



Mastering M&A: Learnings from European Serial Acquirors

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Abstract: English

This study investigates why European firms engage in serial mergers & acquisitions (M&A) despite evidence that acquisitions destroy acquiror shareholder value. An extensive sample of 9,357 completed European M&A deals between 2006 and 2023 by 2,890 acquirors is used, classifying each acquiror as non-serial (1–4 deals) or serial (≥ 5 deals). Serial acquirors are further categorized by acquisition frequency into Joggers, Sprinters, and Marathoners. Using a market-model event study with three day, five day, and eleven-day cumulative abnormal returns (CAR) around announcement dates, it is found that while serial acquirors generate positive CARs, non-serial acquirors outperform serial acquirors. Non-serial acquirors generate an average three-day CAR of 2.11 %, while serial acquirors average 1.01 %. Joggers gain CARs of 1.27 %, Sprinters 0.80 %, and Marathoners only 0.19 %. Multivariate regressions link CARs to firm size (all else equal), leverage, deal value, relative deal size, target type (public vs. private; domestic vs. cross-border), and payment method. It is concluded that larger deals and private targets enhance CARs, whereas public targets and larger firm size suppress them. By deal order, Joggers and Sprinters exhibit increasing CARs over their first four deals before seeing returns stabilise or decline, indicating a learning threshold; evidence for Marathoners cannot be found. Several robustness tests support these patterns. The findings demonstrate that serial acquirors generate positive but varying CARs, that deal and firm attributes drive value effects and that serial acquirors learn to a point before experiencing stabilising or deteriorating returns, highlighting skills of serial acquirors.

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Resumo – Português

Este estudo investiga por que empresas europeias realizam fusões e aquisições (M&A) em série, apesar de evidências de destruição de valor para acionistas do adquirente. Uma amostra de 9.357 operações concluídas entre 2006 e 2023, envolvendo 2.890 adquirentes, classifica cada um como não-serial (1–4 ofertas) ou serial (≥ 5 ofertas). Adquirentes seriais são subdivididos em Corredores, Velocistas e Maratonistas. Um estudo de eventos baseado em modelo de mercado calcula retornos anormais acumulados (CAR) em janelas de três, cinco e onze dias ao redor das datas de anúncio. Constatou-se que, embora adquirentes seriais gerem CARs positivos, adquirentes não-seriais apresentam desempenho superior: CAR médio de três dias de 2,11 % para não-seriais e 1,01 % para seriais; Corredores 1,27 %, Velocistas 0,80 % e Maratonistas 0,19 %. Regressões multivariadas relacionam CARs a tamanho da empresa, alavancagem, valor e tamanho relativo da operação, tipo de alvo (público vs. privado; doméstico vs. transfronteiriço) e forma de pagamento. Operações maiores e alvos privados aumentam os CARs, enquanto alvos públicos e maior porte da empresa os reduzem. Por ordem de transação, Corredores e Velocistas exibem aumento de CAR nos quatro primeiros negócios antes de estabilizar ou declinar, sugerindo aprendizado; não há tal padrão para Maratonistas. Testes de robustez confirmam esses resultados. As descobertas mostram que adquirentes seriais geram CARs positivos, porém variáveis; atributos de transação e de empresa determinam efeitos de valor; e adquirentes seriais aprendem até um ponto antes de estabilização ou deterioração dos retornos, destacando habilidades.

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Palavras-chave: CAR, M&A, adquirente serial, adquirente não-serial, Corredor, Velocista, Maratonista.

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1. Introduction

Mergers and Acquisitions (M&A) are a cornerstone of corporate strategy, enabling firms to reshape their competitive positioning, access new markets, and realize synergies that may be unattainable through organic growth alone. Because M&A transactions involve multiple stakeholders - shareholders, employees, customers and regulators, among others - the decision to pursue them has extensive implications. Consequently, understanding the motives driving these deals and the channels through which they create (or destroy) value has become one of the most studied topics in the finance literature. Yet, despite decades of research, empirical findings on value effects of M&A remain inconclusive.

Using the event-study framework shaped by Fama et al. (1969), researchers isolate the value effect of M&A announcements on firm value by measuring cumulative abnormal returns (CARs) over short windows around the announcement date. Empirical evidence in both the USA and Europe show that although target-firm shareholders almost invariably receive sizeable takeover premiums, acquiror shareholders typically see little gain or even losses around announcements (Jensen and Ruback, 1983; Roll, 1986; Faccio & Masulis, 2005). Despite evidence of M&A being a value destructive activity for the acquiring shareholders, firms frequently engage in repeat acquisitions. In fact, Fuller et al. (2002), Ismail (2008), Boubakri et al. (2012), among others, show that a relatively small portion of companies, so called serial acquirors, complete a large majority of the acquisitions in the USA, with evidence of single acquirors outperforming serial acquirors in terms of deal CARs (Ismail, 2008).

These insights raise a couple of questions. First, if the typical acquisition tends to be value-destructive for acquiring shareholders, why do firms pursue serial M&A? Second, what learnings about the value effects of M&A can be drawn from serial acquiror behaviour?

On the first question, most researchers find that while serial acquirors generate positive abnormal returns in the two to three percent range over their first acquisitions, they experience decreasing returns over subsequent acquisitions closer to zero (Fuller et al. 2002; Ismail, 2008; Macias et al., 2016; Morillon, 2021), which leaves the same questions of value destruction. On the second question, by studying the same firms over time, Fuller et al. (2002) prove that the value effect of M&A can be studied in more detail. By analysing the same firm over multiple acquisitions, the surprise element of firm characteristics is kept constant for each subsequent acquisition, meaning the changes in announcement returns over time can be attributed to deal

specific characteristics or qualitative explanations such as learning, hubris or skill (Aktas et al., 2009; Ahern, 2010; Golubov et al., 2015). Since markets quickly learn about a firm's acquisition behaviour, they adjust deal pricing and valuation expectations accordingly with each completed deal. Subsequent work (Aktas et al., 2009; Ahern, 2010; Golubov et al., 2015) corroborates these findings and attributes the decline to a mix of factors, including integration complexity, diminishing marginal synergies, and managerial hubris, suggesting more detailed insights can be found when learning from serial acquirors.

Despite these robust insights, previous research focus on samples from the USA, leaving European serial acquirors understudied. Karolyi et al. (2015) provide a global overview but do not focus on the European market, where diverse regulatory regimes, corporate governance norms, and institutional attitudes toward risk may alter the serial-acquisition dynamic. Moreover, recent methodologies (Macias et al., 2016; Morillon, 2021) argue that not just deal count but the rhythm of dealmaking - whether Sprinters executing intense sequences of deal activity or Marathoners completing deals steadily over time - can meaningfully influence performance. Using this methodology, there is a gap in the understanding of European serial acquirors and what impacts the creation of value.

To learn more about these dynamics and value effects, this thesis extends the serial-acquiror framework to a comprehensive European sample from 2006 through 2023 and tests three interrelated hypotheses. First, it investigates whether European serial acquirors generate positive abnormal returns and how the frequency and intensity of deal activity affect those returns compared to non-serial acquirors. Second, this thesis examines how firm-level characteristics and deal-related factors influence value creation. Finally, this research seeks to evaluate whether European serial acquirors become more skilled over time, leading to progressively improved CARs for each subsequent deal, or if the results indicate the presence of hubris and empire building.

2. Literature Review

The literature surrounding Mergers and Acquisitions is rich. The aim with this section is to give an overview of the most relevant topics for this research and covers relevant research, with a focus on the main topic of serial acquirors. In this chapter, the research of serial acquiror returns and acquisition patterns is introduced, as well as a deep dive into both quantitative and qualitative factors to understand what explains serial acquiror returns.

2.1 – Value Effects in Mergers and Acquisitions

Value effects in M&A is well-researched in the previous literature and are the determinant factors whether an acquisition can be regarded as a success or a failure. Value effects can be measured by observing the changes in accounting measures (Kusewitt, 1985; Huyghebaert & Luypaert, 2013), but the most common approach to determine value creation is through measuring the short-term effects of acquisitions on stock prices for acquiring firms surrounding the announcement and compare it to market returns (Ruback & Jensen, 1983). This is because share prices in efficient markets should reflect all available information and thereby the value effects of an event (Fama, 1970).

Despite extensive research, the conclusions that explain the variation of acquiring firm returns are many. Most literature focus on including a large selection of explanatory variables to explain the value effect (see for example Kusewitt, 1985; Fuller et al., 2002; Jaffe et al., 2013; Moeller et al., 2005; Golubov et al., 2015). Others point out that using changes in share prices can be problematic, as other information related to the firm could contaminate the share price, making it difficult to isolate the effect of the acquisition (Roll, 1986). Hietala et al. (2001) even find that it is not feasible to use stock price reactions as an indicator of changes in acquiror and target values. Instead, quantitative factors such as hubris or learning have been applied to try and explain the varying returns in M&A literature (Aktas et al., 2009; Ahern, 2010)

The various conclusions from the M&A literature illustrate the difficulties of isolating the effects of acquisitions on announcement returns. To better understand the factors that impact the returns of acquirors, and thereby better isolate the M&A value effect, Fuller et al. (2002) analysed firms completing at least five acquisitions in a three year period. Assuming the acquisition patterns are random between firms, Fuller et al. (2002) keep the firm-specific characteristics constant by analysing the same firms over multiple acquisitions, allowing them to attribute differences in announcement returns mainly to deal features.

2.2 – Defining Serial Acquirors

Serial acquirors are not theoretically defined in the financial literature of M&A. Whilst there are several propositions on what defines a serial acquiror, a consensus is yet to be reached on a cohesive definition. What combines previous research is that serial acquirors are defined based on the number of acquisitions they complete. One of the earliest definitions stems from Fuller et al. (2002) who classifies a “frequent acquiror” as a company that has engaged in at least five acquisitions within a three year period. Similarly, Karolyi et al. (2015) require companies to have completed more than five acquisitions over the sample period to be classified as a serial acquiror, while Billett and Qian (2008) require the same CEO to be involved in at least two acquisitions over a five year period. On the contrary, Ismail (2008) defines a serial acquiror as a firm that completes more than one acquisition over the sample period and firms completing one acquisition as single acquirors.

The lack of theoretical basis for the definition of what a serial acquiror is can be partially explained by the differences in acquisition patterns between these companies. While a company can undertake multiple acquisitions, the time between acquisitions can vary. To account for this, Macias et al. (2016, p. 3) extended the definition to “a company that is likely to undergo a large number of acquisitions over a continuous period of time, or in bursts of acquisitions” (hereon forth named Acquisition Block). This adds an additional dimension to the research - the intensity of which acquisitions are made. Depending on the acquisition frequency, Macias et al. (2016) places acquirors into four different categories: Loner, Occasional Acquirors, Sprinters and Marathoners.

Morillon (2021) broadened the categorisation presented by Macias et al. (2016) by adding the Jogger to better capture the acquisition patterns of serial acquirors. Based on this categorisation, Morillon (2021) defines a single acquiror as a firm that completes between one and four acquisitions, with a distinction between either a Loner (1 acquisition) or Occasional Acquiror (2-4 acquisitions). Serial acquirors are firms that complete at least five acquisitions. The Jogger and Sprinter carry out the same number of acquisitions (5-29), but at different intensity. The intensity is determined by measuring the number of acquisitions carried out within one Acquisition Block, where a series of acquisitions is a part of the same Acquisition Block if they are completed within 365 days. Joggers never acquire more than two firms within one Acquisition Block, whereas Sprinters must have at least one Acquisition Block where they complete three or more acquisitions. Therefore, depending on the number of successful

acquisitions carried out within one Acquisition Block, the serial acquiror will be categorised differently to distinguish between the pace which the firm acquire at. Marathoners simply complete 30 or more acquisitions over the sample period.

2.2.1 – Serial Acquiror Returns

While the returns of individual M&A transactions are widely covered by the literature, less focus has been placed on analysing the returns of serial acquirors. Kusewitt (1985) was among the first to study the relationship between acquisition strategies and financial performance of acquiring firms for a sample of 138 frequent acquirors completing 3,500 acquisitions in the USA. By analysing factors related to what the study calls acquisition programmes¹, the author finds a significantly negative relationship between yearly acquisition rates and market returns. Therefore, acquiring in quick succession can create an indigestion problem and threaten the success of acquisitions (Kusewitt 1985).

Later studies of serial acquirors differ from the approach of Kusewitt (1985), yet many of the findings support his conclusions. Laamanen and Keil (2008) find the same negative relationship between acquisition rate and long-term performance. Fuller et al. (2002) show that USA acquirors completing five or more deals over a three year period earn significantly positive CARs of 1.77 % on average. However, when analysing the order of deals, the CAR for the first transaction completed is noticeably higher compared to the fifth or higher deal. Over a five day event window, Fuller et al (2002) find that acquirors earn a significantly positive CAR of 2.74 % for the first deal, which falls to 0.52 % for the fifth or higher deal. These results are also consistent with the findings of Ahern (2010) and Aktas et al. (2009) who find evidence of declining CARs for sequential deals, albeit significantly positive when looking at all deals combined for USA acquirors. Karolyi et al. (2015) find similar results for a global sample, where declining CARs are evident over the sample period.

Fuller et al. (2002) attribute declining returns to anticipation in the sense that the market incorporates more information about synergies the more acquisitions are completed by the firm. Therefore, the fifth or higher bid is anticipated by the market and will include relatively less new information about the acquiror, prompting a different market reaction (Fuller et al., 2002). Aktas et al. (2009) complement this view with a “learning” explanation: serial acquirors,

¹ Kusewitt (1985) defines an acquisition programme where multiple acquisitions are completed over time.

having honed their valuation and integration skills, bid more aggressively over time reducing their own CARs.

Ahern (2010) on the other hand finds a relationship between acquiror size and return as the main explanatory factor, where the acquiror chooses a target size that maximises returns. As the acquiror grows with each deal, it reduces its profits relative the acquirors size, leading to diminishing CARs but larger absolute dollar returns (Ahern, 2010). On the contrary, Boubakri et al. (2012) find empirical evidence of the opposite, where the fifth or higher bids return higher CARs than the first transaction completed by USA acquirors during the period of 1999-2010.

Adding to these findings, Ismail (2008) finds that USA acquirors have positive five day CARs of 1.22 %, but that single acquirors gain significantly higher returns when comparing to serial acquirors (2.67 % vs 0.97 %) after controlling for acquiror and deal characteristics. The difference is significant at the 1 % level and confirms the previous conclusions that acquirors see decreasing returns for each subsequent deal. This is also the case for private target acquisitions by UK serial acquirors in the study by Doukas and Petmezas (2007), where single acquirors achieve a 0.55 % higher CAR than serial acquirors between 1980 and 2004. Doukas and Petmezas (2007) also observe diminishing CARs for subsequent deals for these firms.

Macias et al. (2016) and Morillon (2021) apply a slightly different methodology when categorising serial acquirors. However, these findings also indicate that there is a negative return pattern for firms who complete deals in rapid succession - the categories the authors label as Sprinters and Joggers. There is one exception to this discovery. Firms who engage in a high frequency of deals, paced more evenly over time (Marathoners) sustain positive and stable CARs over each deal. As such, these firms appear to not be affected by the phenomenon of decreasing CARs, presenting a contradictory conclusion to previous results. The results of Macias et al. (2016) and Morillon (2021) are thereby consistent with the evidence that extraordinary acquirors consistently perform better than the average (Golubov et al., 2015). Golubov et al. (2015) find that a small subset of acquirors earn persistently high five day CARs across deals, attributing much of the variation of returns to firm-specific rather than deal-specific characteristics. While extraordinary good acquirors continue to make value enhancing acquisitions, worse performing acquirors experience the same pattern of declining returns for subsequent deals, supporting previous findings (Golubov et al., 2015). This substantiates the recognition of acquirors being skilled in deal-making, as presented by Jaffe et al. (2013).

To summarise, the literature broadly comes to similar conclusions. Serial acquirors appear to earn positive returns across acquisitions, but as more deals are completed the returns diminish. To explain the variation in returns, the literature focuses on various explanatory factors. Fuller et al. (2002) and Doukas and Petmezas (2007) see differences in returns explained by if the target is public or private, while others find more convincing evidence for learning (Aktas et al., 2009, 2013), acquiror size effects (Ahern, 2010), firm-specific effects (Golubov et al., 2015), acquisition patterns (Kusewitt, 1985; Laamanen & Keil, 2008; Macias et al., 2016; Morillon, 2021) and cross-border acquisitions (Boubakri et al., 2012). Throughout the next subsections, factors that may explain the variation in serial acquisition returns will be explained in further detail.

2.2.2 – Organisational Learning

Organisational learning, as discussed by Huber (1991), is a process where an organisation can alter its range of behaviours based on the gathering and processing of knowledge. In the context of acquisitions, Barkema and Schijven (2008) defines organisational learning as applying the insights a firm gains from a previous event to a following one. Learning from previous experiences is a key aspect in acquisition performance, as managers gain more experience to help guide future strategic actions (Schweizer et al., 2022). Schweizer et al. (2022) find that this is especially relevant in cross-border transactions, as it helps navigate hurdles of entering new markets, enhance acquisition target selection and improve outcomes of deal negotiations.

Despite the assumption that learning by doing should improve performance over time, Aktas et al. (2009, 2013) find that frequent acquirors see their announcement returns decrease for subsequent acquisitions. Aktas et al. (2009) attribute this phenomenon to the fact that CEOs become more aware of the value of synergies, increasing their valuation of target firms. This will lead to a more aggressive bidding strategy from acquirors over time, reducing bidder returns. The higher success rate of completed deals should therefore increase the frequency of future deals and thereby reduce the time between deals (Aktas et al. 2009, 2013). This idea of learning from experience is consistent with the observation that the time between deals is reduced as the number of acquisitions increase (Aktas et al. 2013). This is supported by Chao (2018) who find that firms engaging in deals at a lower velocity experience higher returns, suggesting there is more time for learning between deals.

The idea of organisational learning in M&A aligns with Jaffe et al. (2013), who concludes that acquisition performance tends to persist or improve over time – but only when the same CEO remains over multiple acquisitions. This suggests that learning in M&A is CEO-specific rather than embedded on a firm level. Golubov et al. (2015) offers a complementary perspective and suggests that learning is attributable only on a firm level. The authors find that firms performing well in one deal are more likely to perform well in the next one, while the opposite applies for worse performing firms, regardless of CEO turnover.

2.2.3 – Hubris

As an alternative discussion to organisational learning, history have shown that firms tend to become overconfident from its historical success in M&A. This can lead to systematic biases in a firms acquisition strategy, or what Gaughan (2004) calls empire building. Gaughan (2004) noticed among frequent acquirors that when a certain size is achieved through acquisitions, it is no longer achievable to sustain value enhancing acquisitions. If firms resort to acquisitions as a growth stage beyond this point, it leads to unnecessary and diversifying deals that consistently destroys value for shareholders (Gaughan, 2004).

To explain the phenomenon of overconfident managers, Roll (1986) introduced the hubris hypothesis. At its core, the hubris hypothesis suggests that early deal successes can give managers an inflated sense of their own judgment, resulting in overconfidence in their acquisition capabilities. Roll (1986) argues that these managers get in the habit of overestimating the true value of synergies, resulting in firms systematically overpaying for targets and transferring value to target shareholders at the expense of their own.

Empirical studies have later supported this systematic behaviour. Doukas and Petmezas (2007) measure hubris by studying high-order deals, where they assume the presence of hubris if a company completes five deals over a three year period. The authors argue that declining returns for consecutive acquisitions can be attributed to managerial overconfidence and suggest that managers become overconfident in their own ability after their initial success, leading them to pursue more deals. Billett and Qian (2008) find a similar story at the insider level. After a profitable first acquisition, executives often buy more shares of the acquiror and pursue follow-on bids, only to face negative CARs when those deals fail to meet heightened expectations.

In contrast, Ahern (2010) argues that not every high premium reflects pure hubris. Using the premium paid as a direct measure of overconfidence, Ahern (2010) finds no clear link between

larger premiums and worse announcement returns once he controls for firm size, deal experience, and other characteristics. This suggests that some “overpayment” may simply capture rational adjustments for firm-specific efficiencies or market conditions. Similarly, Aktas et al. (2009) argue that declining CARs are not necessarily sign of hubris. While they do not dismiss hubris altogether, the authors place more emphasis on factors such as declining investment opportunities, budget constraints or increasing competition in merger waves could explain the falling CARs, rather than these declines being taken as evidence of hubris alone.

2.3 – Acquisitions in Waves

To better understand what drives value creation or destruction in M&A transaction, it is important to understand what drives M&A activity. Previous literature has concluded that M&A activity tends to move in clusters rather than evenly over time (see Mitchell & Mulherin, 1996; Maksimovic et al., 2013). In total, this paper recognises six merger waves (“merger wave” or “M&A wave”) to date, driven by different catalysts and underlying factors.

The first wave started during the final years of the 19th century, between 1893 and 1904, driven by economic expansion, structural changes and the growth of stock markets (Cho & Chung, 2022). A major part of acquisitions was horizontal, as companies acquired within the same industry to create large monopolies.

The second wave of M&A activity was driven by economic recovery and stricter government interference to prevent the formation of monopolies. This instead led to corporations opting for vertical acquisition strategies, leading to the creation of oligopolies (Mitchell & Mulherin, 1996; Cho & Chung, 2022). The second wave ended in connection to the great depression in 1929.

The third wave, unfolding from the 1950s to 1970, was characterised by attempts to diversify operations, creating large conglomerates. The fourth wave emerged as an increase in deregulation of industries, combined with increased innovation of debt instruments and industry shocks reshaped the market structure and removed barriers for M&A activity. This especially led to an unprecedented increase in leveraged buyouts and hostile takeovers (Mitchell & Mulherin, 1996; Cho & Chung, 2022). As previously, this wave of M&A activity ended abruptly with a significant downturn in the stock market.

With the first four M&A waves being predominantly concentrated to the USA market, the fifth wave saw a significant increase in M&A activity in Europe, with cross-border transactions and high-value transactions, so called mega-deals, becoming more frequent (Gaughan, 2000; Cho & Chung, 2022). Starting in early 1990s, this wave of M&A activity ended as the dot-com bubble burst in the early 2000s. Barely three years following the fifth merger wave, the sixth one emerged in 2003 and ended as the credit market dried up during the financial crisis in 2008. With low interest rates and a historically weak USD, private equity and cross-border transactions was the most prevalent deal types of this period (Hill et al., 2016).

The history shows us that M&A activity tends to cluster in narrow sequences, often driven by distinguishable factors or themes that explain acquisition behaviour of firms. For example, Alexandridis et al. (2012) suggests that periods of low interest rates during the sixth merger wave incited companies to finance the deals with cash over equity. Mitchell & Mulherin (1996) concluded that industry shocks – such as deregulation, changes in input costs and technological innovation – is a main driver of why M&A activity occur in waves. Another hypothesis to why merger waves can arise is the valuation hypothesis (Rhodes-Kropf & Viswanathan, 2004), suggesting that higher market valuations increases the likelihood of a merger happening. This is noticeable since periods of high acquisition activity usually end with the inception of a major economic downturn, such as the 2008 financial crisis or the great depression.

This connection is relevant when discussing serial acquirors since they acquire companies in quick succession, and this may impact their returns. Therefore, understanding the dynamics of merger waves may be transferable when analysing individual companies. Both to help understand the motives behind acquisition strategies, but also to determine what factors impact the value creation of deals.

2.4 – Acquisition Variables

As observed in the previous referred literature, the studies regarding value effects of M&A try to explain the variation in CARs by controlling for deal and firm characteristics. This section presents a deep dive into some of the most common factors analysed in previous referred literature.

2.4.1 – Payment Method

Acquisitions are mostly financed with cash, equity (stock), or a combination of both. The literature suggests that the financing decision can depend on multitude of reasons and suggests

that the choice of payment method will affect the acquiror's share price differently (Travlos, 1987). The financing decision is typically consistent with the signalling theory, suggesting that managers have better information about the firm and its intrinsic value, and will therefore finance the acquisition in the most profitable way for existing shareholder (Travlos, 1987).

Acquisitions fully financed by equity are penalised by the market and experience significant negative announcement returns (Travlos, 1987; Shleifer & Vishny, 2003). This reaction signals to the market that the equity of the acquiring firm may be overvalued, and that managers therefore cease the opportunity to use the stock as acquisition currency (Travlos, 1987; Shleifer & Vishny, 2003). This price reduction is also consistent with the notion that dilution reduces stock prices (Asquith & Mullins, 1986). Faccio & Masulis (2005) also found that European firms with high levels of financial constraints (i.e. restrictions to raise debt) tend to finance acquisitions with stock, which also holds true for research of USA acquisitions (de Bodt et al., 2022).

On the contrary, cash offerings appear to reduce the effects of information asymmetry and experience neutral to positive market announcement returns, significantly different from equity offerings (Travlos, 1987). Since cash offerings typically requires debt financing to meet liquidity demands, this method is more commonly used by more viable firms with higher debt capacity that seeks to not dilute its current ownership (Travlos, 1987; Faccio & Masulis, 2005; de Bodt et al., 2022). Due to the low interest rate environment that has characterised financial markets since 2001, cash deals have become more common and over 70% of the deals during the 2000s have been financed by cash in the USA (Alexandridis, 2012; de Bodt et al., 2022).

2.4.2 – Cross-Border Acquisitions

Cross-border acquisitions, transactions in which the bidder and target are based in different countries, have become a central feature of global M&A and the volume of these transactions have increased dramatically over the past decades. In the late 1990s, cross-border transactions comprised under 25 % of global M&A volume. By 2007, this figure grew to 45 % (Erel et al., 2012). While cross-border acquisitions present several benefits, such as gaining access to new markets to improve company growth, they also come with additional layers of complexity, such as cultural and language barriers, geographic distance between firms, or adapting to the targets legal system (Hitt et al., 1997; Erel et al., 2012; Xu, 2017). Everything else kept

constant, these differences should in theory lower the probability of engaging in such transactions (Erel et al., 2012).

Some empirical research finds that, all else equal, cross-border bids yield lower announcement returns than domestic ones. Boubakri et al. (2012) document a significant discount of between 0.5-1.0 %, attributable to heightened uncertainty and integration costs for USA acquirors. Chari et al. (2004) find that the CAR depend on the development of the target market. Acquisitions with a developed market acquiror and emerging market target obtain a statistically significant positive return of 2.4 %, oppose to developed-market targets where returns are slightly negative and insignificant. Chari et al. (2004) imply that these results can stem from higher bargaining power of developed acquirors in these markets, improving deal negotiations. It is also probable that the assets of firms in emerging markets are relatively illiquid and that a lower price may reflect an illiquidity discount, leading to positive abnormal returns (Chari et al., 2004; Fuller et al., 2002).

Lastly, Xu (2017) found that cross-border acquisitions completed during merger waves experience significantly greater CARs than transactions outside, especially noticeable for deals completed in the late stage of merger waves oppose to the early stage. This is consistent with learning, which Collins et al. (2009) find especially relevant for cross-border acquisitions, since firms are more likely to expand in markets they understand.

2.4.3 – Corporate Diversification

Corporate diversification, or expansion into new business lines through M&A, has long been linked to a valuation discount. Denis et al. (2002) find that firms that adds industrial segments via acquisitions trade at roughly a 20 % excess-value discount compared to the individual segments by themselves. This gap remains significant after controlling for size and firm fixed effects. Freund et al. (2007) focus on USA acquirors and report that diversification leads to lower announcement returns, where firms with fewer growth opportunities generate more value compared to firms with high-growth opportunities (as measured by Tobin's q). This result highlights the market's scepticism toward deals driven by diversification.

This apparent penalty, however, may reflect mechanical factors rather than true value destruction. Graham et al. (2002) show that most of the excess-value decline of diversifying acquisitions arise because acquired divisions already trade at a discount, meaning diversification itself exhibits no negative effect on firm value. Mansi & Reeb (2002) build on

this finding by demonstrating that the diversification discount to equity holders is connected to firm leverage - all-equity firms don't exhibit the same diversification discount as levered firms.

Looking at the empirical evidence for returns of serial acquirors, Fuller et al (2002), Macias et al. (2016) and Morillon (2021) find evidence to support a negative relationship between industry diversification and acquiror returns, supporting the theory of a diversification discount.

2.4.4 – Firm Size

Firm size - both in absolute terms and relative to the target - has a pronounced negative effect on announcement-period returns. Gorton et al. (2009) theorize that medium-sized firms acquire smaller rivals to fend off hostile bids and show that acquisition profitability increases with the ratio of industry-leader size to bidder size. Empirical evidence supports this: Boubakri et al. (2012) find that transactions with a relative size of under 5 % to acquiror size generate a five-day CAR of 1.24 %, while those at or above 20 % yield only 0.79 %. Similarly, Ismail (2008) report that smaller single acquirors outperform larger serial acquirors in terms of CAR, partly attributable to more moderate deal sizes.

The risks of size concentrate at the top end of deal distribution. Moeller et al. (2005) find that during the late-1990s wave, acquirors lost USD 0.12 per dollar spent versus just USD 0.016 in the 1980s, driven almost entirely by a handful of mega deals. These large transactions underscore how financing strain, managerial distraction, and integration complexity amplify risk with deal scale.

Serial acquirors display the same pattern. Morillon (2021) shows a steady decline in three-day CARs - from 2.35 % for Loners to 0.20 % for Marathoners - as average assets rise from USD 1.3 billion to over USD 33 billion. Macias et al. (2016) get similar findings, linking larger cumulative scale to progressively lower CARs.

2.4.5 – Public or Private Target

Research finds that acquirors that buys private targets or subsidiaries have significantly positive returns, while buying public firms have significantly negative returns. This appears for both USA and European firms (Fuller et al., 2002; Faccio et al., 2005; Capron & Shen, 2007). The main explanation for the difference in returns stem from the fact that acquirors receive a better price of private firms because of a liquidity discount relative to comparable public firms –

usually between 15 % and 30 % for USA firms and slightly lower for European firms. This discount appears because private firms cannot be sold as rapidly as public firms, making the investment less attractive (Fuller et al., 2002; Officer, 2007; Klein & Scheibel, 2012).

Fuller et al. (2002) also find that acquisitions with private targets have significantly positive returns, regardless of payment method. However, for public targets, cash offerings have insignificant negative returns and equity offerings have significantly negative returns. The difference is also stated for deal order, where the authors observe an average CAR of 3.22 % for the first bid for private targets, and non-significant returns of -0.88 % for public targets. Compared with the fifth deal, these figures decline to a 0.72 % return for private targets and -1.73 % for public targets – both statistically significant. Based on this, the authors argue that the best prices of acquisitions are found in the order of (1) private acquisitions financed with equity, (2) private firms financed with cash, (3) public acquisitions with cash and (4) public targets with equity.

3. Data and Methodology

For this research, collecting data is of highest importance and imposes several challenges during the process. Additionally, the methodology procedure is also covered. This section is dedicated to thoroughly going through the data collection procedure, the decisions that impacted both data and methodology and what impact this had on the results.

3.1 Data Collection & Limitations

To collect the data sample used in this paper, the Refinitiv Eikon Deals Screener is used to collect information on M&A transactions. The corresponding return data for the announcement period of the unique companies and the benchmark were extracted using DataStream and Refinitiv Eikon.

The first step of the collection of the data samples considered which regions to include. Since a large majority of the previous literature surrounding serial acquisitions cover the USA market (i.e. Fuller, 2002; Ismail, 2008; Macias et al., 2016; Morillon, 2021; Macias et al., 2023), this paper aims to extend the research to European firms, partially done by Karolyi (2015) who analysed a global sample between 1997 and 2012. The sample of acquiring firms in Europe was then filtered based on MSCI's market classification of developed, emerging and frontier markets (MSCI, 2024). To ensure comparability across the entire sample, markets that switched classification during the sample period are not considered (i.e. Greece was excluded as it was reclassified from a developed to an emerging market in 2013).

MSCI's market classification is based on three main criteria: *economic development, size and liquidity requirements and market accessibility*. Filtering on developed European markets is deemed appropriate for two main reasons. Firstly, it ensures a high level of efficiency in the markets where the announcement return effect of acquirors is measured because of a more developed investor base in these countries – reflected in the size and liquidity and market accessibility requirements listed by MSCI. Developed markets have an established and secure market infrastructure, to which investors have equal access, ensuring the in- and outflow of capital (MSCI, 2024). With higher market liquidity and greater access for the investor base, the efficiency in pricing the impact of the transactions is deemed to be higher, improving the likelihood of efficient pricing of M&A deals. Secondly, this selection is also done to ensure comparability with the benchmark used in calculations of cumulative abnormal returns, the MSCI Europe Index, which includes large- and mid-cap companies in developed European

markets. This index is considered an appropriate benchmark, as it captures 85 % of the free float adjusted market capitalization across developed markets in Europe (MSCI, 2024). For target nations, no restrictions are applied.

Furthermore, the deal must have been announced between the 1st of January 2006 and 31st of December 2023 - the end of the most recent full year at the time of the sample collection. Deals prior to 2006 were excluded due to inconsistent information of European deals in the database. This initial sample included 38,129 deals.

Further restrictions were then applied to the sample, in line with previous literature (Fuller, 2002; Ismail, 2008; Macias et al., 2016; Morillon, 2021). These restrictions were set as followed:

1. Acquiring firms must be publicly listed and have return data available in the DataStream database over the estimation and event window.
2. The target firm is either a public, private or subsidiary firm.
3. The announced deal is either completed or unconditional in Refinitiv Deals Screener.
4. The deal value is disclosed and is greater than or equal to 1 million euros. The deal value is defined as the total consideration paid by the acquiror, including the amount paid for common stock, cash and debt. The deal value excludes fees and expenses.
5. The acquiror must purchase a stake higher than 50 % of the target firm.
6. Neither the acquiror or target firm is a utility or financial company, due to strict regulations in these markets.
7. To accurately isolate the announcement effect of each deal, deals that are clustered in time by the same firm are omitted from the sample. This excludes deals that are announced by the same firm within a five-day window.

Applying the listed restrictions have significant impact on the sample size but are considered necessary to perform a robust analysis that is consistent with previous research. About a third of the sample was refined after filtering on points 1-3, resulting in 23,334 announced deals. Publicly listed firms are necessary to calculate company returns and explains most of the reduced sample in this step.

The greatest reduction of the sample is explained by step 4. To be able to include a comprehensive list of control variables, consistent with previous research of both serial acquisitions and M&A returns, disclosed deal values are necessary to consider variables such

as total deal value and relative size of the offer to help explain the returns of serial acquirors. Along with step 5, 6 and 7, this reduced the sample size to 9,357 announced deals and concludes the base sample used in the analysis.

After concluding the base sample for the analysis, return data was retrieved for each unique firm in the sample from 250 days prior to the announcement date to 10 days after, using the total return index in DataStream which adjusts for the effect of dividends and stock splits. Return data for the benchmark index MSCI Europe was retrieved from Refinitiv Eikon using the Net Index denominated in EUR. Firms with no return data over the event and estimation window were excluded at this stage of the data collection. Normal returns were then calculated using the retrieved data, using equation (1)

$$R_{i,t} = (RI_{i,t}/RI_{i,t-1}) - 1 \quad (1)$$

where $RI_{i,t}$ is the return index data for firm i and MSCI Europe at time t . Normal returns were used instead of log-returns, since the difference for daily return data is negligible over short time periods. To test for this, log-returns were also calculated, but showed no noticeable effect on the results.

For the next step, the sample was divided into categories of either serial or non-serial acquirors. To define acquirors I follow Morillon (2021), which is the most comprehensive definition of serial acquirors in previous research, with a slight adjustment². Non-serial acquirors are defined as acquirors that complete between one and four acquisitions during the sample period. Serial acquirors complete five or more acquisitions, and are then classified based on their acquisition intensity, defined in table (1). This definition originates from a combination of Fuller (2002), Macias et al. (2016) and Morillon (2021) and distinguishes between different characteristics of acquirors in the sample and not only the number of acquisitions completed. This is done to capture the fact that acquirors behave differently in their acquisition strategies and analyse if this has any impact on announcement returns.

² Instead of dividing non-serial acquirors into two groups (“Loner” and “Occasional”), they are treated as one group of non-serial acquirors. This means firms completing between 1 and 4 acquisitions are labelled “non-serial acquirors”

TABLE 1 - Acquiror Definition

To define the unique acquirors of the sample, the methodology of Morillon (2021) is followed. This table summarizes the criteria of each definition, where firms completing between 1 and 4 acquisitions during the sample period are defined as “non-serial acquiror”. “Joggers” and “Sprinters” complete several acquisitions within the same range, but at different intensity. The intensity is defined by the number of acquisition blocks, where one acquisition block is defined by the number of acquisitions completed within 365 days of one another. I.e., two acquisitions completed within 365 days is a part of the same acquisition block. “Joggers” are firms that never acquire more than two companies within the same acquisition block, whereas “Sprinters” have at least one block where they acquire 3 or more companies. This means “Sprinters” acquire firms in faster sequences than “Joggers”. Lastly, “Marathoners” are simply companies that completed 30 or more acquisitions during the sample period.

Acquiror Category	# of Acquisitions	Acquisition Intensity	Acquiror Type
Non-Serial Acquiror	$1 \leq \#A \leq 4$		Non-Serial Acquiror
Jogger	$5 \leq \#A \leq 29$	Block Intensity ≤ 2	Serial Acquiror
Sprinter	$5 \leq \#A \leq 29$	Block Intensity ≥ 3	Serial Acquiror
Marathoner	$\#A \geq 30$		Serial Acquiror

3.1.1 Sample Summary

Using the methodology in table (1) to define acquirors, the sample presented in table (2) is retrieved. Panel A shows the full sample, including 2,897 unique firms completing 9,357 deals during the sample period. 2,283 (78.8 %) of the unique firms are defined as non-serial acquirors, completing 4,057 deals, while 614 (21.2 %) of the unique firms are defined as serial acquirors, completing 5,300 deals. The number of unique acquirors decrease for each of the serial acquiror classifications, where 380 firms are defined as Joggers, completing 2,650 deals, 228 firms are defined as Sprinters, completing 2,425 deals, and 6 firms are defined as Marathoners, completing 225 deals.

What is noticeable at first glance is the fact that serial acquirors completes over 56 % of the deals for the sample, despite only representing slightly more than one fifth of the firms. Serial acquirors are much larger in size compared to non-serial acquirors, completing deals with higher value on average. The one exception are Marathoners, where the average deal value is almost a third of the average deal value of the full sample, with an average of 61.5 million EUR. This stands in great contrast to the findings of Macias et al. (2016) and Morillon (2021). Joggers complete the highest valued deals, followed by Sprinters. However, because of the size difference between acquirors, the relative offer size is much higher for non-serial acquirors.

Looking at the summary statistics of the deal characteristics, we can see that the percentage of deals completed across each classification is similar for most characteristics. Most deals are acquisitions of private targets and within the same industry. Marathoners present exceptions in some areas. For example, only 2.7 % of deals are public targets, less acquisitions are completed within the same industry and almost 100 % of deals are financed fully with cash, which stands out compared to the rest of the sample. When looking at cross-border deals, it appears that serial acquirors complete more cross-border acquisitions in comparison to non-serial acquirors. However, when looking more closely, Joggers stands out and completes a higher number of cross-border acquisitions in comparison with Sprinters and Marathoners.

Finally, when looking at the payment methods for the acquisitions in the sample, they are mostly financed with cash across each acquiror classification, which is consistent with previous literature and the fact that a lower interest-rate environment has enabled cheaper debt financing since the early 2000s (Alexandridis, 2012). Non-serial acquirors finance deals more often fully with stock compared to serial acquirors. This is reasonable when looking at it jointly with the relative size of the offer, which is above 80 % for non-serial acquirors. It is likely that a higher relative offer size requires a higher level of liquidity if financed with cash which can impose restrictions on debt financing, leading to higher levels of stock financing (Travlos, 1987; Faccio & Masulis, 2005; de Bodt et al., 2022).

Panel B presents the industries of the acquiror and target. It can be observed that most deals occur where the acquiror is in either the High Technology, Industrial or Real Estate industry. When comparing with the target industry, Real Estate is less common in proportion to the acquiror industry, where the remainder of the distribution is similar for the full sample. When comparing non-serial and serial acquirors this difference becomes more evident, especially for the Sprinter and Marathoner category.

Table (3) present the number of acquisitions per country for both acquirors and targets. Panel A shows that a large portion of the full sample consist of acquirors from the United Kingdom (UK), followed by Sweden and France, with around 43 % of the deals being completed by UK acquirors. Non-serial acquirors have a more balanced distribution of acquisitions by country. However, for serial acquirors, 72 % of deals are completed by either UK, Swedish or French acquirors, where UK acquirors completed 50 % of the deals in the sample. Panel B shows as expected that many of the target firms are either from the US or Europe, with a lower portion

TABLE 2 – Summary Statistics by Acquiror Classification

This table presents summary statistics by acquiror classification. The baseline estimation window used is [-180,-30]. Panel A presents the number of unique firms by classification, how many deals completed within each classification and proportion to the sample size. Furthermore, firm and deal characteristics are presented, where average deal value and acquiror size are denominated in million EUR. Book-to-market is the book value of equity relative the market value of equity at the time of the acquisition. Relative offer size is the deal value in proportion to the size of the acquiror. The variables listed as % presents the proportion of public and subsidiary targets, deals completed in the same industry, cross-border deals and if the deal was financed with 100% cash or stock. Panel B presents the industries, as per Refinitiv Eikon's classification.

Panel A	<u>All Acquirors</u>	<u>Non-Serial Acq.</u>	<u>Serial Acquirors</u>	<u>Jogger</u>	<u>Sprinter</u>	<u>Marathoner</u>
Firm and Deal Characteristics						
Unique Firms	2,897	2,283	614	380	228	6
<i>% of Sample</i>	100 %	78.8 %	21.2 %	13.1 %	7.9 %	0.2 %
Number of Deals	9,357	4,057	5,300	2,650	2,425	225
<i>% of Sample</i>	100 %	43.4 %	56.6 %	28.3 %	25.9 %	2.4 %
Average Deal Value (€ mn)	267.9	185.4	331.0	434.6	242.8	61.0
Average Acquiror Size (€ mn)	5,636	1,904	8,492	8,516	8,932	3,466
Average Relative Offer Size	44.2 %	86.3 %	11.9 %	14.1 %	10.4 %	2.5 %
Book-to-Market	0.933	0.754	1.071	1.326	0.828	0.678
Leverage	0.186	0.166	0.202	0.177	0.224	0.261
Public Target (%)	8.7 %	8.6 %	8.8 %	11.1 %	6.8 %	2.7 %
Subsidiary Target (%)	37.1 %	37.2 %	37.1 %	39.8 %	34.9 %	28.9 %
Same Industry Acquisition (%)	67.4 %	67.3 %	67.4 %	69.1 %	66.9 %	53.8 %
Cross-Border Acquisition (%)	50.8 %	47.4 %	53.5 %	60.5 %	46.8 %	43.1 %
Payment in All Cash (%)	81.0 %	73.5 %	86.7 %	86.1 %	86.5 %	96.9 %
Payment in All Stock (%)	5.7 %	9.0 %	3.2 %	4.3 %	2.1 %	1.3 %

Panel B

	<u>All Acquirors</u>		<u>Non-Serial Acq.</u>		<u>Serial Acquirors</u>		<u>Jogger</u>	<u>Sprinter</u>	<u>Marathoner</u>
Acquiror Industry	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>N</u>	<u>N</u>
Consumer Products and Services	1,117	12 %	422	10%	695	13%	345	212	138
Consumer Staples	467	5 %	286	7%	181	3%	125	56	0
Healthcare	945	10 %	376	9%	569	11%	341	228	0
High Technology	1,778	19 %	880	22%	898	17%	463	435	0
Industrials	1,487	16 %	697	17%	790	15%	472	276	42
Materials	739	8 %	359	9%	380	7%	212	168	0
Media and Entertainment	679	7 %	340	8%	339	6%	194	145	0
Real Estate	1,433	15 %	366	9%	1,067	20%	328	694	45
Retail	379	4 %	197	5%	182	3%	71	111	0
Telecommunications	333	4 %	134	3%	199	4%	99	100	0
Target Industry									
Consumer Products and Services	1,215	13 %	495	12 %	720	14 %	340	290	90
Consumer Staples	470	5 %	281	7 %	189	4 %	128	60	1
Healthcare	1,044	11 %	352	9 %	692	13 %	337	333	22
High Technology	1,871	20 %	874	22 %	997	19 %	539	424	34
Industrials	1,499	16 %	681	17 %	818	15 %	436	338	44
Materials	675	7 %	338	8 %	337	6 %	210	124	3
Media and Entertainment	664	7 %	338	8 %	326	6 %	186	140	0
Real Estate	1,144	12 %	345	9 %	799	15 %	301	477	21
Retail	491	5 %	232	6 %	259	5 %	105	150	4
Telecommunications	284	3 %	121	3 %	163	3 %	68	89	6

outside these regions, where almost 10 % of the deals had an emerging or frontier market as home country.

To conclude the data collection, Figure (1) displays the volume of deals by each year in the sample and how the average deal value develops over the sample period. As shown in Figure (1), a higher number of deals were completed in 2006 and 2007, at the end of the sixth merger wave before the financial crisis. In the following years, the amount of completed deals in the sample is evenly balanced apart from after 2020, where there first was an uptick in completed deals during 2021 to then have a great reduction in completed deals until 2023. The average deal value have fluctuated throughout the time period but appears to be relatively higher in the second half of the sample period, with a peak in 2020.

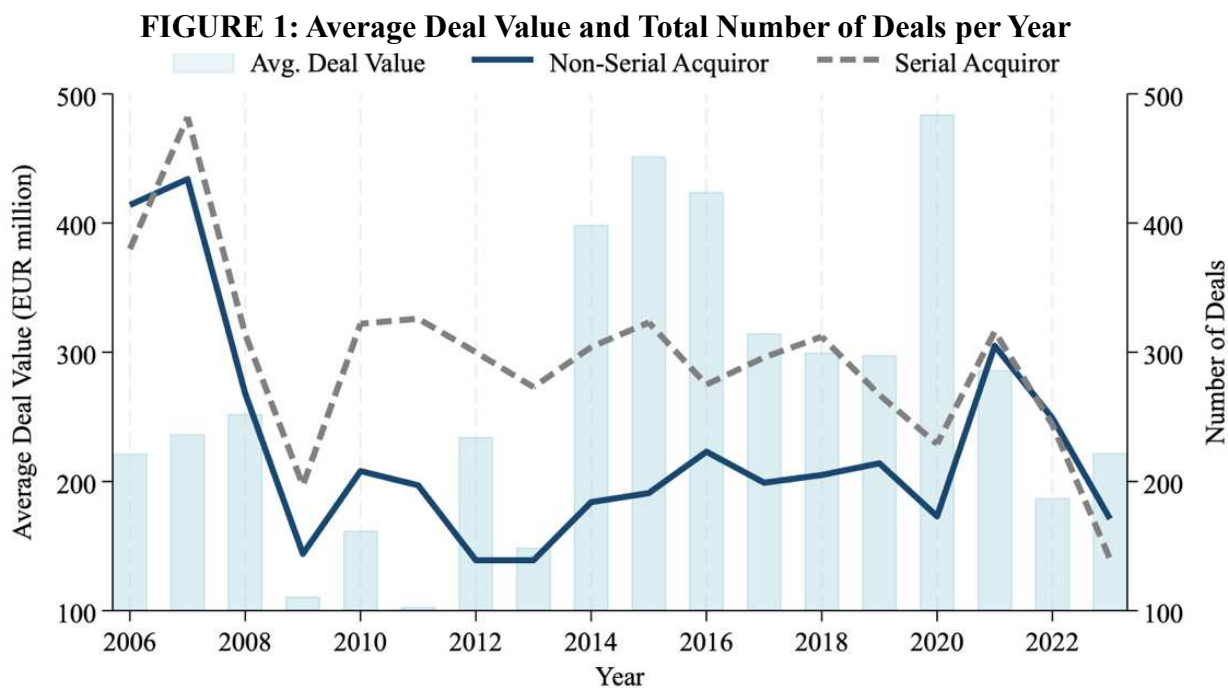


TABLE 3 – Total Acquisitions per Acquiror Country

This table presents the base sample used in the research sorted by home country of acquirors and targets. Each announced deal is retrieved and filtered based on the criteria listed in section 3.1. Panel A lists the home country of the acquirors, sorted by acquiror classification. Panel B lists the home country of the targets, also sorted by acquiror classification. In Panel A, the home countries in of acquirors are only from developed markets, according to the MSCI classification. In Panel B, only target countries from developed markets are mentioned by name, while targets from emerging or frontier markets are presented as “Other”. For full list of “Other” nations, see Appendix. “UK” = United Kingdom.

Panel A: Total Acquisitions by Acquiror Country and Classification

All Acquirors		Non-Serial Acquirors		Serial Acquirors		Jogger		Sprinter		Marathoner	
Austria	84	Austria	51	Austria	33	Austria	25	Austria	8	Sweden	34
Belgium	221	Belgium	117	Belgium	104	Belgium	40	Belgium	64	UK	191
Denmark	172	Denmark	111	Denmark	61	Denmark	46	Denmark	15	Total	225
Finland	292	Finland	171	Finland	121	Finland	79	Finland	42		
France	797	France	388	France	409	France	303	France	106		
Germany	536	Germany	304	Germany	232	Germany	157	Germany	75		
Ireland	235	Ireland	63	Ireland	172	Ireland	79	Ireland	93		
Italy	472	Italy	310	Italy	162	Italy	116	Italy	46		
Netherlands	268	Netherlands	120	Netherlands	148	Netherlands	88	Netherlands	60		
Norway	278	Norway	161	Norway	117	Norway	69	Norway	48		
Portugal	34	Portugal	34	Spain	174	Spain	53	Spain	121		
Spain	351	Spain	177	Sweden	751	Sweden	380	Sweden	337		
Sweden	1,307	Sweden	556	Switzerland	168	Switzerland	123	Switzerland	45		
Switzerland	307	Switzerland	139	UK	2,648	UK	1,092	UK	1,365		
UK	4,003	UK	1,355	Total	5,300	Total	2,650	Total	2,425		
Total	9,357	Total	4,047								

Panel B: Total Acquisitions by Target Country and Acquiror Classification

All Acquirors		Non-Serial Acquirors		Serial Acquirors		Jogger		Sprinter		Marathoner	
Australia	185	Australia	70	Australia	115	Australia	63	Australia	44	Australia	7
Austria	68	Austria	33	Austria	35	Austria	23	Austria	12	Belgium	1
Belgium	152	Belgium	66	Belgium	86	Belgium	37	Belgium	48	Canada	1
Canada	144	Canada	61	Canada	83	Canada	49	Canada	33	Finland	1
Denmark	179	Denmark	96	Denmark	83	Denmark	50	Denmark	33	France	1
Finland	216	Finland	104	Finland	112	Finland	64	Finland	47	Germany	8
France	569	France	292	France	277	France	197	France	79	Hong Kong	1
Germany	565	Germany	282	Germany	283	Germany	158	Germany	117	Ireland	2
Hong Kong	20	Hong Kong	7	Hong Kong	13	Hong Kong	6	Hong Kong	6	Italy	1
Ireland	98	Ireland	37	Ireland	61	Ireland	19	Ireland	40	Netherlands	3
Israel	28	Israel	11	Israel	17	Israel	12	Israel	5	Singapore	2
Italy	413	Italy	264	Italy	149	Italy	92	Italy	56	Spain	5
Japan	5	Japan	4	Japan	1	Japan	1	Netherlands	58	Switzerland	3
Netherlands	261	Netherlands	118	Netherlands	143	Netherlands	82	New Zealand	5	UK	132
New Zealand	14	New Zealand	2	New Zealand	12	New Zealand	7	Norway	61	USA	35
Norway	262	Norway	150	Norway	112	Norway	51	Portugal	14	Other	22
Portugal	50	Portugal	32	Portugal	18	Portugal	4	Singapore	2	Total	225
Singapore	25	Singapore	13	Singapore	12	Singapore	8	Spain	84		
Spain	346	Spain	184	Spain	162	Spain	73	Sweden	170		
Sweden	740	Sweden	385	Sweden	355	Sweden	185	Switzerland	14		
Switzerland	125	Switzerland	66	Switzerland	59	Switzerland	42	UK	931		
UK	2,647	UK	966	UK	1,681	UK	618	USA	373		
USA	1,437	USA	484	USA	953	USA	546	Other	193		
Other	808	Other	330	Other	478	Other	263	Total	2,425		
Total	9,357	Total	4,057	Total	5,300	Total	2,650				

3.2 Short-term event study

The event study methodology is a commonly used tool in empirical research for finance, widely used to assess how markets react to corporate events. Much of the foundation used in event study methodology in today's research trace back to Fama et al. (1969), who was among the first to develop the idea of an "event window" to capture abnormal returns immediately before and after a firm's announcement, thereby isolating the event's direct impact on stock prices. Building on this, Fama (1970) embedded event studies within the semi-strong form of the efficient-markets hypothesis, arguing that prices "fully reflect" all publicly available information almost instantaneously, implying any systematic deviation from expected returns during the event window must stem from the new information related to the event.

In practical terms, researchers estimate a normal-return model, over a pre-event estimation window to derive expected returns. Thereafter, abnormal returns are computed as the difference between observed and expected returns in the event window, where the residuals are then aggregated across time (and often across firms) to test for statistically significant effects. This measures the impact of the event on a firm's value (MacKinlay, 1997).

Following MacKinlay (1997), the procedure involves three core steps. Firstly, the event and estimation windows are defined. Secondly, the normal-performance model is selected. For this research, the market model is applied. Lastly, using the market model, the abnormal returns are computed across the event windows and tested for significant effects.

In this research, the event is the M&A transaction completed by each firm, where the event date is the announcement day of the transaction. The event window should be expanded to the days surrounding the announcement to capture any potential leakage of information or delayed market reactions (MacKinlay, 1997). The estimation window should be long enough to minimize the error component of abnormal return variance. MacKinlay (1997) states that the longer the estimation window, the lower effect the error component has on the estimation of the parameter, improving the robustness of the results. A variety of estimation windows are used in previous research. MacKinlay (1997) argues that 120 days to 30 days before the event window, [-120, -30], is a sufficient estimation period for daily returns, but that it is also commonly extended up to a full trading year [-250, -30].

The event windows tested in this research are based on previous research (see for example Fuller et al., 2002; Ismail, 2008; Morillon 2021) and include three-day, five-day and eleven-

day windows. The main estimation window used is [-180,-30]. To improve robustness of the results, estimation windows [-120,-30] and [-250,-30] are also tested.

3.3 Market Model

The market model is commonly used in event studies. Mainly because of its conceptual simplicity and easy implementation, while having proven variance reducing benefits. It is a statistical one factor model that decomposes the return of the firm into a predictable component, driven by the firm's correlation to the market, and an unpredictable idiosyncratic component. The market model is defined as:

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t} \quad (2)$$

$$E[\varepsilon_{i,t} = 0], \text{var}[\varepsilon_{i,t}] = \sigma_{\varepsilon_i}^2$$

where $R_{i,t}$ is the return of firm i at time t , $R_{m,t}$ is the return of the market at time t (i.e. the MSCI Europe Index) and $\varepsilon_{i,t}$ is the residual of firm i at time t . The coefficients α_i and β_i are estimated using ordinary least squares (OLS). Under the model's basic assumptions of joint normality and that $\varepsilon_{i,t}$ is iid, OLS produces consistent and efficient estimates of the parameters for the given estimation window (MacKinlay, 1997).

With the estimated coefficients $\hat{\alpha}$ and $\hat{\beta}$, abnormal returns can be measured. Using the market model, abnormal returns are given by:

$$AR_{i,t} = R_{i,t} - \hat{\alpha}_i - \hat{\beta}_i R_{m,t} \quad (3)$$

where $AR_{i,t}$ corresponds to the disturbance term $\varepsilon_{i,t}$, given in equation (2). The conditional variance of $AR_{i,t}$, under the assumptions of the market model, is given by:

$$\sigma^2(AR_{i,t}) = \sigma_{\varepsilon}^2 + \frac{1}{L_1} \left[1 + \frac{(R_{m,t} - \hat{\mu}_m)^2}{\hat{\sigma}_m^2} \right] \quad (4)$$

where σ_{ε}^2 is the true idiosyncratic variance, and the second term is the sampling-error variance from estimating $\hat{\alpha}_i, \hat{\beta}_i$ over L_1 observations. As L_1 increases, the extra variance from estimating the parameters moves toward zero - meaning the longer the estimation window, the better the abnormal returns reflect the firm-specific shocks (i.e. the event). This leads to better isolation of the effect of the event, which in turn enhances the reliability of statistical inference (MacKinlay, 1997).

Following the last step of the event study methodology, the abnormal returns are accumulated over the event windows to allow for any inference of the studied events (MacKinlay, 1997). The cumulative abnormal return (*CAR*) for firm *i* is given by:

$$CAR_i(\tau_1, \tau_2) = \sum_{t=\tau_1}^{\tau_2} AR_{i,t} \quad (5)$$

where τ_1 and τ_2 mark the first and last date of the event window. To check for robust results, the event windows tested for in this research are $[-1, +1]$, $[-2, +2]$, $[-5, +5]$, where day 0 is the day of the announcement.

3.3.1 Market Model Biases

While the market model is considered reliable enough to draw conclusions for event studies, it relies on several assumptions that can introduce biases in the model and must therefore be considered.

Firstly, the simplicity of the model is often mentioned as one of its strong benefits. However, the market model fails to consider other risk factors than the market, introduced in models such as the CAPM (MacKinlay, 1997). Despite this potential bias, the additional factors explain only marginal variance-reduction benefits for daily event studies.

Secondly, since closing prices are commonly used to estimate the normal return, the market model fails to include nontrading effects of stock prices in the variances and covariances of each individual firm. This generally leads to a biased market model beta (MacKinlay, 1997). As an alternative and consistent beta measurement, the Scholes-William beta can be used, especially for stocks that are less traded in the market. For actively traded stocks, however, the adjustments are small and presents minor benefits (MacKinlay, 1997).

Thirdly, one of the key weaknesses of the market model is that it relies on the OLS assumptions of normality and that $\varepsilon_{i,t} = 0$. This is rarely the case in the presented empirical evidence as returns often experience fat tails and volatility clustering, thereby violating this assumption and producing inconsistent standard errors (MacKinlay, 1997). As presented in equation (4), the estimation of the parameters also introduces the risk of serial correlation. Since the parameters are used multiple times for each firm across each event window, it can potentially underestimate standard errors and overstate the statistical significance (MacKinlay, 1997).

Lastly, Fuller et al. (2002) present a potential weakness of including an estimation window when calculating cumulative abnormal returns. Since serial acquirors complete many

acquisitions in short periods of time, there is a potential risk of confounding events affecting the estimation window and thus the estimation of the parameters in equation (2).

To improve robustness of the results, these biases are considered and discussed in Section (3.5).

3.4 Control Variables

Determining the value effect in M&A has been proven difficult, as shown by previous literature. To best try and isolate the value effect of M&A deals in this research, several firm-level and deal-related control variables are included step by step in the statistical models. Variables proven to have explanatory power in existing literature are especially considered. In a subsequent step, each acquiror classification is included as an independent variable to test for differences in returns between each acquiror type. Additionally, declining returns are also tested for by measuring the returns for each deal and testing for significance.

Control variables are divided into two categories. Firm-level variables of the acquiror consist of the firm size, leverage level and its book-to-market ratio. Firm size is measured as market capitalisation and leverage is proxied through dividing the book value of debt by its book value of assets at the time of the transaction. Book-to-market ratio is included as a valuation proxy of the acquiring firm, where a low book-to-market ratio is an indicator that the firm's market equity is overvalued relative its book value (Dong et al., 2006).

Deal-related control variables included are deal value, the firm's relative size to the deal value, if the target is public, private or a subsidiary firm, if the deal occurred within the same industry, if the deal happened cross-borders and if the transaction was financed with all cash or stock. Also, since about 10 % of the target countries are from emerging or frontier markets, a dummy variable is included if the target is a developed market or not. This is done to test if there is a discount related to emerging market targets (Chari et al., 2004). All deal-related control variables, apart from deal value, are dummy variables, explained in further detail in table (2). Variables that are not dummy variables are log-transformed and denominated in million EUR.

Fixed effects are also considered for the hypothesis testing. Specifically, firm-fixed effects and industry-fixed effects are included. This is done to improve the robustness of the results, since the aim is to isolate the value effect of the deal itself. Including firm-fixed effects accounts for firm-specific characteristics, helping to address omitted variable bias and unobserved heterogeneity (Morillon, 2021). This is also potentially embedded for serial acquirors, since

observing the same company over multiple deals removes cross-sectional heterogeneity in acquiror characteristics (Fuller et al., 2002). To capture any difference in variation at the firm level and not exclude any variation individual firms have on abnormal returns, results will be presented with and without firm-fixed effects. Additionally, since part of the sample considers the same firms over time, many of the explanatory variables focusing on acquiror characteristics in existing research are not considered in this paper.

Industry-fixed effects are included for the same reason as firm-fixed effects, to control for any structural differences in industries that may have an impact on deal returns. This is commonly done in previous research to capture unobserved heterogeneity (Macias et al., 2016; Morillon, 2021). Industry-fixed effects are included in each model for this thesis.

3.5 Hypothesis Testing and Robustness Checks

In line with Fuller et al. (2002), Macias et al. (2016) and Morillon (2021), univariate and multivariate tests are carried out to accept or reject our hypotheses. First, a one-sample t-test is used to assess whether the mean CAR across all deals differs significantly from zero. Next, to compare CARs across acquiror types (e.g. Jogger vs. Sprinters), a two-sample t-tests is run, implemented as OLS regressions with a dummy for each group, to test for differences in average CAR between classifications.

For the multivariate significance tests, control variables are included to test for the value effect of the deals, using the control variables listed in the previous section. The baseline model used for the multivariate regressions, with fixed effects included, are given by equation (6),

$$CAR_{i,t} = \beta_1 FirmControl + \beta_2 DealControl + \lambda_f + \lambda_i + \varepsilon_{i,t} \quad (6)$$

where $CAR_{i,t}$ is the CAR for each acquiror group at the tested event window. λ_f denotes firm-fixed effects and λ_i industry fixed effects. To test the baseline effects, deal-related control variables will be added subsequently to the firm-level control variables to first measure the baseline effects of acquiror group on the announcement returns, and then the added variation to the results.

To test if there is proof of declining returns, a set of models will also include variables that determine the order sequence of completed deals. The variables included will be a dummy for the first to fourth deal completed by an acquiror and the fifth or higher deal dummy, only for

serial acquirors, in line with previous literature. These variables will be tested with and without the firm-level and deal-related variables, to capture any potential variation in the results.

To improve the reliability of the results, several robustness checks are completed. To counter some of the limitations presented in Section (3.3.1), clustered standard-errors are applied at the firm level to account for the risk of heterogeneity and serial correlation. Additionally, multiple event and estimation windows are tested to check if the results are consistent over different periods³. To prevent the results being biased by a large part of the sample being from the UK, regressions will also be run after omitting acquirors from this country. Finally, to mitigate the effect of extreme values, the results are winsorized at the 1% level on both tails to remove outliers.

4. Empirical Results

This section will present the results retrieved from using the methodology presented in Section (3), to examine the wealth creation of Non-Serial and Serial Acquirors. The CARs retrieved by using the market model are discussed, followed by the introduction of controls on value effects. The returns in deal order are then presented and discussed against previous research of learning and hubris. Lastly, a series of robustness checks are presented.

4.1 Acquiror Cumulative Abnormal Returns

While the early literature documented M&A as a value destructive activity for acquirors, the results presented in table (4) indicate of the opposite. It seems clear that European acquirors generate positive and significant CARs on average across the entire sample, regardless of the chosen event window. This opposes the initial findings of Jensen and Ruback (1983), that target shareholders absorb close to all the value created in mergers. However, when making the comparison with a magnitude of later studies (see Fuller et al., 2002; Ismail, 2008; Macias et al., 2016; Morillon, 2021), the results in panel A appear to be consistent with these findings.

An initial reflection is that returns decrease as the event window lengthens, consistent with the greater noise introduced over longer windows, confirming that the event is captured around the announcement date. When the sample is split into acquiror types, the findings become more striking. While all acquirors generate positive CARs, serial acquirors earn just 1.01 % over a three day event window compared to 2.11 % for non-serial acquirors in this sample.

³ Event windows tested are: [-1,+1], [-2,+2], [-5,+5]. Estimation windows tested are listed in section 3.2.

TABLE 4 - Cumulative Abnormal Returns by Acquiror Classification

This table presents the CARs that was estimated using the market model in equation (2) and equation (5) to compute the CARs. Panel A displays the CARs over three different event windows, divided by acquiror classification. Panel B shows the difference in CAR between acquiror classifications. *, ** and *** denote significance at the 10%, 5% and 1% level and standard errors are clustered at the firm level.

Panel A	CAR [-1,+1]	CAR [-2,+2]	CAR [-5,+5]
All Acquirors	1.49 % ***	1.43 % ***	1.05 % ***
Non-Serial Acq.	2.11 % ***	2.03 % ***	1.53 % ***
Serial Acquirors	1.01 % ***	0.97 % ***	0.69 % ***
Jogger	1.27 % ***	1.25 % ***	0.94 % ***
Sprinter	0.80 % ***	0.73 % ***	0.49 % ***
Marathoner	0.19 %	0.24 %	-0.15 %

Panel B	CAR [-1,+1]	CAR [-2,+2]	CAR [-5,+5]
Serial vs Non-Serial	-1.10 % ***	-1.06 % ***	-0.84 % ***
Jogger vs Non-Serial	-0.85 % ***	-0.77 % ***	-0.59 % **
Sprinter vs Non-Serial	-1.31 % ***	-1.30 % ***	-1.04 % ***
Marathoner vs Non-Serial	-1.92 % ***	-1.79 % ***	-1.68 % ***
Jogger vs Sprinter	0.46 % ***	0.52 % ***	0.45 % *
Jogger vs Marathoner	1.08 % ***	1.01 % ***	1.09 % ***

This holds true for each event window, confirming Ismail (2008) and Doukas and Petmezas (2007) findings that serial acquirors earn significantly lower CARs compared to non-serial acquirors.

Digging deeper into serial acquirors' acquisition patterns reveal further differentiation. Joggers, acquiring firms at a slower pace than other serial acquirors, still gain 1.27 % over a three day window, whereas Sprinters earn only 0.80 % and Marathoners see a near-zero 0.19 % CAR (although insignificant). These findings partially support the findings of Macias et al. (2016) and Morillon (2021) - moderate pacing fosters organisational learning and efficient integration, where intense acquisition sequences can restrain managerial capacity and lead to lower announcement returns.

Panel B further quantifies these contrasts. Sprinters underperform non-serial acquirors by 1.31 percentage points (pp), Marathoners by 1.92 pp, and even Joggers lag by 0.85 pp, whereas Joggers still outperform Sprinters by 0.46 pp (all significant at 1 %). This suggests that the more acquisitions a firm completes, the lower the returns appear to become. While these results show no evidence of other explanatory attributes, they initially seem to be consistent with the findings of Fuller et al. (2002), Ismail (2008), Macias et al. (2016) and Morillon (2021), and others, who find the pattern of declining returns for each subsequent deal completed.

What is conflicting with previous literature, and not expected for this sample, is the fact that Marathoners earn the lowest average returns out of the acquiror groups. This is contradicting the findings of Macias et al. (2016) and Morillon (2021), who concluded that Marathoners earn positive and stable CARs for each acquisition over time. While table (4) presents no evidence of CARs for each completed deal, merely the average of all acquisitions, it is worth noting that the sample size of Marathoners is much smaller compared to other acquiror groups and the samples of previous literature. This introduces the risk of a sequence of outlier events impacting the average CAR to larger extent compared to other groups, even if the results have been winsorized at the 1 % level. For example, Moeller et al. (2005) showed that the effect of large loss deals can erase the returns of previous acquisitions, thereby affecting the results of the entire sample. This risk seems unlikely when observing the summary statistics in table (5), where the standard deviation is lower for the Marathoner category, as well as the 10th percentile compared to the full sample. The standard deviation also increases with the length of the event window for all acquirors, which could imply greater introduction of noise unrelated to the deal announcement. Overall, table (4) not only confirms that European acquirors on average have

TABLE 5 – Summary Statistics of CAR per Acquiror Classification

Table 5 presents the summary statistics of CARs for the different event windows and acquiror classification. The Mean and Median are presented, followed by the 10th Percentile and the 90th percentile, Standard Deviation, Skewness and Excess Kurtosis. As in table 4, CARs were estimated using the market model, using standard errors clustered at the firm level.

All Acquirors				Non-Serial Acquirors				Serial Acquirors			
CAR	[-1,+1]	[-2,+2]	[-5,+5]	CAR	[-1,+1]	[-2,+2]	[-5,+5]	CAR	[-1,+1]	[-2,+2]	[-5,+5]
Mean	1.49%	1.43%	1.05%	Mean	2.11%	2.03%	1.53%	Mean	1.01%	0.97%	0.69%
Median	0.62%	0.66%	0.59%	Median	0.93%	0.95%	0.84%	Median	0.46%	0.53%	0.44%
P 10	-3.78%	-4.91%	-7.77%	P 10	-4.47%	-5.63%	-9.25%	P 10	-3.38%	-4.47%	-6.98%
P 90	7.75%	8.87%	10.87%	P 90	9.93%	11.23%	13.38%	P 90	6.25%	7.05%	9.01%
St. Dev.	6.01%	6.89%	8.95%	St. Dev.	7.17%	8.14%	10.38%	St. Dev.	4.88%	5.71%	7.66%
Skewness	1.24	0.81	0.19	Skewness	1.11	0.74	0.23	Skewness	1.03	0.61	-0.02
E. Kurtosis	8.04	6.85	5.97	E. Kurtosis	6.35	5.51	4.94	E. Kurtosis	8.69	7.60	6.74
Joggers				Sprinters				Marathoners			
CAR	[-1,+1]	[-2,+2]	[-5,+5]	CAR	[-1,+1]	[-2,+2]	[-5,+5]	CAR	[-1,+1]	[-2,+2]	[-5,+5]
Mean	1.27%	1.25%	0.94%	Mean	0.80%	0.73%	0.49%	Mean	0.19%	0.24%	-0.15%
Median	0.71%	0.78%	0.66%	Median	0.29%	0.35%	0.30%	Median	0.20%	0.19%	0.11%
P 10	-3.53%	-4.50%	-7.19%	P 10	-3.28%	-4.56%	-6.72%	P 10	-2.27%	-3.32%	-4.84%
P 90	7.05%	7.94%	9.87%	P 90	5.71%	6.47%	8.45%	P 90	3.04%	3.98%	5.01%
St. Dev.	5.15%	5.99%	7.97%	St. Dev.	4.73%	5.55%	7.52%	St. Dev.	2.48%	3.33%	4.72%
Skewness	0.96	0.53	-0.07	Skewness	1.06	0.65	0.02	Skewness	0.04	0.90	-0.65
E. Kurtosis	7.69	6.78	6.18	E. Kurtosis	9.56	8.39	7.24	E. Kurtosis	5.92	8.15	5.56

positive and significant announcement-period gains, but also that both the frequency and pacing of deals appear to critically moderate the scale of these wealth effects, as suggested by previous research.

4.2 Impacts on Value Creation in Serial Acquisitions

After concluding that acquirors generate positive returns and that non-serial acquirors appear to outperform serial acquirors, table (5) present results of the first multivariate regressions over three day CARs to determine what variables can explain the value effects of the acquisitions in the sample. Non-serial acquirors are grouped in model (1) and (2) and serial acquirors in model (3) and (4).

Models (1) and (3), including only firm-level controls, reveal similar results for both acquiror groups. Acquiror scale have a negative value effect on announcement returns for both non-serial and serial acquirors, where the effect is stronger for the non-serial group – results are also robust when controlling for deal-related variables and different event windows. A one unit increase in market capitalization reduces CAR by 0.87 % for non-serial acquirors and by 0.44 % for serial acquirors, confirming that larger firms, regardless of acquisition strategy, tend to see reduced market reactions at announcement, consistent with the findings of previous literature. When considering the comparison between the groups, it is noticeable that the negative effect is larger for the non-serial group when comparing to the findings of Ismail (2008). Ismail (2008) suggest that smaller non-serial firms tend to outperform larger ones in terms of CARs, where the results in table (6) present evidence of the opposite - although without considering the higher baseline CAR of non-serial acquirors in table (4).

Deal Value has a significantly positive effect on CAR, indicating that larger completed deals are considered more positively by the market for both non-serial and serial acquirors. In isolation, this is somewhat conflicting with the conclusions of Boubakri et al. (2012), who stated that a higher relative deal size should lead to lower announcement returns. Indeed, after controlling for deal characteristics in model (2) and (4), it can be found that the Relative Size of the offering has a slight negative and significant impact on CARs for non-serial acquirors, in line with Boubakri et al. (2012). Interestingly, the effect is the opposite for serial acquirors and may suggest that serial acquirors can handle the complexities of a higher relative deal size better than non-serial ones, consistent with the findings of Fuller et al. (2002), although significant only at the 10% level.

TABLE 6 – Multivariate Regression on CAR [-1,+1]

This table presents four different regressions with the dependent variable CAR [-1,+1], with the estimation window [-180,-30]. Model (1) and (2) include non-serial acquirors whereas model (3) and (4) are serial acquirors. For model (1) and (3) only firm-related variables are regressed in isolation, whereas deal-related variables are added sequentially for model (2) and (4). The control variables included are discussed in Section (3). Firm fixed effects are included only for serial acquirors and industry fixed effects are included in all models. *, ** and *** denote significance at the 10%, 5% and 1% level and standard errors are clustered at the firm level in parentheses.

	(1)	(2)	(3)	(4)
Size	-0.0062 *** (0.001)	-0.0087 *** (0.001)	-0.0020 *** (0.001)	-0.0044 *** (0.001)
Leverage	0.0046 * (0.002)	0.0043 * (0.002)	-0.0047 *** (0.011)	-0.0073 (0.011)
Book-to-Market	-0.0003 (0.000)	-0.0004 (0.000)	0.0001 (0.000)	0.0001 *** (0.000)
Deal Value		0.0060 *** (0.001)		0.0046 *** (0.001)
Relative Size		-0.0001 * (0.000)		0.0014 * (0.001)
All Cash		-0.0021 (0.003)		-0.0001 (0.003)
All Stock		0.0094 (0.006)		-0.0055 (0.007)
Same Industry		-0.0043 * (0.003)		-0.0029 * (0.002)
Cross-Border Dummy		-0.0013 (0.003)		0.0038 * (0.002)
Developed Target		-0.0007 (0.004)		0.0010 (0.003)
Public		-0.0183 *** (0.004)		-0.0135 *** (0.003)
Subsidiary		0.0033 (0.003)		0.0004 (0.002)
Intercept	0.0542 *** (0.005)	0.0558 *** (0.007)	0.024 ** (0.012)	0.0261 ** (0.011)
Firm FE	No	No	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
N	4044	4044	5266	5266
Adjusted R2	0.03	0.05	0.08	0.10

Beyond size, other deal characteristics impact value in M&A. Cross-Border transactions yield opposing effects: non-serial acquirors register a slight negative but insignificant coefficient, while serial acquirors earn a 0.38 % premium (model 4). This hints that the presence of learning in cross-border acquisitions may be greater than previously concluded by Boubakri et al. (2012), as experienced bidders refine their integration routines abroad. In contrast, deals within the same industry has a negative effect for both acquiror groups. The results are not in line with previous literature and surprisingly contradicts the broad consensus that diversifying deals include a significant discount on CARs.

Meanwhile, Public Target acquisitions impose the largest value reducing effect for both acquiror groups, significant at the 1 % level. Non-serial acquirors have an announcement effect of -1.83 % and serial acquirors of -1.35 % when acquiring public targets. This reinforces Fuller et al. (2002) and Faccio et al. (2005) that private-target deals unlock greater acquirer gains, regardless of payment method. While the payment method seems to influence the CAR, as suggested by Fuller et al. (2002), the effect is insignificant for both groups in this sample.

For non-serial acquirors, the introduction of leverage has a positive effect on CARs, significant at the 10% level. For serial acquirors, leverage has a negative but insignificant effect. Instead, for serial acquirors, a higher Book-to-Market ratio predicts a small but significant CAR increase (0.02 %), indicating that lower valued serial bidders (in terms of book value to market value of equity) gain marginally more in announcement returns.

Looking at the robustness of the model, the explanatory power (adjusted R²) marginally increases when adding the deal-related variables, suggesting that the variables introduced adds explanation for some of the variation in M&A returns. Overall, the results are robust also for five day CARs, presented in Appendix table (B1).

4.2.1 Value Effects per Acquiror Classification

After demonstrating the difference in deal value effects between non-serial and serial acquirors, table (7) displays these effects across each acquiror group within the serial acquiror categories: Joggers (model 1), Sprinters (model 2), and Marathoners (model 3). While the results resemble the initial regressions at large, differences arise between each of acquiror group. Joggers exhibit a modest but statistically significant size penalty: each additional € million in market capitalization reduces CARs by 0.0056 pp, whereas the coefficients for Sprinters (-0.0031 pp)

TABLE 7 – Multivariate Regression on CAR [-1,+1]

This table presents three different regressions with the dependent variable CAR [-1,+1], with the estimation window [-180,-30]. Model (1) represents Joggers, model (2) represents Sprinters and model (3) represents Marathoners. The control variables included are discussed in Section (3). Firm fixed effects and industry fixed effects are included in all models. *, ** and *** denote significance at the 10%, 5% and 1% level and standard errors are clustered at the firm level in parentheses.

	(1)	(2)	(3)
Size	-0.0056 ** (0.002)	-0.0031 (0.002)	-0.0135 (0.008)
Leverage	-0.0261 (0.017)	0.0127 (0.015)	-0.0103 (0.031)
Book-to-Market	0.0002 *** (0.000)	-0.0005 (0.001)	-0.0186 (0.010)
Deal Value	0.0056 *** (0.001)	0.0036 *** (0.001)	0.0031 ** (0.001)
Relative Size	0.0013 ** (0.001)	0.0035 (0.009)	-0.0852 *** (0.012)
All Cash	0.0001 (0.005)	-0.0004 (0.005)	0.0067 (0.006)
All Stock	-0.0042 (0.010)	-0.0066 (0.011)	-0.0117 *** (0.003)
Same Industry	-0.0045 * (0.003)	-0.0016 (0.002)	0.0046 (0.005)
Cross-Border Dummy	0.0043 (0.003)	0.0034 (0.003)	-0.0027 (0.004)
Developed Target	-0.0005 (0.003)	0.0033 (0.004)	0.0065 (0.005)
Public	-0.0110 ** (0.005)	-0.0164 *** (0.005)	-0.0042 (0.003)
Subsidiary	0.0017 (0.003)	-0.0001 (0.002)	-0.0021 (0.004)
Intercept	0.0371 ** (0.017)	0.0126 (0.017)	0.1018 (0.068)
Firm FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
N	2640	2403	223
Adjusted R2	0.08	0.11	0.04

and Marathoners (-0.0012 pp) are economically negligible and insignificant. This refines the aggregate serial-acquiror result and reinforces that, even within serial acquirors, only those maintaining a steady deal flow continue to attract size-related market scepticism.

Across all acquiror groups, larger transactions remain highly rewarded. An additional € million in deal size is associated with a 0.0056 pp higher CAR for Joggers, 0.0036 pp for Sprinters, and 0.0031 pp for Marathoners. These results resemble Fuller et al. (2002) and Moeller et al. (2004) in highlighting absolute deal magnitude as a principal driver of announcement-period gains.

When deal size is measured relative to firm scale, only Joggers display a positive coefficient (0.0013), indicating their modestly paced approach allows them to absorb larger relative deals without reducing CARs. Marathoners suffer a definitive negative effect (-0.0852), underlining how extreme deal volumes relative to scale appear to create greater market concerns about the deal value creation for this acquiror group. However, the coefficient appears to be abnormally large in relation to the rest of the sample. This could be explained by the introduction of large loss deals presented by Moeller et al. (2005), that the completion of large deals relative the size of the acquiror can erase the previous returns of the acquiror, especially relevant for firms undergoing many acquisitions over time. This once again raises some concerns on the sample size of Marathoners, reflected in the lower explanatory power of the model relative the others.

Joggers and Sprinters earn small, positive premiums on Cross-Border transactions, whereas Marathoners experience a slight negative effect. Although insignificant effects, this pattern suggests that only serial acquirors with controlled deal flow can develop and deploy cross-border integration capabilities effectively, affecting the learning behaviour of firms. Acquisitions of public firms impose meaningful penalties across subgroups: -1.10 pp for Joggers, -1.64 pp for Sprinters, and -0.42 pp for Marathoners. This mirrors the private-target premium identified in Section 4.2 and prior studies (Fuller et al., 2002; Faccio & Masulis, 2005).

In comparison to table (4) - where average CARs stood at 1.27% for Joggers, 0.80% for Sprinters, and 0.19% for Marathoners - these group-specific regressions highlight the underlying drivers. Joggers' greater returns arise from their ability to combine smaller size penalties with robust deal-value and relative-size benefits. Sprinters achieve moderate gains from value-rich deals but remain exposed to public-target discounts. Marathoners' near-zero

average CAR reflects the combined weight of disproportionate relative-size penalties and public-target effects that accompany their high-volume, rapid-fire acquisition strategy.

4.3 Robustness Tests and Further Analysis

To test the robustness of the findings in the initial sample, this section aims to test some of the concerns raised in section (3.4) and (3.5). After re-estimating the regressions from table (6) and table (7) without UK acquirors, table (8) and model (1-5) reveal that the rest of the European acquirors exhibit similar patterns to the full sample, albeit with some notable shifts.

Seeing the results for non-serial acquirors, the negative firm-size coefficient strengthens to -0.01 (versus -0.0087), indicating that non-serial acquirors outside the UK face slightly greater scepticism when they grow larger. Conversely, the positive Deal Value effect remains intact, confirming that larger transactions continue to signal synergy potential (Fuller et al., 2002; Moeller et al., 2005). However, the Relative Size effect becomes statistically insignificant for non-serial acquirors, showing no effect on the CAR, while Cross-Border and Same Industry acquisitions have the same results. The Public target penalty still applies, while the leverage effect seems to be amplified when observing firms outside the UK.

Among all serial acquirors, the size penalty remains effectively unchanged, however less significant. Likewise, Deal Value continues to boost CARs, ($+0.003$), where the effect of Relative Size is more significant at the same coefficient and appear to be a greater driver of abnormal returns outside the UK. This suggests that outside the UK, investors view bold, high-relative-size deals by experienced bidders as evidence of integration competence rather than overreach. Furthermore, lower valued firms (by Book-to-Market) are no longer rewarded with higher CARs, where also both the Cross-Border and Same Industry value effects seen in table (6) diminishes. The public-target discount softens slightly but remains substantial, confirming that acquisitions of listed firms penalize serial acquirors throughout European markets (Fuller et al., 2002; Faccio & Masulis, 2005).

When looking at the division between acquiror groups, more interesting changes in the results appear. Most of the effects seen in table (7) disappears for Joggers, with only Deal Value being a positive driver of value. The slightly positive Book-to-Market effect is replaced by a significantly negative leverage effect, while the public target coefficient becomes insignificant, which is interesting seen as it has remained highly significant in previous results for both serial and non-serial acquirors.

For Sprinters, the results in table (8), model (4) provide new and interesting insights that are varied from the ones seen in table (7). Sprinters now see a significant size penalty, while a higher Relative Size of the deal contributes to a greater CAR. Additionally, the remainder of the firm-level characteristics now show a significant effect. Sprinters show a positive leverage effect, while higher valued firms seem to achieve greater CARs. Additionally, the cross-border premium previously seen for the full serial acquiror group in table (6) is highly significant for non-UK Sprinters, which may indicate evidence of a difference in skill or market perception of these transactions. These results are somewhat surprising and highly different in comparison to the results in table (7). Noticeably, the adjusted R^2 significantly improved for this sample. Further, when comparing the results to the five day CARs, presented in Appendix table (B3), there is more resemblance to the results presented in table (6) and (7), which suggests that the chosen event window impacts the outcome to greater extent when excluding UK acquirors.

For Marathoners, the results are virtually impossible to make any inference from since the sample size is now close to zero, with most of the Marathoners being based in the UK. This is also confirmed by the fact that there are no significant effects seen in table (8).

Models (6-9) repeat the regressions in models (2-4), but without firm-fixed effects to understand how much of each relationship stems from within- versus cross-sectional variation. The results confirm the reasoning behind including firm fixed effects for the serial acquiror groups. While the results without firm fixed effects included are similar to when included, results appear to be more significant without effects and the general explanatory power of the models lower. This suggests that some variation stems from omitted variables and that firm fixed effects should be included for serial acquirors (Morillon, 2021). Because the value and pattern of most coefficients remain consistent with or without firm-fixed effects, it can be concluded that while unobserved firm-specific factors do affect some estimates, particularly Joggers', deal-level dynamics are reflected in the CARs rather than firm heterogeneity. Thereby, studying serial acquirors can lead to much of the variation being captured by analysing the same firms over time, as suggested by Fuller et al. (2002).

Overall, excluding UK acquirors slightly alters coefficients but leaves main patterns intact. These robustness checks confirm that the conclusions drawn in sections (4.2) and (4.2.1) are not driven by UK-specific outliers or unobserved firm heterogeneity.

TABLE 8 – Robustness Regression on CAR [-1,+1], Excluding UK acquirors

This table replicates the regressions done in table (5) and (6), excluding the UK as an acquiror country. Model (1) include non-serial acquirors whereas model (2-4) is in the order of Serial acquirors, Joggers, Sprinters and Marathoners. Model (6-9) follow the same order as (2-4), but without firm fixed effects. Industry fixed effects are included in all models. *, ** and *** denote significance at the 10%, 5% and 1% level and standard errors are clustered at the firm level in parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Size	-0.010 *** (0.001)	-0.004 * (0.002)	-0.004 (0.003)	-0.008 ** (0.003)	0.005 (0.000)	-0.005 *** (0.001)	-0.007 *** (0.001)	-0.004 *** (0.001)	0.005 (0.000)
Leverage	0.006 *** (0.002)	-0.011 (0.015)	-0.040 ** (0.020)	0.028 * (0.015)	0.061 (0.000)	0.004 (0.007)	-0.016 * (0.009)	0.037 *** (0.010)	0.061 (0.000)
Book-to-Market	-0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.006 *** (0.002)	0.042 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.002 (0.002)	0.042 (0.000)
Deal Value	0.007 *** (0.001)	0.003 *** (0.001)	0.003 *** (0.001)	0.002 ** (0.001)	0.003 (0.000)	0.003 *** (0.001)	0.004 *** (0.001)	0.003 *** (0.001)	0.003 (0.000)
Relative Size	0.000 (0.000)	0.013 ** (0.006)	0.011 (0.007)	0.020 ** (0.009)	-0.072 (0.000)	0.008 * (0.004)	0.005 (0.006)	0.012 *** (0.004)	-0.072 (0.000)
All Cash	-0.005 (0.005)	-0.003 (0.005)	0.000 (0.007)	-0.007 (0.009)		-0.008 * (0.004)	-0.002 (0.005)	-0.016 ** (0.007)	
All Stock	0.013 (0.008)	-0.006 (0.010)	-0.003 (0.012)	-0.011 (0.018)		-0.009 (0.008)	-0.004 (0.010)	-0.015 (0.015)	
Same Industry	-0.004 (0.003)	-0.001 (0.002)	0.000 (0.003)	-0.003 (0.003)	-0.034 (0.000)	-0.001 (0.002)	0.000 (0.003)	-0.001 (0.003)	-0.034 (0.000)
Cross-Border Dummy	-0.001 (0.003)	0.004 (0.003)	-0.002 (0.004)	0.012 *** (0.003)		0.006 ** (0.002)	0.002 (0.003)	0.012 *** (0.003)	
Developed Target	-0.006 (0.005)	0.003 (0.003)	0.002 (0.004)	0.005 (0.005)	0.002 (0.000)	0.004 (0.003)	0.002 (0.004)	0.004 (0.005)	0.002 (0.000)
Public	-0.016 *** (0.005)	-0.010 *** (0.004)	-0.005 (0.005)	-0.017 *** (0.006)		-0.010 *** (0.003)	-0.006 (0.004)	-0.018 *** (0.006)	
Subsidiary	0.003 (0.003)	0.000 (0.002)	0.002 (0.003)	-0.003 (0.003)	0.000 (0.000)	0.000 (0.002)	0.003 (0.003)	-0.004 (0.003)	0.000 (0.000)
Intercept	0.070 *** (0.008)	0.029 (0.018)	0.035 (0.024)	0.056 ** (0.028)	-0.057 (0.000)	0.038 *** (0.008)	0.047 *** (0.010)	0.024 * (0.013)	-0.057 (0.000)
Firm FE	No	Yes	Yes	Yes	Yes	No	No	No	No
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2689	2620	1548	1038	34	2620	1548	1038	34
Adjusted R2	0.07	0.10	0.06	0.17	0.17	0.07	0.07	0.09	0.20

To further improve robustness of the results, table (4), (6) and (7) were re-estimated using different estimation windows. These results can be found in Appendix table (B4-B7) and verifies that using an alternative estimation window does not materially alter the previous findings. Across all specifications, the CARs are virtually identical in table (B4) and (B5) across all event windows, showing non-serial acquirors achieve higher CARs. Furthermore, the coefficients in tables (B6) and (B7) are consistent compared to the previous. For example, Size remains negative and significant, Deal Value stays positive and highly significant, while the other control variables remain relatively unchanged. Significance levels fluctuate slightly, but the economic interpretation is consistent, confirming Mackinlay's (1997) remarks.

4.4 The Presence of Learning and Hubris

To determine the presence of organisational learning and/or hubris for European serial acquirors, the results in table (9) and (10) show the successive three day CARs in the order which the deals were completed.

If there is presence of organisational learning, the announcement returns are expected to improve over each completed deal as firms refine their acquisition process, synergy estimates and integration practices (Aktas et al., 2009; Ahern, 2010). Table (9) present some support of this pattern. Across all serial acquirors, CARs rise from 0.78 % on the first deal to 1.45 % on the fourth before dipping to 0.86 % on the fifth-plus deal. Joggers' CARs climb from 1.11 % (deal 1) to 1.47 % (deal 3), then remain elevated at 1.32 % (deal 4) and 1.25 % for the fifth or higher deal. Sprinters likewise improve from 0.26 % (deal 1) to 1.63 % (deal 4), before seeing the average CAR dropping to 0.67 % thereafter.

TABLE 9 – Subsequent Deal Returns [CAR -1,+1]

Table (9) shows the average three-day CAR for each deal order, from the 1st Deal to the 5th or higher deal. In line with previous literature, this is done to see if there is evidence of declining returns. The table only includes the serial acquirors. The models are presented in the order (1) all Serial Acquirors, (2) Joggers, (3) Sprinters and (4) Marathoners. *, ** and *** denote significance at the 10%, 5% and 1% level and standard errors are clustered at the firm level in parentheses.

	(1)	(2)	(3)	(4)
1st Deal	0.78% ***	1.11% ***	0.26%	-0.36%
2nd Deal	1.15% ***	1.23% ***	1.05% ***	-0.38%
3rd Deal	1.33% ***	1.47% ***	1.14% ***	-0.32%
4th Deal	1.45% ***	1.32% ***	1.63% ***	2.57% **
5th Deal or Higher	0.86% ***	1.25% ***	0.67% ***	0.17%
N	5,300	2,650	2,425	225

The rising deal returns align with Fuller et al. (2002), who argue that repeating the same valuation process allows acquirors to learn and capture greater synergies on subsequent transactions. Ahern (2010) similarly notes that managers develop a better judgement of optimal target size over successive bids, boosting announcement returns even as absolute synergies grow. For Joggers, consistent CARs of roughly 1.1 % - 1.5 % across deals 1–4 suggest that moderate acquisition intensity fosters organisational learning, avoiding hindering managerial capacity within firms (Macias et al., 2016; Chao, 2018). Since Joggers can maintain steady returns even after the fifth or higher deal, noticeable when comparing to Sprinters, it supports the notion that acquirors can learn and maintain skill over time and without consistently decreasing returns as concluded in previous literature.

Sprinters' relatively lower starting point (0.26 %) but rapid increase to 1.63 % by deal 4 also illustrates learning by doing: although clustered deals reduce per-deal surprises initially, Sprinters appear to quickly refine their acquisition capabilities and integration processes (Aktas et al., 2009). However, their subsequent decline after deal 4 likely reflects diminishing marginal synergies and increasing market anticipation of their deal intensity, proving difficulties of maintaining a higher deal frequency over time (Fuller et al., 2002; Morillon, 2021).

When UK acquirors are excluded (table 10), similar patterns persist: overall CARs rise from 1.34 % (deal 1) to 1.63 % (deal 2) before decreasing, and Joggers outside the UK hold CARs between 1.34 % and 1.52 % through deal 3. Sprinters' non-UK sample peaks at 2.01 % on deal 2 before decreasing. These patterns confirm that the learning effect is not centred to expertise of UK firms but instead reflects broader European dynamics: paced and moderately paced firms steadily improve announcement returns across their first few deals, consistent with Golubov et al. (2015).

In summary, tables (9) and (10) reveal that European serial acquirors, especially Joggers and Sprinters, demonstrate an ability to learn by doing: CARs generally rise through deals 1-4 as firms leverage accumulated acquisition experience to enhance target selection and integration, before stabilising or declining slightly, providing some consistency with diminishing elements of surprise and increased market anticipation (Fuller et al., 2002; Aktas et al., 2009; Ahern, 2010). It is also noticeable that the returns for the first deals are higher, consistent with the results that non-serial acquirors earn higher CARs. These results are also robust for five day CARs, with slight variation, presented in Appendix table (B9) and (B10).

TABLE 10 – Subsequent Deal Returns [CAR -1,+1], Excluding UK Acquirors

Table (10) shows the average three-day CAR for each deal order, from the 1st Deal to the 5th or higher deal. In line with previous literature, this is done to measure if there is any evidence of declining returns. Thereby, the table only includes the serial acquiror classifications. Table (10) excludes UK acquirors to test the robustness of the results in table (9). The models are presented in the order (1) all Serial Acquirors, (2) Joggers, (3) Sprinters and (4) Marathoners. *, ** and *** denote significance at the 10%, 5% and 1% level and standard errors are clustered at the firm level in parentheses.

	(1)	(2)	(3)	(4)
1st Deal	1.34% ***	1.34% ***	1.35% ***	-0.65%
2nd Deal	1.63% ***	1.46% ***	2.01% ***	0.70%
3rd Deal	1.18% ***	1.52% ***	0.50%	-2.17%
4th Deal	0.84% ***	0.78% **	0.98% **	-0.32% **
5th Deal or Higher	0.83% ***	0.99% ***	0.72% ***	-0.31%
N	2,652	1,558	1,060	34

To test whether the increased deal experience leads to any variation in the control variables included in the multivariate regressions, the regression presented in table (7) has been replicated for CARs from deal one to four and for CARs from the fifth deal and higher, in line with Fuller et al. (2002), presented in Appendix table (B11) and (B12). For example, same industry acquisitions have a more pronounced negative effect for Joggers in the initial four deals, which diminishes for the fifth or higher deals, which could indicate that Joggers become better at determining valuable acquisitions within the same industry over time. Sprinters also appear to be more rewarded by engaging in deals fully financed by cash, which supports the conclusions of Travlos (1987), Fuller et al. (2002) and Faccio et al. (2005), but this effect also disappears from the fifth deal and onwards.

Interestingly, the leverage effect appears to have a significantly negative effect from the fifth deal and onwards for Joggers, suggesting that taking on more debt for subsequent deals is penalised by the market. This is contradicting the reasoning of Faccio et al. (2005), who suggests that firms with lower financial constraints tend to finance acquisitions with cash, which in turn improves CAR. Thereby, raising debt should increase the likelihood of cash offerings and improve CAR. But instead, taking on more debt from the fifth acquisition and onwards appear to signal overextension of debt capacity rather than healthy financing options for Joggers, and could be an indication of hubris.

Apart from these reflections, the analysis of control variables shows no major supporting evidence of organisational learning nor hubris as presented in the previous literature, with only marginal changes in value effects on control variables. This suggests that much of the variation in returns over time can be attributed to firm-specific effects rather than deal characteristics.

5. Discussion and Limitations

To add further comments on the results and wrap up the discussion, this section aims to tie together the analysis from section (4) and determine if the analysis of European serial acquirors can add knowledge to the current M&A literature.

5.1 European Serial Acquirors

The results presented in section (4) provides support for several conclusions, that can be put into perspective of the previous literature. First, despite the often discussed narrative that acquirors suffer losses, European serial acquirors as a group generate positive announcement returns. While non-serial bidders in Europe earn three day CARs of roughly 2.1 % on average, serial acquirors still achieve positive CARs of approximately 1.0 % - evidence that many deals create sufficient synergy expectations to outweigh the typical takeover discount for subsequent deals.

Segmenting serial acquirors into Joggers, Sprinters, and Marathoners further reveals that moderate pace acquirors (Joggers) consistently secure three-day CARs above 1.2 % even in their later deals. Sprinters demonstrate a steep learning curve, rising from negligible or slightly negative returns on their first deal to over 1.6 % by the fourth, suggesting that intense deal clusters can still foster rapid expertise accumulation when integration resources are allocated effectively, but appear difficult to maintain when more acquisitions are completed. It can also be an extension of the valuation hypothesis, that when the market is highly valued, deals tend to cluster in time, initially rewarded by the market and followed by a drop in the market, reducing CARs (Rhodes-Kropf & Viswanathan, 2004). Marathoners, however, never achieve above 0.3 % CAR on average, indicating that at extreme volumes, the costs of complexity and synergies overshadow any initial learning benefits, which is contradicting the results of Macias et al. (2016) and Morillon (2021). However, these results must be considered with the small sample size.

These findings underscore a refined interpretation of organisational learning in Europe. Consistent with Aktas et al. (2009) and Ahern (2010), Joggers and Sprinters exhibit clear improvements in announcement returns across their first four deals, validating that repeated M&A fosters greater proficiency in acquisition skill. Unlike much of the evidence from USA acquirors, where returns often diminish by deal three or four, European acquirors maintain positive gains through at least the fourth transaction. This persistence may also reflect

differences in governance structure between markets, as found by Karolyi et al. (2015), but need to be studied in more detail to conclude. Nonetheless, the decreasing CARs after the fourth deal, even for Sprinters, suggests that learning has limited benefits, or that the market has gained a broader understanding of the acquiror over time, reducing the announcement effect.

At the same time, evidence of hubris manifests more subtly than the abrupt reversals documented in some USA M&A research. Marathoners face a pronounced scale penalty, deals exceeding a modest fraction of acquiror market capitalization elicit sharply negative CARs, consistent with Roll's (1986) theory of empire building. Yet, rather than a steep decline in returns beginning with the second or third deal, the European data show that only those engaging in high Relative Size deals (Marathoners) incur near-zero or negative announcement returns from the beginning. In other words, managerial overconfidence may be more muted when deals are large relative to acquiror size, but it is far less evident among acquirors undertaking fewer deals. This contrasts findings of USA acquirors (Macias et al., 2016; Morillon, 2021), where Sprinters coincide with sharply diminishing returns past the second or third acquisition. In Europe, Sprinters strong rebound by deal four suggests that organisational learning can outweigh hubris for a shorter period, providing evidence that European Sprinters may be more skilled in the short term.

When studying firm-level and deal related effects, the results support previous research, albeit with European-specific differences. Larger acquirors face diminishing CARs when target size rises, echoing findings by Moeller et al. (2005) that very large deals can be more negatively perceived by the market. However, in Europe, acquiror size matters less when targets are private; acquiring private firms yields higher announcement returns for both serial and non-serial acquirors, in line with Fuller et al. (2002), Faccio et al. (2005) and Capron & Shen (2007). Although, even with the support of this evidence, studying the factors over time, the results appear to be more attributable to firm-specific effects rather than deal-level characteristics, providing support for the conclusion that serial acquirors acquire skill in acquisitions over time.

5.2 Implications

This study suggests that the acquisition behaviour of firms is strongly connected to the value created by each deal. Non-serial acquirors (one to four deals) average about 2.1 % three-day CARs, while serial acquirors average 1.0 %, suggesting that initial M&A activity yields stronger market surprise. Among serial bidders, Joggers, who space transactions, keep CARs above 1.2 % even on later deals, indicating that allowing time for integration and due diligence

preserves value. In contrast, Marathoners never exceed 0.3 % CARs and often face near-zero or negative returns from the first deal onwards, implying that excessive deal volume overwhelms resources and reduces investor confidence.

Deal type also matters. Acquisitions of private targets generate higher CARs for both serial and non-serial acquirors, most likely attributable to the liquidity discount of private targets. Cross-border transactions similarly boost announcement returns, reflecting the value placed on successful international integration.

Financing choices affect outcomes as well. Joggers that increase leverage from the fifth deal onward see significantly lower CARs, suggesting that increased leverage for subsequent deals signals overextension rather than healthy financing. Firms planning multiple deals should therefore monitor debt levels closely and maintain a moderate acquisition pace to sustain positive market reactions.

For managers, these findings imply setting clear limits on deal frequency and ensuring robust integration teams before each transaction. Investors can improve their assessments by comparing a bidder's deal intensity, target mix, and debt levels to these benchmarks when forecasting short-term returns. However, since the conclusions also support the fact that skill in M&A is attributable to firms rather than deal characteristics, learning over time appear to be critical for serial acquirors and therefore, managers within these firms.

5.3 Limitations

This study comes with many limitations. While some have been considered and accounted for, various limitations still limit the inference that can be drawn from this research. First, the sample is heavily tilted toward UK acquirors, almost half of all observations. When these deals are excluded in the robustness tests, the remaining continental-Europe "Marathoners" drop to very small numbers, weakening statistical power and limiting the accuracy of the conclusions.

Second, this thesis relies on three and five day event windows to estimate CARs. While clustering standard errors at the firm level and testing multiple windows help, intraday price dynamics, pre-announcement leaks, or post-announcement drift is not captured in detail. This is also a limitation of only using only a single estimation window, but as displayed in the robustness section, results are mainly consistent across multiple estimation windows tested for this sample.

Third, this study does not control for CEO characteristics, even though prior research (e.g., Ahern, 2010; Jaffe et al., 2013) shows that managerial experience and personality traits significantly affect learning curves and hubristic behaviour. This removes one dimension from which conclusions can be drawn. This research includes firm, industry, and deal attributes, but omit other variables such as CEO traits. As a result, it cannot be disentangled whether observed changes in CARs (Joggers and Sprinters) stem purely from organisational learning or from individual managers refining their M&A instincts over time, even if this is attempted to be captured by studying the same firm over time.

Fourth, while the classification of serial acquirors used in this research is considered elaborative and detailed, following the research of Macias et al. (2016) and Morillon (2021), it is subject to limitations. Applying a different classification may have great impact on the results and should be considered by future research.

Finally, the extensive data collection limitations have significant impact on the results. While the applied restrictions were deemed necessary to retrieve as good of results as possible, they may impact the outcome of this research. For example, excluding non-disclosed deal values is essential to include some deal-related variables, but may exclude a significant portion of deals completed by serial acquirors, thus creating a potential bias in the returns of serial acquirors. Non-disclosed deals may return greater or worse CARs for acquirors, and especially serial acquirors, which can alter market anticipation and thus the conclusions drawn from this research.

6. Conclusion

This thesis examined why European firms persist in serial M&A despite evidence that many acquisitions erase acquiror value, addressing three questions: whether serial acquirors earn positive abnormal returns and how transaction intensity shapes those returns in comparison to non-serial acquirors; how firm-level and deal-specific characteristics affect value creation; and whether repeated acquisition experience leads to improved announcement returns or if diminishing returns and hubris prevail.

Non-serial acquirors (one to four deals) achieved roughly 2.1 % three-day CARs, reflecting strong market surprise when firms undertake their first acquisitions. Serial acquirors averaged about 1.0 % three day CARs, indicating that value creation diminishes as more acquisitions are completed by the same firm. Within serial acquirors, Joggers, spacing deals moderately, sustained CARs above 1.2 % even on later transactions, suggesting that allowing time for due diligence and integration preserves value. Sprinters, executing clusters of deals in rapid succession, began with lower CARs but rose to nearly 1.6 % by the fourth transaction, demonstrating rapid learning when integration resources and focus are concentrated. Although, this effect is reduced past the fifth deal. Marathoners, completing very high volumes, never exceeded a 0.3 % CAR and often faced near-zero or negative returns from their first deal onward, implying that excessive intensity overwhelms organisational capacity and undermines investor confidence. However, Marathoners are subject to a smaller sample size than the other serial acquirors, reflected in the significance levels of these results.

Deal characteristics further explain returns. Acquiring private targets yielded higher CARs for both serial and non-serial acquirors, consistent with previous research and likely due to private-market liquidity discount. Cross-border transactions also occasionally carried a premium, reflecting positive perception of international deals. Larger acquirors faced lower CARs as relative deal size increased, confirming that the market penalizes bids that may withhold financial and managerial resources.

Organisational learning appeared in rising CARs through the first four deals for Joggers and Sprinters, indicating that successive transactions sharpen valuation, negotiation, and integration processes. In contrast, Marathoners failed to exhibit positive learning effects; their persistently muted or negative announcement returns suggest that at very high volumes, integration complexity, resource constraints, and potential hubris outweigh any learning

advantage. Thus, moderate intensity and concentrated deal clusters enable serial acquirors to build expertise and sustain positive returns, whereas excessive deal-making leads to diminishing or negative market reactions.

Several limitations apply to these conclusions. Nearly half of all observations come from UK acquirors, limiting generalisability. Reliance on three and five day event windows cannot capture intraday dynamics, pre-announcement leaks, or post-announcement drift. The absence of CEO-level and board composition data prevents assessment of how managerial experience or hubris influences learning curves. Finally, focusing solely on short-term announcement returns leaves open whether these gains translate into long-term operational performance or sustained shareholder value. Therefore, future research should broaden the geographic scope, incorporate a broader data set, include CEO-level and governance variables, and investigate long-term performance to deepen insight into serial M&A dynamics.

In conclusion, European serial acquirors generate positive announcement returns over time, rejecting the claims of M&A being a mechanically value destructive activity. However, non-serial acquirors completing fewer deals still outperform serial acquirors, which raises questions whether or not skill is involved over time. Furthermore, deal-related and firm-level characteristics influence M&A returns, also for serial acquirors in Europe. However, the importance of deal characteristics is reduced over time, suggesting that skills in acquisitions can be partially attributed to firm level traits. Finally, the evidence of declining returns of serial acquirors found in previous literature, is largely rejected in this thesis. The research find no consistent evidence of declining returns, which supports the hypotheses that European serial acquirors retain their skills in acquisitions returning stable CARs over time, especially evident for firms with moderate acquisition intensity.

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Appendix A:

TABLE A1: Target Nations Included in “Other”

Emerging and Frontier Markets

Algeria	1	Estonia	4	Malaysia	8	Slovenia	13
Andorra	1	Ethiopia	1	Malta	9	South Africa	46
Argentina	13	Georgia	5	Mauritius	1	South Korea	14
Bahamas	2	Gibraltar	4	Mexico	16	Sri Lanka	1
Bangladesh	2	Greece	7	Moldova	1	Taiwan	10
Barbados	2	Greenland	1	Monaco	2	Tanzania	1
Belarus	2	Guatemala	2	Morocco	3	Thailand	2
Bermuda	2	Guinea	1	Mozambique	4	Tunisia	4
Bolivia	1	Hungary	9	Netherlands			
Botswana	1	Iceland	8	Antilles	1	Turkey	25
Brazil	78	India	62	North			
British Virgin Islands	5	Indonesia	11	Macedonia	1	Ukraine	7
Bulgaria	9	Jamaica	4	Pakistan	2	UAE	20
Burkina Faso	2	Jersey	5	Panama	2	Uruguay	6
Chile	24	Jordan	3	Paraguay	1	Zambia	3
China	55	Kazakhstan	4	Peru	7	Zimbabwe	2
Colombia	13	Kenya	2	Philippines	2	Total	808
Congo (DRC)	4	Kuwait	2	Poland	54		
Costa Rica	1	Latvia	4	Puerto Rico	2		
Croatia	11	Lebanon	1	Reunion	1		
Cyprus	1	Lesotho	1	Romania	23		
Czech Republic	33	Lithuania	14	Russia	39		
Ecuador	1	Luxembourg	17	Saudi Arabia	9		
Egypt	7	Madagascar	3	Serbia	11		
				Seychelles	1		
				Slovakia	8		

Appendix B:

TABLE B1 – Multivariate Regression on CAR [-2,+2]

This table presents four different regressions with the dependent variable CAR [-2,+2], with the estimation window [-180,-30]. Model (1) and (2) include non-serial acquirors whereas model (3) and (4) are serial acquirors. For model (1) and (3) only firm-related variables are regressed in isolation, whereas deal-related variables are added sequentially for model (2) and (4). The control variables included are discussed in Section (3). Firm fixed effects are included only for serial acquirors and industry fixed effects are included in all models. *, ** and *** denote significance at the 10%, 5% and 1% level and standard errors are clustered at the firm level in parentheses.

	(1)	(2)	(3)	(4)
Size	-0.0055 *** (0.001)	-0.0086 *** (0.001)	-0.0007 (0.002)	-0.0033 ** (0.002)
Total Debt / Total Assets	0.0046 (0.003)	0.0043 (0.003)	-0.0028 (0.013)	-0.0061 (0.013)
Book-to-Market	0.0000 (0.000)	-0.0001 (0.000)	0.0002 *** (0.000)	0.0002 *** (0.000)
Deal Value		0.0063 *** (0.001)		0.0050 *** (0.001)
Relative Size		-0.0002 *** (0.000)		0.0019 * (0.001)
All Cash		0.0028 (0.004)		0.0020 (0.004)
All Stock		0.0087 (0.007)		-0.0061 (0.008)
Same Industry		-0.0044 (0.003)		-0.0030 (0.002)
Cross-Border Dummy		-0.0024 (0.003)		0.0048 * (0.003)
Developed Target		-0.0007 (0.004)		0.0040 (0.003)
Public		-0.0170 *** (0.005)		-0.0157 *** (0.004)
Subsidiary		0.0029 (0.003)		-0.0001 (0.002)
Intercept	0.0495 *** (0.005)	0.0497 *** (0.007)	0.0143 (0.012)	0.0118 (0.012)
Firm FE	No	No	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
N	4044	4044	5266	5266
Adjusted R ²	0.02	0.03	0.08	0.09

TABLE B2 – Multivariate Regressions without Firm Fixed Effects on Serial Acquirors

This table presents three different regressions with the dependent variable CAR [-1,+1], with the estimation window [-180,-30]. Model (1) represents Joggers, model (2) represents Sprinters and model (3) represents Marathoners. The control variables included are discussed in Section (3). Firm fixed effects are excluded while industry fixed effects are included for all models. *, ** and *** denote significance at the 10%, 5% and 1% level and standard errors are clustered at the firm level in parentheses.

	(4)	(5)	(6)	(7)
Size	-0.0062 *** (0.001)	-0.0076 *** (0.001)	-0.0039 *** (0.001)	-0.0060 * (0.002)
Deal Value	0.0047 *** (0.001)	0.0058 *** (0.001)	0.0033 *** (0.001)	0.0033 ** (0.001)
Total Debt / Total Assets	0.0077 (0.005)	0.0003 (0.007)	0.0145 * (0.009)	0.0032 (0.026)
Book-to-Market	0.0002 *** (0.000)	0.0002 *** (0.000)	-0.0006 (0.001)	-0.0060 (0.008)
Relative Size	0.0009 (0.001)	0.0004 (0.000)	0.0082 (0.006)	-0.0854 *** (0.015)
All Cash	-0.0023 (0.003)	-0.0013 (0.004)	-0.0042 (0.004)	0.0074 (0.005)
All Stock	-0.0075 (0.006)	-0.0058 (0.008)	-0.0128 (0.010)	-0.0153 ** (0.005)
Same Industry	-0.0027 * (0.001)	-0.0047 ** (0.002)	-0.0006 (0.002)	0.0051 (0.005)
Cross-Border Dummy	0.0042 ** (0.002)	0.0036 (0.003)	0.0043 * (0.003)	-0.0028 (0.002)
Developed Target	0.0010 (0.002)	-0.0009 (0.003)	0.0007 (0.004)	0.0052 (0.006)
Public	-0.0125 *** (0.003)	-0.0107 *** (0.004)	-0.0164 *** (0.005)	-0.0016 (0.003)
Subsidiary	0.0015 (0.002)	0.0027 (0.002)	-0.0001 (0.002)	-0.0018 (0.003)
Intercept	0.0365 *** (0.005)	0.0476 *** (0.007)	0.0235 *** (0.007)	0.0313 (0.020)
Firm FE	No	No	No	No
Industry FE	Yes	Yes	Yes	Yes
N	5266	2640	2403	223
Adjusted R2	0.06	0.07	0.04	0.05

TABLE B3 – Robustness Regression on CAR [-2,+2], excluding UK acquirors

This table replicates the regressions done in table (8) but for event window [-2,+2]. Model (1) include non-serial acquirors whereas model (2-4) is in the order of Serial acquirors, Joggers, Sprinters and Marathoners. Model (6-9) follow the same order as (2-4), but without firm fixed effects. *, ** and *** denote significance at the 10%, 5% and 1% level and standard errors are clustered at the firm level in parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Size	-0.010 *** (0.001)	0.000 (0.002)	-0.001 (0.003)	-0.003 (0.004)	-0.002 (0.000)	-0.005 *** (0.001)	-0.006 *** (0.001)	-0.002 (0.002)	-0.002 (0.000)
Leverage	0.005 ** (0.002)	-0.006 (0.017)	-0.045 ** (0.020)	0.045 * (0.023)	0.042 (0.000)	0.008 (0.009)	-0.012 (0.009)	0.048 *** (0.015)	0.042 (0.000)
Book-to-Market	0.000 (0.000)	0.001 * (0.000)	0.001 ** (0.000)	-0.005 * (0.003)	0.028 (0.000)	0.001 ** (0.000)	0.001 *** (0.000)	-0.003 (0.002)	0.028 (0.000)
Deal Value	0.008 *** (0.001)	0.002 ** (0.001)	0.002 ** (0.001)	0.001 (0.001)	0.001 (0.000)	0.003 *** (0.001)	0.003 *** (0.001)	0.002 * (0.001)	0.001 (0.000)
Relative Size	0.000 ** (0.000)	0.021 *** (0.007)	0.017 ** (0.008)	0.030 *** (0.010)	-0.010 (0.000)	0.010 ** (0.004)	0.009 (0.007)	0.012 ** (0.005)	-0.010 (0.000)
All Cash	0.001 (0.005)	0.000 (0.006)	-0.001 (0.008)	0.000 (0.009)	-0.038 (0.000)	-0.008 (0.005)	-0.003 (0.006)	-0.014 * (0.007)	
All Stock	0.013 (0.009)	-0.012 (0.010)	-0.014 (0.012)	-0.010 (0.019)		-0.014 (0.009)	-0.011 (0.010)	-0.014 (0.018)	
Same Industry	-0.005 (0.003)	0.001 (0.003)	0.002 (0.004)	0.001 (0.004)	-0.038 (0.000)	0.001 (0.002)	0.001 (0.003)	0.002 (0.004)	-0.038 (0.000)
Cross-Border Dummy	-0.002 (0.003)	0.004 (0.004)	-0.001 (0.005)	0.011 ** (0.005)		0.006 * (0.003)	0.003 (0.004)	0.010 ** (0.004)	
Developed Target	-0.007 (0.005)	0.007 ** (0.004)	0.005 (0.004)	0.011 (0.007)	0.019 (0.000)	0.007 ** (0.004)	0.003 (0.004)	0.010 (0.006)	0.019 (0.000)
Public	-0.015 *** (0.005)	-0.010 *** (0.004)	-0.004 (0.005)	-0.020 *** (0.006)		-0.012 *** (0.003)	-0.006 (0.005)	-0.021 *** (0.006)	
Subsidiary	0.003 (0.003)	0.000 (0.003)	0.003 (0.004)	-0.003 (0.004)	-0.014 (0.000)	-0.001 (0.003)	0.001 (0.004)	-0.004 (0.004)	-0.014 (0.000)
Intercept	0.063 *** (0.009)	-0.006 (0.020)	0.012 (0.026)	-0.003 (0.035)	0.005 (0.000)	0.029 *** (0.009)	0.044 *** (0.011)	0.004 (0.015)	0.005 (0.000)
Firm FE	No	Yes	Yes	Yes	Yes	No	No	No	No
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2689	2620	1548	1038	34	2620	1548	1038	34
Adjusted R2	0.05	0.09	0.06	0.15	0.07	0.05	0.06	0.06	0.11

TABLE B4 – Robustness Check with Different Estimation Window

This table re-estimates table (4), Panel A, but using the estimation window [-120,-30] instead of the main estimation window used in table (4). This is done to test the robustness of the presented results. *, ** and *** denote significance at the 10%, 5% and 1% level.

	CAR [-1,+1]	CAR [-2,+2]	CAR [-5,+5]
All Acquirors	1.48% ***	1.45% ***	1.11% ***
Non-Serial Acq.	2.10% ***	2.02% ***	1.53% ***
Serial Acquirors	1.00% ***	1.00% ***	0.78% ***
Jogger	1.30% ***	1.30% ***	1.09% ***
Sprinter	0.79% ***	0.75% ***	0.52% ***
Marathoner	0.20%	0.19%	-0.25%

TABLE B5 – Robustness Check with Different Estimation Window

This table re-estimates table (4), Panel A, but using the estimation window [-250,-30] instead of the main estimation window used in table (4). This is done to test the robustness of the presented results. *, ** and *** denote significance at the 10%, 5% and 1% level.

	CAR [-1,+1]	CAR [-2,+2]	CAR [-5,+5]
All Acquirors	1.50% ***	1.40% ***	1.00% ***
Non-Serial Acq.	2.10% ***	2.00% ***	1.50% ***
Serial Acquirors	1.00% ***	1.00% ***	0.64% ***
Jogger	1.30% ***	1.20% ***	0.90% ***
Sprinter	0.80% ***	0.70% ***	0.70% ***
Marathoner	0.20%	0.30%	-0.10%

TABLE B6 – Robustness Check with Different Estimation Window

This table re-estimates tables (6) and (7) with an estimation window of [-120,-30]. Model (1) include Non-serial Acquirors whereas model (2-4) is in the order of Serial Acquirors, Joggers, Sprinters and Marathoners. *, ** and *** denote significance at the 10%, 5% and 1% level and standard errors are clustered at the firm level in parentheses.

	(1)	(2)	(3)	(4)	(5)
Size	-0.009 *** (0.001)	-0.005 *** (0.001)	-0.006 *** (0.002)	-0.004 * (0.002)	-0.013 (0.007)
Total Debt / Total Assets	0.004 * (0.002)	-0.006 (0.011)	-0.029 * (0.016)	0.018 (0.013)	-0.005 (0.031)
Book-to-Market	0.000 (0.000)	0.000 *** (0.000)	0.000 *** (0.000)	-0.001 (0.001)	-0.018 (0.011)
Deal Value	0.006 *** (0.001)	0.005 *** (0.001)	0.006 *** (0.001)	0.004 *** (0.001)	0.004 ** (0.001)
Relative Size	0.000 (0.000)	0.001 * (0.001)	0.001 ** (0.001)	0.003 (0.009)	-0.083 *** (0.016)
All Cash	-0.002 (0.003)	0.000 (0.003)	0.000 (0.005)	0.000 (0.005)	0.005 (0.007)
All Stock	0.008 (0.006)	-0.007 (0.007)	-0.005 (0.010)	-0.008 (0.011)	-0.020 *** (0.004)
Same Industry	-0.004 (0.003)	-0.003 * (0.002)	-0.005 * (0.003)	-0.002 (0.002)	0.005 (0.005)
Cross-Border Dummy	-0.001 (0.003)	0.004 * (0.002)	0.005 (0.003)	0.003 (0.003)	-0.003 (0.004)
Developed Target	0.000 (0.004)	0.001 (0.003)	0.000 (0.003)	0.003 (0.004)	0.007 (0.005)
Public	-0.019 *** (0.005)	-0.013 *** (0.003)	-0.012 ** (0.005)	-0.015 *** (0.005)	-0.008 (0.005)
Subsidiary	0.003 (0.003)	0.000 (0.002)	0.001 (0.003)	0.000 (0.002)	-0.003 (0.004)
Intercept	0.055 *** (0.007)	0.029 ** (0.011)	0.038 ** (0.017)	0.018 (0.016)	0.099 (0.063)
Firm FE	No	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
N	4101	5289	2652	2414	223
Adjusted R ²	0.05	0.10	0.08	0.11	0.05

*** p<.01, ** p<.05, * p<.1

TABLE B7 – Robustness Check with Different Estimation Window

This table re-estimates tables (6) and (7) with an estimation window of [-250,-30]. Model (1) include Non-serial Acquirors whereas model (2-4) is in the order of Serial Acquirors, Joggers, Sprinters and Marathoners. *, ** and *** denote significance at the 10%, 5% and 1% level and standard errors are clustered at the firm level in parentheses.

	(1)		(2)		(3)		(4)		(5)
Size	-0.009 (0.001)	***	-0.004 (0.001)	***	-0.005 (0.002)	**	-0.003 (0.002)		-0.013 (0.008)
Total Debt / Total Assets	0.005 (0.002)	**	-0.007 (0.011)		-0.026 (0.016)		0.013 (0.014)		-0.009 (0.029)
Book-to-Market	0.000 (0.000)		0.000 (0.000)	***	0.000 (0.000)	***	0.000 (0.001)		-0.017 (0.009)
Deal Value	0.006 (0.001)	***	0.005 (0.001)	***	0.005 (0.001)	***	0.004 (0.001)	***	0.003 (0.001)
Relative Size	0.000 (0.000)		0.002 (0.001)	*	0.001 (0.001)	**	0.002 (0.009)		-0.083 (0.015)
All Cash	0.000 (0.004)		0.000 (0.003)		0.000 (0.005)		-0.001 (0.005)		0.008 (0.005)
All Stock	0.012 (0.006)	*	-0.006 (0.007)		-0.004 (0.010)		-0.008 (0.011)		-0.013 (0.003)
Same Industry	-0.005 (0.003)	*	-0.003 (0.002)	*	-0.004 (0.003)		-0.002 (0.002)		0.004 (0.005)
Cross-Border Dummy	-0.001 (0.003)		0.004 (0.002)	*	0.004 (0.003)		0.003 (0.003)		-0.003 (0.004)
Developed Target	-0.002 (0.004)		0.001 (0.002)		0.000 (0.003)		0.004 (0.004)		0.007 (0.005)
Public	-0.019 (0.005)	***	-0.013 (0.003)	***	-0.012 (0.005)	**	-0.016 (0.005)	***	-0.003 (0.003)
Subsidiary	0.003 (0.003)		0.000 (0.002)		0.002 (0.003)		0.000 (0.002)		-0.002 (0.004)
Intercept	0.055 (0.007)	***	0.027 (0.011)	**	0.036 (0.016)	**	0.015 (0.017)		0.094 (0.067)
Firm FE	No		Yes		Yes		Yes		Yes
Industry FE	Yes		Yes		Yes		Yes		Yes
N	3915		5217		2614		2380		223
Adjusted R ²	0.05		0.11		0.08		0.12		0.04

*** p<.01, ** p<.05, * p<.1

TABLE B8 – Robustness Check with Fixed Effects for Non-Serial Acquirors

This table re-estimates table to demonstrate the impact of excluding firm fixed effects for non-serial acquirors in the main regressions presented in table (X&Y). Model (1) and (2) are both non-serial acquirors, but model (1) uses an estimation window of [-250, -30] while model (2) uses an estimation window of [-120,-30].

	(1)		(2)	
Size	-0.003		-0.003	
	(0.003)		(0.003)	
Total Debt / Total Assets	-0.030		-0.022	
	(0.028)		(0.024)	
Book-to-Market	0.000		0.000	
	(0.001)		(0.001)	
Deal Value	0.004	***	0.004	***
	(0.001)		(0.001)	
Relative Size	0.000		0.000	
	(0.000)		(0.000)	
All Cash	-0.003		-0.003	
	(0.006)		(0.006)	
All Stock	0.017	*	0.014	
	(0.010)		(0.010)	
Same Industry	0.001		0.002	
	(0.004)		(0.004)	
Cross-Border Dummy	-0.003		-0.004	
	(0.004)		(0.005)	
Developed Target	-0.005		-0.005	
	(0.005)		(0.005)	
Public	-0.013	*	-0.010	
	(0.007)		(0.007)	
Subsidiary	0.003		0.005	
	(0.004)		(0.004)	
Intercept	0.036	*	0.032	
	(0.019)		(0.020)	
Firm FE	Yes		Yes	
Industry FE	Yes		Yes	
N	2732		2875	
Adjusted R ²	0.12		0.10	

*** p<.01, ** p<.05, * p<.1

TABLE B9 – Subsequent Deal Returns [CAR -2,+2], Including UK Acquirors

Table (B9) shows the average five-day CAR for each deal order, from the 1st Deal to the 5th or higher deal. In line with previous literature, this is done to see if there is evidence of declining returns. The table only includes the serial acquirors. The models are presented in the order (1) all Serial Acquirors, (2) Joggers, (3) Sprinters and (4) Marathoners. *, ** and *** denote significance at the 10%, 5% and 1% level and standard errors are clustered at the firm level in parentheses.

	(1)	(2)	(3)	(4)
1st Deal	0.38% *	0.63% **	0.00%	-1.28%
2nd Deal	1.01% ***	1.13% ***	0.78% **	2.26% *
3rd Deal	1.07% ***	1.36% ***	0.63% *	-1.00%
4th Deal	1.54% ***	1.59% ***	1.43% ***	3.31% **
5th Deal or Higher	0.94% ***	1.35% ***	0.74% ***	0.17%
Number of observations	5300	2650	2425	225

TABLE B10 – Subsequent Deal Returns [CAR -2,+2], Excluding UK Acquirors

Table (B10) shows the average five-day CAR for each deal order, from the 1st Deal to the 5th or higher deal. In line with previous literature, this is done to measure if there is any evidence of declining returns. Thereby, the table only includes the serial acquiror classifications. Table (10) excludes UK acquirors to test the robustness of the results in table (9). The models are presented in the order (1) all Serial Acquirors, (2) Joggers, (3) Sprinters and (4) Marathoners. *, ** and *** denote significance at the 10%, 5% and 1% level and standard errors are clustered at the firm level in parentheses.

	(1)	(2)	(3)	(4)
1st Deal	0.88% ***	0.83% **	0.97% *	2.69%
2nd Deal	1.44% ***	1.44% ***	1.44% ***	1.68%
3rd Deal	0.84% ***	1.36% ***	-0.20%	-5.59% **
4th Deal	1.14% ***	1.16% ***	1.15% **	-3.17%
5th Deal or Higher	0.91% ***	1.07% ***	0.81% ***	-0.69%
Number of observations	2652	1558	1060	34

TABLE B11 – Multivariate Regression with CAR [-1,+1] for Deal 1 to 4

This table replicates table (7) and presents three different regressions with the dependent variable CAR [-1,+1], with the estimation window [-180,-30], for deal 1 to 4 completed by firms throughout the sample. Model (1) represents Serial Acquirors, model (2) represents Joggers and model (3) represents Sprinters. Marathoners are not listed separately in this regression due to insufficient observations from Deal 5 and onwards. *, ** and *** denote significance at the 10%, 5% and 1% level and standard errors are clustered at the firm level in parentheses.

	(1)	(2)	(3)
Size	-0.006 (0.003)	-0.009 (0.004)	0.000 (0.009)
Leverage	0.022 (0.020)	0.022 (0.026)	0.017 (0.028)
Book-to-Market	0.000 *** (0.000)	0.000 *** (0.000)	-0.006 ** (0.003)
Deal Value	0.007 *** (0.001)	0.006 *** (0.001)	0.006 *** (0.002)
Relative Size	0.000 (0.001)	0.000 (0.000)	0.007 (0.011)
All Cash	0.005 (0.005)	-0.001 (0.007)	0.015 * (0.008)
All Stock	-0.003 (0.011)	-0.009 (0.013)	0.009 (0.022)
Same Industry	-0.005 * (0.003)	-0.011 *** (0.004)	0.003 (0.005)
Cross-Border Dummy	0.008 * (0.004)	0.005 (0.005)	0.010 (0.006)
Developed Target	-0.003 (0.004)	-0.007 (0.005)	0.005 (0.009)
Public	-0.009 (0.006)	-0.002 (0.007)	-0.022 * (0.011)
Subsidiary	-0.003 (0.003)	0.000 (0.004)	-0.005 (0.005)
Intercept	0.022 (0.024)	0.057 ** (0.029)	-0.029 (0.057)
Fixed Effects	Yes	Yes	Yes
N	2445	1516	905
Adjusted R2	0.10	0.09	0.12

TABLE B12 – Multivariate Regression with CAR [-1,+1] for Fifth Deal or Higher

This table replicates table (7) and presents three different regressions with the dependent variable CAR [-1,+1], with the estimation window [-180,-30], for the fifth or higher deal completed by firms throughout the sample. Model (1) represents Serial Acquirors, model (2) represents Joggers and model (3) represents Sprinters. Marathoners are not listed separately in this regression due to insufficient observations from Deal 5 and onwards. *, ** and *** denote significance at the 10%, 5% and 1% level and standard errors are clustered at the firm level in parentheses.

	(1)	(2)	(3)
Size	-0.005 ** (0.002)	-0.003 (0.005)	-0.006 * (0.004)
Leverage	-0.031 ** (0.014)	-0.094 *** (0.023)	-0.001 (0.017)
Book-to-Market	0.000 (0.000)	-0.002 (0.002)	0.000 (0.000)
Deal Value	0.003 *** (0.001)	0.002 (0.001)	0.003 *** (0.001)
Relative Size	0.000 (0.013)	0.021 (0.015)	-0.017 (0.018)
All Cash	-0.003 (0.005)	0.009 (0.008)	-0.009 (0.006)
All Stock	-0.002 (0.009)	0.013 (0.013)	-0.003 (0.014)
Same Industry	0.000 (0.002)	0.004 (0.003)	-0.003 (0.003)
Cross-Border Dummy	0.002 (0.003)	0.005 (0.006)	0.002 (0.003)
Developed Target	0.003 (0.003)	0.006 (0.005)	0.000 (0.005)
Public	-0.014 *** (0.004)	-0.017 *** (0.006)	-0.010 ** (0.005)
Subsidiary	0.003 (0.002)	0.003 (0.005)	0.004 (0.003)
Intercept	0.042 ** (0.020)	0.028 (0.037)	0.050 * (0.029)
Fixed Effects	Yes	Yes	Yes
N	2673	1013	1461
Adjusted R2	0.08	0.07	0.06