of Interest	Coefficient	Coefficient
FAMILY	-0.014	-0.025***
	(0.010)	(0.009)
FAMILY CEO	0.010	0.001
	(0.010)	(0.010)
FAMILY x RELATIVE SIZE	0.091***	0.081***
	(0.015)	(0.010)
FAMILY x WEDGE	0.069	0.103**
	(0.044)	(0.043)
FAMILY x SAME INDUSTRY	0.012	0.021**
	(0.011)	(0.010)
FAMILY x STOCK DEAL	0.025	0.043
	(0.030)	(0.036)
Control Variables		
RELATIVE SIZE	0.021***	0.020***
	(0.005)	(0.005)
WEDGE	-0.091**	-0.100***
	(0.037)	(0.034)
SAME INDUSTRY	-0.016***	-0.018**
	(0.006)	(0.007)
STOCK DEAL	-0.014	-0.020
	(0.021)	(0.022)
PUBLIC TARGET	-0.040	-0.036
	(0.039)	(0.044)
LEVERAGE	0.004	0.014
	(0.019)	(0.021)
TOBINS Q	0.001	0.002
	(0.001)	(0.002)
LIQUID ASSETS	0.000	0.000
	(0.001)	(0.004)
CASH DEAL	-0.007	-0.008
	(0.007)	(0.007)
CROSS BORDER	0.005	-0.002
	(0.005)	(0.006)
N	983	802
Adj. R2	0.164	0.182

This table presents the results from multivariate regressions where the cumulative abnormal return (CAR), calculated using a [-1, 1] event window, is the dependent variable. Variables are categorized as variables of interest, which explain family firm performance, and control variables, which account for other factors that may influence acquisition outcomes. FAMILY is a dummy variable equal to 1 if the largest shareholder is an individual or a family holding at least 20% of the voting rights. Both the unadjusted and T2T-adjusted regressions include year and industry fixed effects. In the T2T column, alpha and beta are estimated using the trade-to-trade approach, and transactions where the stock exhibited infrequent trading during the event window, resulting in returns of 0%, are excluded. Standard errors are clustered at the firm level and reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Appendix Table A5 Regression Results — 30% Threshold and [-1, 1] Event Window

	(1) 30% Threshold [-1, 1]	(2) T2T 30% Threshold [-1, 1]
Variables of Interest	Coefficient	Coefficient
FAMILY	-0.017	-0.025*
	(0.014)	(0.015)
FAMILY CEO	0.002	-0.002
	(0.010)	(0.011)
FAMILY x RELATIVE SIZE	0.103***	0.093***
	(0.031)	(0.031)
FAMILY x WEDGE	0.096**	0.120***
	(0.044)	(0.046)
FAMILY x SAME INDUSTRY	0.010	0.015
	(0.013)	(0.015)
FAMILY x STOCK DEAL	0.041	0.066
	(0.038)	(0.049)
Control Variables		
RELATIVE SIZE	0.023***	0.022***
	(0.005)	(0.005)
WEDGE	-0.098***	-0.103***
	(0.032)	(0.030)
SAME INDUSTRY	-0.012**	-0.011*
	(0.006)	(0.006)
STOCK DEAL	-0.018	-0.025
	(0.020)	(0.020)
PUBLIC TARGET	-0.045	-0.041
	(0.039)	(0.044)
LEVERAGE	0.007	0.018
	(0.020)	(0.023)
TOBINS Q	0.001	0.002
	(0.001)	(0.002)
LIQUID ASSETS	0.000	0.000
	(0.001)	(0.004)
CASH DEAL	-0.007	-0.008
	(0.007)	(0.007)
CROSS BORDER	0.006	0.000
	(0.006)	(0.006)
N	983	802
Adj. R2	0.128	0.151

This table presents the results from multivariate regressions where the cumulative abnormal return (CAR), calculated using a [-1, 1] event window, is the dependent variable. Variables are categorized as variables of interest, which explain family firm performance, and control variables, which account for other factors that may influence acquisition outcomes. FAMILY is a dummy variable equal to 1 if the largest shareholder is an individual or a family holding at least 30% of the voting rights. Both the unadjusted and T2T-adjusted regressions include year and industry fixed effects. In the T2T column, alpha and beta are estimated using the trade-to-trade approach, and transactions where the stock exhibited infrequent trading during the event window, resulting in returns of 0%, are excluded. Standard errors are clustered at the firm level and reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Appendix Table A6 Regression Results — 25% Threshold and [-2, 2] Event Window

	(1) 25% Threshold [-2, 2]	(2) T2T 25% Threshold [-2, 2]
Variables of Interest	Coefficient	Coefficient
FAMILY	-0.025**	-0.022
	(0.012)	(0.015)
FAMILY CEO	0.018*	0.008
	(0.010)	(0.013)
FAMILY x RELATIVE SIZE	0.092***	0.091***
	(0.016)	(0.015)
FAMILY x WEDGE	0.036	0.064
	(0.052)	(0.058)
FAMILY x SAME INDUSTRY	0.022*	0.014
	(0.013)	(0.016)
FAMILY x STOCK DEAL	0.049	0.062
	(0.041)	(0.057)
Control Variables		
RELATIVE SIZE	0.019***	0.019***
	(0.006)	(0.005)
WEDGE	-0.056	-0.068
	(0.042)	(0.041)
SAME INDUSTRY	-0.017**	-0.011
	(0.007)	(0.009)
STOCK DEAL	-0.020	-0.024
	(0.022)	(0.025)
PUBLIC TARGET	-0.046	-0.040
	(0.040)	(0.046)
LEVERAGE	0.011	0.012
	(0.026)	(0.026)
TOBINS Q	0.000	0.000
	(0.002)	(0.002)
LIQUID ASSETS	-0.001	0.001
	(0.001)	(0.010)
CASH DEAL	-0.001	0.000
	(0.008)	(0.009)
CROSS BORDER	-0.004	-0.011
	(0.006)	(0.007)
N	983	745
Adj. R2	0.108	0.117

This table presents the results from multivariate regressions where the cumulative abnormal return (CAR), calculated using a [-2, 2] event window, is the dependent variable. Variables are categorized as variables of interest, which explain family firm performance, and control variables, which account for other factors that may influence acquisition outcomes. FAMILY is a dummy variable equal to 1 if the largest shareholder is an individual or a family holding at least 25% of the voting rights. Both the unadjusted and T2T-adjusted regressions include year and industry fixed effects. In the T2T column, alpha and beta are estimated using the trade-to-trade approach, and transactions where the stock exhibited infrequent trading during the event window, resulting in returns of 0%, are excluded. Standard errors are clustered at the firm level and reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Appendix Table A7 Regression Results — 20% Threshold and [-2, 2] Event Window

	(1) 20% Threshold [-2, 2]	(2) T2T 20% Threshold [-2, 2]
Variables of Interest	Coefficient	Coefficient
FAMILY	-0.010	-0.014
	(0.012)	(0.014)
FAMILY CEO	0.018*	0.008
	(0.011)	(0.013)
FAMILY x RELATIVE SIZE	0.097***	0.089***
	(0.018)	(0.014)
FAMILY x WEDGE	0.012	0.048
	(0.050)	(0.057)
FAMILY x SAME INDUSTRY	0.007	0.007
	(0.013)	(0.015)
FAMILY x STOCK DEAL	0.045	0.059
	(0.039)	(0.053)
Control Variables		
RELATIVE SIZE	0.019***	0.019***
	(0.006)	(0.005)
WEDGE	-0.042	-0.060
	(0.041)	(0.042)
SAME INDUSTRY	-0.011	-0.008
	(0.007)	(0.009)
STOCK DEAL	-0.018	-0.022
	(0.023)	(0.026)
PUBLIC TARGET	-0.046	-0.039
	(0.040)	(0.046)
LEVERAGE	0.013	0.017
	(0.026)	(0.026)
TOBINS Q	0.000	0.000
	(0.002)	(0.002)
LIQUID ASSETS	-0.001	0.001
	(0.001)	(0.010)
CASH DEAL	0.001	0.001
	(0.008)	(0.009)
CROSS BORDER	-0.004	-0.011
	(0.006)	(0.007)
N	983	745
Adj. R2	0.115	0.120

This table presents the results from multivariate regressions where the cumulative abnormal return (CAR), calculated using a [-2, 2] event window, is the dependent variable. Variables are categorized as variables of interest, which explain family firm performance, and control variables, which account for other factors that may influence acquisition outcomes. FAMILY is a dummy variable equal to 1 if the largest shareholder is an individual or a family holding at least 20% of the voting rights. Both the unadjusted and T2T-adjusted regressions include year and industry fixed effects. In the T2T column, alpha and beta are estimated using the trade-to-trade approach, and transactions where the stock exhibited infrequent trading during the event window, resulting in returns of 0%, are excluded. Standard errors are clustered at the firm level and reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Appendix Table A8 Regression Results — 30% Threshold and [-2, 2] Event Window

	(1) 30% Threshold [-2, 2]	(2) T2T 30% Threshold [-2, 2]
Variables of Interest	Coefficient	Coefficient
FAMILY	-0.018	-0.024
	(0.018)	(0.024)
FAMILY CEO	0.010	0.007
	(0.013)	(0.017)
FAMILY x RELATIVE SIZE	0.137***	0.130***
	(0.044)	(0.046)
FAMILY x WEDGE	0.052	0.076
	(0.053)	(0.065)
FAMILY x SAME INDUSTRY	0.006	0.011
	(0.017)	(0.024)
FAMILY x STOCK DEAL	0.045	0.065
	(0.053)	(0.073)
Control Variables		
RELATIVE SIZE	0.021***	0.021***
	(0.005)	(0.005)
WEDGE	-0.060*	-0.075**
	(0.035)	(0.035)
SAME INDUSTRY	-0.008	-0.006
	(0.006)	(0.007)
STOCK DEAL	-0.018	-0.025
	(0.021)	(0.024)
PUBLIC TARGET	-0.054	-0.048
	(0.042)	(0.048)
LEVERAGE	0.015	0.021
	(0.027)	(0.028)
TOBINS Q	0.000	0.000
	(0.002)	(0.002)
LIQUID ASSETS	-0.001	0.000
	(0.002)	(0.011)
CASH DEAL	0.001	0.002
	(0.008)	(0.009)
CROSS BORDER	-0.003	-0.008
	(0.007)	(0.007)
N	983	745
Adj. R2	0.084	0.096

This table presents the results from multivariate regressions where the cumulative abnormal return (CAR), calculated using a [-2, 2] event window, is the dependent variable. Variables are categorized as variables of interest, which explain family firm performance, and control variables, which account for other factors that may influence acquisition outcomes. FAMILY is a dummy variable equal to 1 if the largest shareholder is an individual or a family holding at least 30% of the voting rights. Both the unadjusted and T2T-adjusted regressions include year and industry fixed effects. In the T2T column, alpha and beta are estimated using the trade-to-trade approach, and transactions where the stock exhibited infrequent trading during the event window, resulting in returns of 0%, are excluded. Standard errors are clustered at the firm level and reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

AI disclosure

This thesis has made use of ChatGPT for two primary purposes. Firstly, ChatGPT has been used to improve, correct, and streamline the written code in R. Secondly, it has been used in order to enhance the conciseness and quality of the writing, as well as to identify errors regarding formatting and spelling.

ChatGPT has contributed to the quality of this thesis by validating and improving the written code. Moreover, it has also contributed by providing ideas and proposals on how the text can be written in a more concise, accurate, and suitable manner. ChatGPT has further aided in providing input on where items are explained to a satisfactory extent, and where the text can use increased clarity in order for an external reader to, without issue, be able to follow along and understand this thesis.

We acknowledge that the use of ChatGPT can add elements of risk and uncertainty. Namely, ChatGPT may not always be fully accurate, or provide a suitable solution to problems identified in the written code. To mitigate this potential issue, all code is independently verified by both authors of the thesis. Additionally, we find that ChatGPT may not always provide accurate and reliable information when utilized to improve the quality of the text. To mitigate this issue, we start by always writing our own text as an outline for what we want to bring up and find relevant for each respective chapter. This text is then used as an input in ChatGPT, where the output always acts as an inspiration, and is never directly copied and inserted in the text. Thus, we can identify any eventual errors that may arise and ensure that we remain accurate throughout the thesis.

We find that using ChatGPT enables great efficiency improvements in the thesis writing process. Firstly, it offers a solution that, in most cases, provides an accurate indication of potential errors within the written code. This enables us to progress in the thesis writing process in a more efficient manner. Secondly, ChatGPT provides valuable input on how to improve conciseness without losing out on important information and understanding when writing the text, given that an initial draft is provided. We find that using ChatGPT without an initial input that is independently written, or copying text directly from ChatGPT, increases the chances of errors and a missed focus on what is important and relevant for the thesis.