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The effect of recessions on European M&A outcomes

Abstract

We study whether European bidders create more shareholder value when they announce acquisitions during recessions. To the best of our knowledge, research in this area, in a European context, is scarce. As such, we aim to address this gap. Drawing on 1,060 completed deals involving European acquirers between 1995 and 2022, obtained from the SDC M&A Database, we classify recessionary quarters as two consecutive quarters of negative real GDP growth with a one-quarter buffer, and construct a panel of recession and non-recession transactions. Short-term value creation is measured with three-day cumulative abnormal returns (CARs) and long-term performance with 24-month buy-and-hold abnormal returns (BHARs); both are estimated using event-study methodology. We perform multivariate OLS regressions to test the effect of recessions on value creation, controlling for 15 deal- and firm-level characteristics. Across the main specifications, the recession indicator is statistically insignificant for both announcement-period CARs and subsequent BHARs, and remains so under a range of alternative specifications, different event windows, or when we apply an alternative pan-European recession calendar. We attribute the lack of significance to two main factors: recession-related increases in discount rates that may offset potential bargain-purchase gains, and negative self-selection, as recession bidders tend to be less profitable, more leveraged, and lower valued. These findings add perspective to ongoing discussions about how economic cycles shape merger outcomes.

Tutor: Noor Alshamma
Keywords: Mergers & Acquisitions (M&A), Recessions, Acquirer Value Creation, Event-Study Methodology, Business Cycles

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1 Introduction

1.1 Background

A merger or acquisition (M&A) represents a significant strategic initiative undertaken by a firm to boost growth, reinforce competitive advantages, and improve efficiency. A common rationale for M&As is the creation of synergies such as achieving economies of scale, entering new markets, acquiring valuable resources, and enhancing market power (Jensen & Ruback, 1983; Andrade et al., 2001). With this in mind, we hypothesize that M&As can also be used as an opportunistic tool by acquirers in recessions to strike bargains on distressed and cheaply valued peers, generating higher abnormal returns for the acquirer. For instance, Shleifer & Vishny (2003) propose that the stock market is a key driver of M&A activity, arguing that firms with high valuations acquire firms with lower valuations to capitalize on mispricings and favorable market sentiment for the acquiring firm. Such valuation discrepancies may be more pronounced in periods of recessions and uncertainty. Indeed, Dunn et al., (2015) find that valuation discrepancies between target and acquirer are larger for crisis mergers in the US commercial bank industry. Additionally, differences in financial strength arising from recessions may present opportunities for healthy acquirers. Rhodes & Stelter (2009) argue that firms should pursue opportunistic M&A in recessions to capitalize on financially weaker competitors who may need liquidity from an acquisition to stay afloat. A few studies have explicitly examined the relationship between recessions and acquirer CARs, but the results point in opposite directions. Silva & Gallucci-Netto (2022) show that Brazilian acquirers announcing deals in recessions earned higher and statistically significant CARs compared to acquirers announcing deals in non-recessions. Using a larger U.S. sample, Wann & Lamb (2016) find a contrasting pattern. They find that for U.S. bidders, the announcement returns are larger in non-recessions than recessions when examining cross-border mergers. As such, the evidence remains inconclusive, providing room for further exploration in new geographical contexts.

To study the effect of recession on short-term and long-term value creation, we adopt an event study methodology. Under the semi-strong, efficient market hypothesis, security prices should immediately reflect newly available information (Fama, 1970). As such, the stock market reaction to merger announcements, i.e. event studies, are frequently used in literature as measures of the impact of M&As on value creation (MacKinlay, 1997).

Our research on acquirers contributes to the literature since the research on the value creation for acquiring firms is inconclusive. On the one hand, acquisitions of private firms appear to generate significant positive shareholder wealth (Fuller et al., 2002; Chang, 1998; Moeller et al., 2004; Faccio et al., 2006; Brau et al., 2012). On the other hand, past evidence suggests that public acquisitions, in particular large ones, destroy value for acquiring shareholders (Mueller, 1997; Andrade et al., 2001; Damodaran, 2005; Bruner, 2002; Moeller et al., 2005; Cools et al., 2007; Betton et al.,

2008). However, recent research has challenged the notion that acquirers destroy shareholder value (Alexandridis et al., 2017; Tunyi, 2021). In summary, the research on acquirer returns remains ambiguous, with newer studies questioning the validity of previously held beliefs. Therefore, it is interesting to further explore this evolving landscape.

1.2 Purpose

The purpose of this study is to examine how recessions shape the value creation of mergers and acquisitions, extending existing research that has predominantly focused on deal-specific variables rather than broader economic conditions. Through our extensive literature search, we found few articles explicitly linking recessions to M&A value creation, and, to the best of our knowledge, no study utilized European M&As (Wann & Lamb, 2016; Silva & Gallucci-Netto, 2022). By investigating M&As during downturns, we aim to reconcile the directives in practitioner-oriented outlets, to pursue opportunistic M&A in downturns, with rigorous empirical testing. The findings will be of particular interest to corporate boards, executive teams, investors, and other stakeholders seeking to optimize acquisition strategies under adverse economic scenarios, as these insights can inform better decision-making and resource allocation. From a broader perspective, our study also contributes to an evolving understanding of how macroeconomic factors influence both the strategic rationale and the realized benefits of M&A transactions. Specifically, we aim to address the following question:

***RQ**: Are M&As in recessions associated with a different level of short- and long-term value creation for acquirers than M&As in non-recessions?*

This study uses a sample from the SDC M&A Database, consisting of 1,060 European M&A deals from 1995-2022. Short-term value creation is measured using 3-day announcement CARs, and the market model used is the Fama French 3 Factor model. To measure long-term value creation, we employ BHARs stretching 24 months after the acquisition announcement date. We define recessions using the common rule of thumb that a recession is present when there has been two quarters of consecutive negative real GDP growth and match these quarters to our deal announcement dates with a +-1 quarter buffer. This buffer reflects the idea that market reactions may not immediately reflect broader news and shifts in the surrounding environment (Baker & Wurgler, 2006; Hirshleifer et al., 2009). Then, we create a *Recession* indicator, which takes the value of 1 if the deal was made in a recession and 0 otherwise. With our final panel dataset, we run multiple multivariate OLS regressions wherein *Recession* and other controls are regressed first on *ACAR3* (3-day CARs) and then on *BHAR24* (24-month BHARs). The coefficient on Recession enables us to analyze the research question. One thing to note is that while we follow the standard approach of defining recessions as two consecutive quarters of negative GDP growth, the definition entails two caveats. Firstly, it may capture both relatively mild slowdowns and more severe contractions. This is because the coding rule does not account for the magnitude of the GDP decline. As such, some readers

may interpret our recession periods more broadly as general economic downturns rather than only deep or prolonged recessions. Secondly, it may overemphasize local economic conditions and miss broad slowdowns as it defines recessions on a per-country basis, ignoring the broader EU economy. Therefore, to test the robustness of our results, we re-run our regressions with a recession dataset from a pan-European research network (EABCN). This dataset only defines recessions as deep slowdowns in economic activity, and is harmonized across countries. Re-running the regressions with this dataset enables us to verify the robustness of the results (see section 5.2).

1.3 Contribution

Our study contributes to the M&A literature by clarifying the role of macroeconomic conditions in European takeovers. To the best of our knowledge, no previous research has linked both announcement CARs and BHARs to the business cycle in Europe. We address this gap with a sample of 1,060 completed deals with European acquirers announced from 1995 to 2022. Recessions are defined using a common methodology based on real GDP growth, which we then match it with detailed transaction data to form a comprehensive panel dataset of recession and non-recession deals. Through univariate tests and multivariate OLS regressions, we demonstrate that the macro context adds little explanatory power beyond established micro drivers. Our thesis extends corporate governance insights by signalling to executives that acquiring in recessions may not be a viable opportunistic move. These contributions refine the debate on when macro conditions matter for the market of corporate control and underscore the importance of real synergies in European M&A.

1.4 Delimitation

The study is limited to European public companies and M&A deals from 1995-2022. Our sample includes deals from multiple European countries, and the institutional environments may differ between countries. However, as harmonization of legislation is a key principle in the EU, we argue that the institutional context in our sample should be relatively uniform. Moreover, the sample does not include withdrawn/incomplete deals, which may bias the sample towards robust firms able to perform M&As in recessions. The upside of excluding incomplete deals is that we limit noise in our sample, as there may be systemic differences between completed and incomplete deals which are difficult to control for. Additionally, acquiring firms are defined as firms with headquarters in Europe, which technically allows an acquirer to have operations in other non-European countries and still be part of our sample. Moreover, as no alternative M&A database matched the depth and consistency of the SDC M&A Database for our variables of interest, further analysis of deals with missing Datastream identifiers was not feasible. As such, we cannot draw any conclusion on whether the deals with missing identifiers share an underlying pattern. Also, the lack of complementary M&A databases also limited the sample size, in particular the size of the recession deal sub-sample (10% of the full sample of 1,060 deals). It would have been valuable to expand the

sample size to capture more recession deals and thereby improve the estimation power for the recession effect. Furthermore, Barber & Lyon (1997) point out three biases in measuring BHARs: new listing bias, rebalancing bias, and skewness bias (see section 2.2.1). Correcting for these biases requires extensive coding, access to granular index data, and complex econometric handling, and was therefore deemed outside of the scope of this study. We therefore interpret long-run BHARs with caution. And while the study includes a comprehensive set of controls, it would have been valuable to control for acquirers' acquisitiveness and the degree of shareholder intervention in such firms, two key drivers of M&A performance (Renneboog & Vansteenkiste, 2019). To control for acquisitiveness, we intended to retrieve the full M&A histories of all firms in the sample and construct a measure of each firm's acquisition intensity during the year preceding the focal transaction. However, the Eikon Deal Screener has a limit of exporting 1,000 deals per 24 hours, which prevented us from downloading such an extensive database within a reasonable timeframe. As for shareholder intervention, neither Worldscope nor Datastream had sufficient data for constructing a proxy of shareholder intervention. Finally, the study is limited to examining CARs and BHARs as measures of value creation. Further research could explore how accounting-based measures, e.g. return on equity and residual income, are affected by recessions.

1.5 Disposition

The thesis is organized into eight main sections. Section 2 surveys the prior literature on M&A value creation and develops our two hypotheses *H1 & H2*. Section 3 sets out the event-study and multivariate OLS methodology, together with the construction of all dependent and control variables. Section 4 describes the final sample and reports key descriptive statistics. Section 5 presents the multivariate regression results that address the research questions, while Section 6 interprets these findings, discusses robustness checks and links them to existing literature. Finally, Section 7 concludes, and Section 8 outlines the limitations and avenues for further research.

2 Literature review

2.1 Foundations and motivations of M&A

Due to its prominence in corporate strategy, mergers and acquisitions is a highly active research area within finance, with many different theories of the rationale behind M&As. For brevity, these can be grouped into two overarching categories: M&As as a (1) rational pursuit of shareholder value, (2) a rational pursuit of manager private benefits (i.e. serving personal or non-shareholder ends).

2.1.1 M&As as a rational pursuit of shareholder value

One common rationale put forth by executives involved in an M&A deal is the creation of synergies, net gains to the combined entity (Porter, 1987). Trautwein (1990) argues that such gains can be operational (e.g. economies of scale), financial (e.g. relaxing financing constraints through increasing

the company's size) or managerial (e.g. when the acquirer's managers possess superior managerial skills that can be used to benefit the target). Although some event studies (e.g. Martynova & Renneboog, 2011; Alexandridis et al., 2017) show significantly positive short-term abnormal returns around M&A announcements, other long-term event studies using buy-and-hold abnormal returns (BHAR) are less conclusive, with significantly negative BHARs (King et al., 2004; Betton et al., 2008). Others find BHARs not significantly different from zero (Loughran & Vijh, 1997; Langetieg, 1978). The aforementioned results cast doubt on the ability of bidders to realize and sustain M&A synergies. Another rationale is that M&As may boost shareholder returns through increasing market power. For instance, acquisitions may allow a firm to cross-subsidize products (i.e. using profits earned from one market to sustain a fight for market share in another market), engage in tacit collusion, and deter potential entrants (Porter, 1985; Trautwein, 1990). Finally, another rationale is the valuation argument. It argues that bidders have private and unique insights about a target's value. Through M&As, this information can be used to unlock hidden value unknown to the broader market (Steiner, 1975; Holderness & Sheehan, 1985; Ravenscraft & Scherer, 1987). In a similar vein, Shleifer & Vishny (2003) propose a theory wherein the stock market may misvalue potential acquirers, targets, and the combination of the two. Such mispricings create incentives for rational managers to execute acquisitions that exploit these discrepancies. Therefore, they argue that M&As are driven by stock market misvaluation rather than reflect underlying synergies or informational advantages.

2.1.2 M&As as manager-driven activities

Another perspective views managers as the driving force of mergers. In other words, M&As are performed to maximize personal objectives such as growth, status, or control, often at the expense of shareholder value (Baumol, 1959; Williamson, 1964; Marris, 1964; Mueller, 1969). For instance, studies have proposed that managers might overpay for targets, confident they can manage them better (Black, 1989), or simply because of the increased power derived from managing a larger business empire (Rhoades, 1983). Others argue that certain acquisitions are driven by a desire to increase the firm's reliance on the expertise of its acquiring managers, even if these moves may ultimately diminish the firm's overall value (Amihud & Lev, 1981; Shleifer & Vishny, 1989). Hubris is another manager-driven motive behind M&As. According to Roll (1986), many corporate managers are affected by hubris, leading them to overpay for acquisition targets. These managers, overconfident in their ability to realize synergies, may proceed with acquisitions even in the absence of any real synergies. Building on this idea, Hayward & Hambrick (1997) find a strong relationship between CEO hubris and the size of acquisition premiums. Similarly, Moeller et al. (2004) find that larger firms, more prone to hubristic managers, are more likely to offer higher bid premiums and complete acquisitions than their smaller peers.

2.2 Value creation for acquiring firms

2.2.1 Measuring value creation

Value creation can be interpreted in various ways depending on the research focus. In empirical M&A studies, one of the most established approaches to measuring short-term acquirer and target returns is the event study methodology (MacKinlay, 1997). This approach rests on the principle of semi-strong market efficiency (Fama, 1970), which asserts that prices in an efficient market quickly reflect all publicly available information. According to this view, if a merger or acquisition is expected to create (or destroy) shareholder value, those expectations will be incorporated into the acquirer's and target's stock price upon deal announcement. By examining abnormal returns during a narrow event window surrounding the announcement date, researchers thus infer the market's assessment of whether the transaction adds or subtracts value. However, some scholars argue that short-term event studies consistently underestimate acquirer gains by overlooking the market's tendency to anticipate M&A activity in advance (Cremers et al., 2009; Danbolt et al., 2016; Palepu, 1986). Additionally, short-term announcement returns may fail to reflect the full value implications of a deal, as information regarding synergies and post-merger integration success tends to emerge gradually. Moreover, short-run returns can be influenced by temporary distortions such as price pressure or market inefficiencies (Mitchell et al., 2004; Malmendier et al., 2018). To address these limitations, we perform robustness tests with multiple event windows to capture both immediate market reactions and potential anticipatory or delayed effects that may not be reflected in the baseline 3-day window.

In contrast, long-term value creation is frequently measured over horizons of one to five years using buy-and-hold abnormal returns (BHARs), which are derived by comparing the firm's stock return to a benchmark index or securities portfolio with an appropriate expected return. Measuring long-term value creation is also more contentious and methodologically complex than measuring short-term CARs. Barber & Lyon (1997) caution that estimating long-run abnormal returns entails several sources of bias that should be accounted for, or at the very least, properly considered. For example, new listing bias arises when benchmark indices include firms that only began trading after the event date, leading to distorted comparisons. Rebalancing bias arises from differences in how returns are aggregated; indices are typically rebalanced monthly, while event firm returns are compounded without rebalancing. Finally, skewness bias stems from the fact that long-term abnormal returns are often positively skewed given the unlimited upside of stock prices, which can lead to misspecified test statistics. Together, these biases can either inflate or suppress the apparent significance of long-run performance estimates (Barber & Lyon, 1997; Kothari & Warner, 1997).

2.2.2 Empirical evidence on short-term value creation

While the general consensus among studies is that M&As tend to generate positive CARs for targets (Dodd & Ruback, 1977; Franks & Harris, 1989; Andrade et al., 2001), the evidence for acquirer

returns is mixed. King et al. (2004) conduct a comprehensive meta-analysis of post-acquisition performance studies between 1921 to 2002 and aggregate 114 studies on acquirer CARs 1-5 days after the deal announcement. They report positive but insignificant CARs. A common thread, however, is that private M&As tend to yield higher abnormal returns than public M&As (Chang, 1998; Hansen & Lott, 1996; Fuller et al., 2002, Moeller et al., 2004; Faccio et al., 2006; Jaffe et al. 2015). For instance, Faccio et al. (2006) study M&A announcement period CARs for acquirers in 17 Western Europe from 1996-2001 and find that acquirers of listed targets earn an insignificant negative abnormal return of -0.38%, whereas acquirers of private firms earn a significantly positive abnormal return of 1.48%. Some scholars have proposed that there is an illiquidity discount from buying private firms. For instance, between 1979 and 2003, private targets were attributed significantly discounted valuation multiples compared to public targets (Officer, 2007). Notably though, Meng & Sutton (2022) calls this notion into question by presenting evidence that, since 2011, target listing status no longer has implications for acquirer 3-day announcement CARs. Regardless of the validity of the liquidity discount, the observation that private M&As are associated with higher CARs highlights the importance of controlling for private targets when examining other drivers of value creation. In this study, this effect is controlled for using the Public Target indicator, as described in section 3.2.2. Interestingly, recent research has challenged the general consensus that public M&A, in particular large deals, destroy value for acquirers. Alexandridis et al. (2017) show that sub-sample of public M&As between 2010-2015 indicate positive and significant acquirer CARs. They argue that the positive CARs they observe, unlike the negative CARs found in older studies, stem from the substantial improvements in corporate governance quality since the 2008 Great Financial Crisis. Tunyi (2021) further disrupt the research landscape by showcasing that unanticipated acquirers on average generate positive CARs in a seven-day window around the announcement. The study points out that event studies partly underestimate acquirer returns because stock prices already reflect the likelihood of firms' executing M&As, implying that the stock price reaction upon announcement is largely a revision of prior beliefs and probabilities rather than an adjustment to fully new information. Recognizing this possibility, we complement short-window CARs with longer windows (see section 3.1.1.) to capture any value that may have been impounded earlier. The recent contradictory findings of these studies justify renewed attention to the study of acquirer returns.

2.2.3 Empirical evidence on long-term value creation

Unlike the results of short-term studies, evidence from long-term return studies is unified, with the vast majority of studies reporting negative and significant long-term returns for during time windows stretching several years after a deal. Agrawal & Jaffe (2000) review 22 studies on the post-acquisition stock price performance of acquiring firms and find strong evidence for negative long-run performance following a merger. Similarly, Andrade et al. (2001) use a sample of 2,068

acquisitions between 1961 to 1993 and observe significantly negative three-year post-merger abnormal returns for acquiring firms. King et al. (2004) report that long-term acquirer performance, both in market and accounting terms, is generally insignificant or negative, with returns beginning to decline as early as 22 days following the deal announcement. Finally, Malmendier et al. (2018) employ a novel method of estimating long-term returns by comparing returns of winners and losers in a bidding contest for a target. They find that winners underperform losers over the following three years, suggesting that the M&As were value-destroying. In conclusion, the evidence on long-term performance is mostly negative. While the evidence on absolute returns is unified, to the best of our knowledge, no study explicitly compares BHARs across recessions and non-recessions. As discussed later in section 2.4, there are compelling reasons as to why there should be a difference, and these arguments form the core motivation for our study.

2.3 Determinants of M&A performance

The empirical literature on the M&A performance has extensively the determinants of M&A short- and long-term value creation. Bidder characteristics emerge consistently as significant determinants of performance. Moeller et al. (2004) present robust evidence indicating a clear size effect. Their findings from an extensive U.S. dataset illustrate that small acquirers realize positive average announcement-period returns, whereas large acquirers typically face wealth erosion. The most commonly cited reason for lower acquirer returns in large public acquisitions is paying excessive prices (Loderer & Martin, 1990). Scholars argue that this is often driven by significant private benefits for managers (Jensen, 1986; Grinstein & Hribar, 2004; Harford & Li, 2007), or negative managerial traits such as overconfidence in one's ability to realize operational synergies (Roll, 1986; Malmendier & Tate, 2008). In other words, executives of larger firms frequently overestimate synergies and subsequently overpay for targets (Roll, 1986; Hayward & Hambrick, 1997). Thus, firm size becomes a proxy for managerial hubris, an interpretation supported by Moeller et al. (2004)'s demonstration that larger firms indeed pay higher premiums. This size-related disparity persists even when controlling for multiple deal characteristics, including the method of payment and target status. The existence of a size effect is not implausible given that managers in small firms tend to own larger equity stakes in their firm than do managers in large firms (Demsetz & Lehn, 1985). Another prevalent explanation of why large public acquisitions destroy value is the difficulty of integrating the target firm post-merger, in particular challenges relating to combining different corporate cultures, which adversely affects post-merger efficiency (Shrivastava, 1986; Hayward, 2002; Ahern, 2010; Alexandridis et al., 2013).

Moreover, Renneboog & Vansteenkiste (2019) conduct a comprehensive literature overview of M&A performance research and find a set of three deal characteristics that consistently predict both long- and short-term performance: acquisitiveness, related versus unrelated acquisitions (i.e. whether the target is operating in the same industry as the acquirer), and shareholder intervention

(e.g. whether shareholders push for better deal terms or block questionable deals). They investigate 19 studies on serial acquirers and find that the majority present evidence that serial and frequent acquirers' short- and long-term stock performance declines as their acquisitiveness increases. Secondly, related acquisitions tend to outperform diversifying ones, as acquirers are more likely to have the relevant skills and resources needed to integrate and operate targets within their core business areas. Finally, acquirer stock performance tends to improve when shareholders play an active role, either through direct intervention such as voting or activism, or through the involvement of long-term institutional investors who provide oversight and strategic guidance.

In addition to these three characteristics, there are other variables related to acquirer abnormal returns, emphasizing the complexity inherent in understanding M&A performance. Travlos (1987) illustrates that equity-financed bids typically result in negative acquirer reactions, signaling managerial concerns about stock overvaluation, whereas cash bids tend to have neutral effects. The governance structure of acquiring firms further explains post-acquisition performance drift observed in empirical analyses. Renneboog and Vansteenkiste (2019) emphasize the importance of active shareholder intervention, which often mitigates agency problems and constrains managerial overpayment. Earlier foundational evidence provided by Ravenscraft & Scherer (1987) confirms that operational improvements frequently fail to materialize post-merger without effective governance and monitoring, potentially contributing to long-term underperformance despite initial positive market reactions.

The valuation status of bidders also significantly influences M&A outcomes. Rau & Vermaelen (1998) show that "glamour" acquirers (firms with high market-to-book ratios) underperform "value" acquirers (firms with low market-to-book ratios) in the long-run. Lang et al. (1991) complement this finding by showing that acquirers characterized by both low Tobin's q and high free cash flow earn significantly more negative announcement-period abnormal returns than other high-q bidders. The result aligns with the free-cash-flow hypothesis which states that managers with excess free cash flow will be inclined to deploy surplus cash in value-eroding acquisitions rather than distribute it to shareholders (Jensen, 1986). These findings motivate the inclusion of controls for acquirer market-to-book ratio and cash flow, both of which are accounted for in this study.

However, the explanatory power of several variables remains inconclusive. King et al. (2004), in their meta-analysis of over 90 studies, reveal that widely investigated factors such as payment method, diversification strategy, and prior acquisition experience lose much of their explanatory power in the long-run. The deal-level variables examined by King et al. (2004) confirm that micro-level characteristics leave long-run residual variance unexplained. A logical next step is to reason around whether this variance is captured by macro-state variables, such aggregate liquidity and valuation levels, which reshape bargaining terms. Section 2.4 therefore extends the literature review to economic conditions and their influence on M&A.

2.4 M&A under different economic conditions

2.4.1 Empirical evidence on M&As and recessions

Studies that link merger performance to the state of the aggregate economy are few in number, and no consistent picture has emerged. Wann & Lamb (2016) examine the differences in CARs between recession deals and non-recession deals for U.S. acquisitions from 1971 to 2013. Their recession definition is based on business cycle classifications by the National Bureau of Economic Research. The study show that targets involved in same-industry mergers receive significantly larger announcement-period CARs when a deal is announced in a recession, a pattern they interpret as "good news counting more in bad times". Conversely, for acquirers, they find that the difference in acquirer CARs is significantly negative for cross-industry mergers, but insignificant for same-industry mergers. As such, it appears that recessions are negatively related to acquirer CARs. However, Silva & Gallucci-Netto (2022) find contrasting evidence for Brazilian acquirers. Using a sample of 279 Brazilian M&As from 2002-2017, they show that acquirers realize significantly higher CARs when announcing deals in recessions defined by the Committee for Dating Economic Cycles (CODACE). They argue that the gains stem from crisis-specific bargains that well-capitalized buyers are able to seize. Finally, Bouwman et al. (2009) complement these findings with a sample of 2,944 U.S. M&As from 1979-2002. They present statistically significant evidence that 3-day acquirer CARs on average increase by 3.17 p.p. if a deal is announced in a high-valuation market, which are classified based on the P/E ratio of the S&P 500 index. Conversely, two-year acquirer BHARs are on average significantly lower by 15.36 p.p. if announced in a high-valuation market. Their results suggest that the short-term valuation gains of acquiring in booming markets are eroded in the long-run. Collectively, these results underscore the importance of the economic backdrop for M&A value creation, but the directional impact of recessions remains inconclusive. In the following section, we develop the theoretical rationale for how recessions are expected to influence acquirer value creation.

2.4.2 Theoretical linkages between economic cycles and M&As

The theoretical foundation for that backdrop effect is supplied by work on market-driven acquisitions. Shleifer & Vishny (2003) argue that a core rationale for M&A is to capitalize on stock market misvaluation. When bidders' share prices exceed their true fundamental value, bidders are incentives to use their overpriced shares to purchase relatively lower valued targets . This enables bidders to expand their claim on real capital before the market corrects the misvaluation. Although both parties are rational, targets may accept overvalued equity as payment either because their managers have short horizons and benefit from short-term bid premiums, or because they are personally compensated for agreeing to the deal, despite its potential long-term drawbacks for target shareholders. Rhodes-Kropf & Viswanathan (2004) extend the argument by splitting mispricing into firm-specific and market-wide components. They argue that targets try to filter out the common component when

they value a bid. However, they highlight that targets cannot fully disentangle genuine synergies from market-wide overvaluation, and may therefore overestimate the value of offers during booms. This imperfect filtering causes more deals to be accepted when markets are booming, leading to merger waves characterized by greater use of stock and, on average, lower-quality acquisitions. Ang & Cheng (2006) illustrate this mechanism. Using a U.S. sample of domestic mergers from 1981-2001, they show that firms whose own stock appears overvalued are more likely to bid with shares, succeed more often when they do so, and deliver positive abnormal returns only when their overvaluation exceeds that of the target after taking into account the premium included in the offer price. Goel & Thakor (2010) introduce managerial incentives into the same setting. CEOs whose pay is tied to market capitalization experience "envy" when rival chief executives overtake them. That rivalry accelerates acquisition waves, yields progressively lower bidder returns as the wave lengthens and predicts larger targets for the late-cycle deals. These studies imply that booms attract more stock-financed bids but that the average strategic fit of such bids is likely to be weaker than in more subdued markets.

Recessions re-order bargaining power. A common practice by targets in an M&A deal is to invite multiple potential bidders to increase bid competition and allow the target firm to extract the majority of the synergy gains from an acquisition (Chen & Wang, 2023). It is reasonable to expect to see fewer firms able to participate in M&As during recessions since such periods are usually associated with tight credit conditions, heightened uncertainty, and low investment activity, causing M&A volumes to fall (Shleifer and Vishny, 2003). This would entail a shift in bargaining power. Deteriorating liquidity among firms in an industry may also reallocate bargaining power. Acharya et al. (2011) develop a model in which healthy banks hold liquidity precisely because it lets them acquire distressed rivals at fire-sale prices. Empirical evidence for this mechanism appears in Berger and Bouwman (2013), who track U.S. commercial banks across multiple financial crises. They find that banks with higher pre-crisis capital not only exhibit greater survival rates but also gain market share through M&A of distressed rivals, suggesting that strong capital positions enable banks to take advantage of acquisition opportunities and deploy assets more effectively. For non-financial firms Ding & Rahaman (2010) point to the mirror image of that story. The study provides evidence that firms concentrating most of their M&A activity during economic expansions face a significantly higher risk of involuntary exit, such as bankruptcy, liquidation, or value-destroying acquisitions, during subsequent recessions. They show that the effect of excessive acquisitiveness in booms on elevated exit hazard occurs through agency costs of overvalued equity, increased business risk, and reduced firm efficiency.

2.5 Hypothesis development

Periods of macroeconomic stress reshape the M&A landscape in ways that significantly matter for shareholder value. There are key arguments that motivate why this relationship should be positive.

There is compelling theoretical evidence that factors other than economic rationale drive merger waves. Firstly, M&As may be driven by the stock market, as bidders attempt to arbitrage valuation discrepancies from their overvalued stock in booms and targets accept because of private benefits or inability to evaluate synergies. If this is true, the economic gains from an acquisition are unlikely to be large or sustained. Secondly, managerial incentives may also motivate M&As, as CEOs may benefit from managing larger firms (e.g. through higher compensation, improved reputation, and heightened job security). Under this view, CEOs may experience envy when rival CEOs overtake them in terms of firm size. This rivalry may accelerate M&A waves and reduce the average deal quality as the cycle progresses, as CEOs of smaller firms pursue acquisitions mainly to regain their competitive standing. In both cases, we would expect the quality of deals to diminish in booms and the market to react accordingly.

Recessions also redistribute bargaining power. Firstly, in poor economic conditions fewer firms possess the financial ability to enter bidding auctions, preventing targets from extracting the lion's share of synergies in an acquisition by leveraging rival bids against each other. Secondly, there is both theoretical and empirical evidence supporting that recessions give rise to liquidity differences that redistribute power among competitors. Therefore, we argue that as liquidity becomes scarce, well-capitalized firms should be able to opportunistically acquire distressed rivals at fire-sale discounts. As such, we would expect the quality and abnormal return of deals to increase in recessions. Bringing these arguments together implies not only higher initial CARs due to more favorable deal terms, but also higher BHARs, as these acquisitions should be more likely to create sustained value rather than be driven by overvaluation or empire-building motives. In short, we expect that recession deals should be higher valued by the market than non-recessionary deals. This leads us to the following formal hypotheses:

H1: *The short-term cumulative abnormal return is higher for acquirers announcing deals during recessions than for acquirers announcing deals in non-recessionary periods.*

H2: *The long-term buy-and-hold abnormal return is higher for acquirers completing deals during recessions than for acquirers completing deals in non-recessionary periods.*

3 Methodology

3.1 Dependent variables

3.1.1 Short-term value creation (CARs)

Aligned with the vast majority of M&A studies, we adopt an event study methodology utilizing CARs from different event windows around announcement date (t=0). Instead of relying on the traditional market model with a broad index, we estimate abnormal returns with the Fama-French three-factor model (Fama & French, 1993):

$$R_t - R_f = \alpha_i + \beta_M(R_{M,t} - R_f) + \beta_{\text{SMB}}\,\text{SMB}_t + \beta_{\text{HML}}\,\text{HML}_t$$

Fama & French (1992) showed that these three stock market factors (market, size, and value) capture a larger and more statistically significant part of stock return variation than the traditional CAPM model. Their evidence suggests that a market beta is in itself insufficient for capturing the full systemic risk of a stock. In other words, the residuals produced by the three-factor model better isolate the firm-specific component of returns and yield a fairer representation of abnormal returns.

To calculate the CARs, for each stock, we first regress daily abnormal returns on the three factors from $t-280$ to $t-10$, creating factor loadings $\hat{\beta}_{\text{M}}$, $\hat{\beta}_{\text{SMB}}$, $\hat{\beta}_{\text{HML}}$, for each stock. Using an approximately year-long timeframe to estimate betas ensures that we accurately capture the covariance of stock returns with factor returns, and is common practice in finance literature (MacKinlay, 1997). With these factor loadings, we estimate the CARs with realized factor and stock returns for the event window of interest. To exemplify, the CAR for a (-1,1) event window is computed as follows:

$$CAR_t = \sum_{t=-1}^{1} AR_{i,t}$$

where $AR_{i,t}$ is given by:

$$AR_{i,t} = R_{i,t} - R_f - \hat{\alpha}_i - \hat{\beta}_M(R_{M,t} - R_f) - \hat{\beta}_{\text{SMB}}\,\text{SMB}_t - \hat{\beta}_{\text{HML}}\,\text{HML}_t$$

Where $R_{i,t}$ denotes the return of firm i on day t, R_f is the risk-free rate, and $R_{M,t}$ is the market return on day t. The terms $\hat{\alpha}_i$, $\hat{\beta}_M$, $\hat{\beta}_{\text{SMB}}$, and $\hat{\beta}_{\text{HML}}$ are the intercept and factor loadings for firm i, estimated over the $(t-280, t-10)$ time period. Finally, SMB_t and HML_t are the returns on the size and value factors, respectively, on day t. The term $AR_{i,t}$ thus represents the abnormal return of firm i on day t, calculated as the difference between the actual return and the return predicted by the Fama-French model.

To ensure robustness in our analysis, we complement our 3-day event window with 4 ad-

ditional event windows: $(-3, 3)$, $(-5, 5)$, $(-10, 10)$, $(-30, 1)$, with which we re-run our tests to see if results change. By using longer pre-announcement windows we can better capture potential information leakage during opaque pre-deal "merger talks", which may affect prices even prior to the public acquisition announcement. The longer post-announcement windows aid in capturing delayed stock price effects, which may occur if more information about the merger gradually becomes available post-announcement. Finally, given the frequently occurring issue of skewed return distributions, we choose to winsorize outliers at the 1% and 99% cut-offs, which is a common approach in finance journals (Adams et al., 2018).

3.1.2 Long-term value creation (BHARs)

To measure long-term performance for a deal, we estimate a 24 month buy-and-hold abnormal return (BHAR) for the acquirer. It is obtained by comparing the cumulative return of a stock with a benchmark over the same period.

$$BHAR_{i,t} = \prod_{\tau=1}^{t}(1 + R_{i,\tau}) - \prod_{\tau=1}^{t}(1 + R_{b,\tau})$$

Where $R_{i,t}$ is the return of stock i in month t and $R_{b,t}$ is the return of benchmark b in month t. For our benchmark indices, we use country-specific benchmark indices. This approach ensures our BHARs reflects the local economic environment in which each firm operates, while maintaining sufficient breadth to represent general market movements. For countries with no suitable benchmark index (e.g. due to small stock exchanges), we use the STOXX Europe 600, a broad index of the European equity market. The complete list of indices used for each country can be found in Appendix 6. As with CARs, we winsorize outliers at the 1% and 99% levels to prevent extreme observations from exerting undue influence on results. This is important given that BHARs are particularly susceptible to positive skew (Lyon et al., 1999).

3.2 Independent variables

3.2.1 Recessions

Our recession dataset is created by classifying quarters as recessions if the quarterly GDP growth has been negative for two consecutive quarters. However, we adopt a ±1 quarter buffer when classifying deals as recessionary to accommodate potential delays in investor sentiment and valuation adjustments. For example, Baker & Wurgler (2006) find that investor sentiment significantly influences market pricing and that these effects exhibit lag structures across proxies. Similarly, Hirshleifer et al. (2009) find evidence that limited investor attention contributes to delayed market reactions, reinforcing the idea that markets may not promptly reflect macroeconomic changes. These findings support the inclusion of a buffer when classifying deals as recessionary vs. non-recessionary.

Defining what constitutes a recession is at the heart of this study and misclassifications may

therefore jeopardize the validity of the results. As such, we choose to dedicate a separate section for this issue. Our main definition is based on the most popular practical definition; two consecutive quarters of negative real GDP growth (IMF, n.d.), and is on a per-country basis. We apply a +- 1 quarter buffer to capture delayed investor sentiment adjustments, as previously mentioned. While this definition is the rule of thumb for practitioners, there is a risk that we overemphasize local economic conditions over broader macroeconomic sentiment, which may still be important. For example, if a single country exhibits slightly positive GDP growth (thus avoiding our recession flag), but the rest of the EU is in a recession, deals made in that specific country, at that time, will be classified as non-recession deals. This may not be a valid classification since the M&A and equity market environment in one country is undoubtedly correlated with other markets, especially so for multinational companies. To remedy this concern, we employ a new recession dataset from the EABCN, a research network that provides harmonized business cycle dating for Euro area on a quarterly basis. In this dataset, recession quarters are uniform across all countries and are dated by a committee of researchers and practitioners using a variety of macroeconomic indicators. The EABCN definition of a recession is: *"a significant, broad-based decline in the level of economic activity, spread across the economy of the euro area, usually visible in two or more consecutive quarters of negative growth in GDP, employment and other measures of aggregate economic activity for the euro area as a whole."* (EABCN, n.d.). This alternative definition also remedies the concern that the definition does not distinguish between smaller downturns and wider economic slowdowns. The EABCN solely classifies broad pan-European slowdowns as recessions, limiting the sample to larger recessions only.

3.2.2 Control variables

As described in section 2.3 there have been many studies on the different drivers of value creation. To isolate the relationship between of recessions and value creation, we try to control for the explanatory firm- and deal-level variables found in past research. All accounting variables are taken from the last fiscal year prior to the acquisition.

Size is the acquirer's market capitalization 30 days prior to the acquisition announcement, in € millions. Past research has found a significant and negative effect of the acquiring firm's size on acquirer returns (Moeller et al, 2004; Alexandridis et al, 2017). The number is inflation-adjusted using CPI data from Eurostat, indexed at 2015. We then take natural logarithm of the number to account for the positive skewness of the assets (see Appendix 3 for further elaboration).

Market-to-book is the acquirer's market capitalization 30 days prior to the acquisition announcement scaled by the acquirer's total assets. Dong et al. (2006) show that highly valued bidders are more likely to offer larger bid premiums and earn lower announcement returns, giving us reason to control for acquirer valuation.

Uysal (2011) concludes that overleveraged (in comparison to the target firm's leverage ratio)

acquiring firms are less likely to finance deals with cash, but acquire smaller targets and realize higher announcement CARs. As such, we include *Leverage*, which is defined as the acquirer's total debt scaled by its total assets.

Cash Flow is the firm's operating cash flow scaled by total assets. Past research has shown that acquirers with low free cash flow are more likely to acquire targets of inferior quality relative to those acquired by high cash flow acquirers (Ren et al., 2024). As such, we control for acquirer cash flow.

Profitability is the acquirer's return on assets (ROA), expressed as a percentage. It is defined as earnings before interest expense (EBIT) divided by average total assets (an average of the opening and closing balance) for the last fiscal year prior to the M&A announcement. We hypothesize that less profitable firms tend to experience less favorable market reactions to announced M&A deals, as their weaker financial position may undermine their ability to successfully execute and integrate acquisitions.

Deal Value, is the natural logarithm of the inflation-adjusted (2015 terms) deal value in € millions. The rationale for including it is that multiple studies have shown that large deals on average destroy shareholder value (Cools et al., 2007; Rehm et al., 2012; Alexandridis et al., 2013).

Since we choose to include non-control deals, we include a variable for the stake acquired in the target company. In the final sample, 990 out of 1,060 deals are deals which result in control for the acquirer. To ensure that the transfer of control does not interfere with our results, we include *Stake Acquired*, a control variable expressed as the percentage of shares acquired in the transaction.

Larger public deals have been shown to result in more negative abnormal returns (Alexandridis et al., 2013). And a relative measure of deal size is frequently included in literature to gauge the economic importance of a deal. As such, we include *Relative Size*, a control defined as the inflation-adjusted deal value scaled by the inflation-adjusted acquirer's market capitalization 30 days prior to the transaction.

All Stock and *All Cash* are two dummy variables which take the value 1 if the deal is financed entirely with stock or cash, respectively. Otherwise, they are 0. The effect of payment method on acquirer returns has been extensively studied. Cash-financed acquisitions tend to yield higher announcement returns for both bidders and targets compared to stock-financed deals (Loughran & Vijh, 1997; Bhagat et al., 2005 ; Savor & Lu, 2009). This is often attributed to the tendency of managers to use cash when they believe their stock is undervalued, and stock when it is overvalued, leading the market to adjust the bidder's share price accordingly. We solely use *All Stock* in the regressions given the strong inverse correlation between the two, but report *All Cash* in our descriptive statistics for additional information.

Competition is a dummy variable that takes the value of 1 when there are more than 1 bidders involved in the M&A deal. As previously discussed, we hypothesize that the presence of compet-

ing bidders enables the target to extract the majority of synergy gains from an acquisition through driving up the bid premium, resulting in lower acquirer CARs.

Hostile is another dummy variable and it takes the value of 1 if the deal attitude is defined by the SDC M&A database as "Hostile", i.e. a hostile takeover in which an acquirer attempts to gain control without the consent of the target firm's Board of Directors. This control is used since hostility tends to be negatively related to acquirer returns (Schwert, 2000).

To control for the potential negative effects of diversifying acquisitions on value creation (Morck et al., 1990), we include a diversification dummy, *Diversification*, which is equal to 1 if the acquirer and target have different 2-digit SIC codes.

Moreover, we use a cross-border indicator, *Cross-border*, equal to 1 if the target's home nation is outside of the acquirer's home nation. Research on US acquirers has found that announcement returns are related to whether the acquirer is a domestic or foregin company (Morck & Yeung, 1992), and we deem it likely that this effect also holds for European acquirers.

As discussed in the literature review. There is extensive research showing that private M&A on average yield higher acquirer CARs. Therefore, we include *Public Target*, a dummy variable equal to 1 if the target is publicly listed on a stock exchange. Moreover, we suspect that the time elapsed between deal announcement and deal completion could be related to various hurdles such as antitrust regulation, shareholder approval, and overall market uncertainty, and consequently affect abnormal returns. As such, we include *Time to Completion*, defined as the amount of days between announcement and completion.

Finally, including fifteen controls inevitably costs degrees of freedom. With 1,060 observations, 28 years, and 59 industries our residual degrees of freedom becomes 957 after industry- and year-fixed-effects. However, the observations per parameter (~10.3) lie within the common 10-20 observations per parameter' rule-of-thumb set forth by traditional statistics literature, albeit at the lower range (Harrell, 2015). We retain the full set of control variables and assess robustness by estimating alternative specifications that include or exclude fixed effects. This allows us to evaluate the sensitivity of key coefficient estimates to different model assumptions. Additionally, we plot a correlation matrix of all explanatory variables and test for multicollinearity by analyzing the variance inflation factor (VIF).

3.3 Model specifications

3.3.1 Univariate tests

To set a baseline benchmark of the differences in CARs, BHARs, and control variables between recessions and non-recessions, univariate tests are computed along with summary statistics in section 4.3. Differences in the means of the variables between recession and non-recession sub-samples are evaluated using two-tailed t-tests with standard errors clustered at the acquirer level, accounting for intra-firm correlation. Median differences are assessed using the two-sample Mann–Whitney

U test, which does not assume normality and tests the null hypothesis that the two subsamples share the same central tendency. This dual approach make inferences more robust to distributional characteristics of the variables.

3.3.2 Multivariate OLS regressions

The OLS linear regression model is applied given its widespread use in M&A studies that examine explanatory variables for announcement returns and subsequent value creation. The OLS methodology relies on several assumptions, including linearity, independence of errors, homoscedasticity, and no perfect multicollinearity among explanatory variables. Given that acquirors may engage in multiple transactions, we cluster standard errors at the firm level for all our regression, to relax the assumption of independently distributed residuals across observations. We implement a stepwise multivariate OLS regression approach. In the initial specification, we regress CARs or BHARs solely on the *Recession* indicator. Subsequently, we introduce control variables, followed by the inclusion of fixed effects, first at the industry level, then at the year level, and finally both simultaneously. This is done to account for unobserved heterogeneity across industries and over time, given the diverse industry representation and extended sample period. To exemplify, the final specification for the CAR regression is as follows:

$$ACAR3_i = \beta_0 + \beta_1 \cdot Recession_i + \boldsymbol{\beta}' \cdot \mathbf{IV}_i + fe_{k,t} + \varepsilon_i \tag{1}$$

Where $ACAR3_i$ is the 3-day announcement CAR $(t-1)$ to $(t+1)$ days around announcement date t and $Recession_i$ is a dummy variable indicating whether the deal was made in a recession. Standard errors are clustered at the firm level. $\boldsymbol{IV_i}$ are the control variables outlined in section 3.2.2. Fixed effects are denoted by fe_k by industry k and year t. The regression on BHARs is identical to Eq. 2 except that the dependent variable is $BHAR_i$, the 24-month BHAR for firm i:

$$BHAR_i = \beta_0 + \beta_1 \cdot Recession_i + \boldsymbol{\beta}' \cdot \mathbf{IV}_i + fe_{k,t} + \varepsilon_i \tag{2}$$

As such, β_1 in Eq. 1 tests $H1$, whereas the remaining coefficients absorb deal-specific or firm-specific influences established in prior research. Similarly, β_1 in Eq. 2 tests $H2$.

4 Empirical data

4.1 Data collection

Per our sample, we use data from the Thomson SDC M&A database through Eikon's "Screener" interface, Refinitiv Datastream, and Worldscope. The M&A data come from the Thomson SDC M&A database accesses through Refinitiv Eikon. It includes M&A deals by European acquirers and for which the deal was announced between 1995 and 2022. We perform our screening with criteria in

line with previous literature such as Moeller et al. (2004), Jaffe et al. (2015), and Alexandridis et al. (2017). Firstly, the dataset is restricted to firms headquartered in Europe. Secondly, the deal should be announced between 1995-2022, and non-publicly listed acquirers are excluded since our dependent variables are constructed with stock data. The deal value should exceed €1 million to avoid micro-cap transactions, which is a criteria used in the aforementioned literature. Moreover, we limit the sample to completed deals. Otherwise, we risk introducing selection bias due to potentially systematic differences between completed and incomplete/cancelled deals, e.g. inflated bid premiums, regulatory hurdles, or strategic misalignments which make them less comparable to successfully closed deals. Additionally, we only include deals where the acquirer did not own more than 50% prior to the acquisition date to avoid most deals in which the acquirer already possesses control of the target firm. To measure larger transactions, we only include deals which entail an equity stake greater than 20% of the shares in the target company. Finally, we exclude deals for which there is no unique Datastream identifier for the acquiring company, yielding a sample from the SDC M&A Database of 1,328 deals.

For the firms included in this sample, data on stock return indices, which include dividends, interest, and other distributions, are collected. This approach provides a more comprehensive representation of the actual returns realized by shareholders than a regular price index would. Benchmark index returns were also acquired through Datastream. Financial information on acquirers, used for control variables, were obtained through Worldscope. Observations with a lack of country benchmark index data and financial data are excluded. The Fama French 3 factor data come from the Kenneth R. French Data Library, which is freely accessible from the Darthmouth University website. We choose the European 3 factor dataset, computed with daily European stock returns to match the geographical focus of our study. In line with previous literature, we use a historical time period, stretching from $t - 280$ to $t - 10$ days prior to the announcement date, for estimating the Fama French 3 Factor parameters. Observations without stock data in that time window are excluded. The final sample consists of 1,060 deals. The full sample construction procedure is reported in Table 1.

The GDP data comes from two sources. For the UK, the data is sourced from the Office for National Statistics, the recognized national statistical institute of the UK. GDP data on all other European countries are obtained from Eurostat. We use data on a per-country basis. However, a few countries have missing country-level data for certain time period (e.g. North Macedonia pre-2000). For such observations we use Eurozone-level GDP data as a proxy. All GDP observations are recorded on a quarterly basis and expressed in chain-linked volume measures, a method accounting for inflation over time and thereby providing a more accurate reflection of real economic activity. Finally, CPI data used for inflation-adjusting deal size and acquirer size control variables is obtained from Eurostat.

Table 1: Sample construction table

	Observations	Change
Total number of M&A deals in SDC M&A database	779,646	
Deals with an acquirer headquartered in Europe	205,105	-574,541
Announced between 1995-2022	165,620	-39,485
Deals with a publicly listed acquirer	60,447	-105,173
Deal value greater than €1 million	44,337	-16,110
Completed deals	37,080	-7,257
Acquirer holds less than 50% of shares prior to the announcement date	2,527	-34,553
More than 20% of shares acquired in the transaction	1,690	-837
Deals with valid Datastream identifiers	1,328	-362
Complete stock data from t-280 to t-10 days prior to the announcement date	1,249	-79
Available country index benchmark data	1,118	-61
Available financial data	1,060	-128
Final sample	**1,060**	

4.2 Sample construction

To construct our sample, we merge the datasets outlined in section 4.1 by matching them based on observation year and their unique Datastream identifiers. 362 observations lack valid Datastream codes and are dropped. Moreover, we exclude 79 observations without 280 trading days of historical data as this is needed to accurately estimate factor loadings for computing CARs. However, we do not drop firms that do not survive the full 24-month post-event window due to delisting events such as mergers, bankruptcies, or buyouts. This is to prevent survivorship bias. For these firms, post-delisting returns are conservatively set to zero. This ensures that early firm exits do not upwardly bias the sample's post-acquisition and the use of such survivorship bias mitigation techniques is common practice in long-term event studies (e.g. Loughran & Ritter, 1995; Brav et al. 2000). 61 observations are dropped due to a lack of benchmark data, which is necessary for CARs, for the 24-month event window. After all operations, the remaining sample consists of 1,060 M&A deals between 1995-2022. For a summary of the sample construction, see Table 1.

4.3 Descriptive statistics

Our final sample comprises 1,060 European M&A transactions announced between 1995 and 2022. 954 of them occur in non-recession quarters and 106 in quarters that we classify as recessions. Unsurprisingly, the sample is skewed towards non-recession deals, which adheres to the general consensus of M&A activity as a pro-cyclical phenomenon. Years 2008 and 2009 are the only years

in which there are more recessionary deals than non-recessionary deals. Some deals from these years and other generally known recession years such as 2020 are classified as non-recession deals because recession periods are defined using country-specific GDP data, resulting in recession years that vary across countries. Table 2 supports the finding that M&As occur in waves. In the expansionary years before the Dot-com bubble and again in the mid-to-late 2000s the deal activity rises, whereas it drops following the 2000 Dot-com bubble, the 2008 Great Financial Crisis and after the COVID-19 breakout in late 2019. Interestingly, the deal activity is at its lowest in 2017, with 17 recorded deals. This could be a result of the somewhat restrictive deal criteria implemented in the screening procedure.

Table 2: Sample distribution by year and economic environment

Year	Non-Recession	Recession	Total	% Non-Recession	% Recession
1995	24	0	24	100.0%	0.0%
1996	19	1	20	95.0%	5.0%
1997	29	0	29	100.0%	0.0%
1998	29	0	29	100.0%	0.0%
1999	68	0	68	100.0%	0.0%
2000	73	0	73	100.0%	0.0%
2001	46	5	51	90.2%	9.8%
2002	21	3	24	87.5%	12.5%
2003	19	2	21	90.5%	9.5%
2004	26	0	26	100.0%	0.0%
2005	38	0	38	100.0%	0.0%
2006	68	0	68	100.0%	0.0%
2007	41	4	45	91.1%	8.9%
2008	16	27	43	37.2%	62.8%
2009	11	17	28	39.3%	60.7%
2010	35	7	42	83.3%	16.7%
2011	34	6	40	85.0%	15.0%
2012	28	8	36	77.8%	22.2%
2013	32	3	35	91.4%	8.6%
2014	34	1	35	97.1%	2.9%
2015	44	0	44	100.0%	0.0%
2016	44	0	44	100.0%	0.0%
2017	17	0	17	100.0%	0.0%
2018	32	3	35	91.4%	8.6%
2019	41	1	42	97.6%	2.4%
2020	14	14	28	50.0%	50.0%
2021	44	1	45	97.8%	2.2%
2022	27	3	30	90.0%	10.0%
Total	**954**	**106**	**1060**	**90.0%**	**10.0%**

Notes: This table reports the annual number of M&A deals with a European acquirer, by year and economic environment. The sample includes completed deals announced between 1995 and 2022, sourced from the SDC M&A database. We exclude repurchases, recapitalizations, self-tenders, exchange offers, and intra-corporate restructurings. Deals have an inflation-adjusted value of at least €1 million, and acquirers must own less than 50% prior to announcement. The sample is restricted to publicly listed European acquirers (excluding Russia) with valid Datastream codes and 280 days of historical stock data. Both acquisitions of public and private targets are included.

Table 3 reports summary statistics for the sample of 1,060 completed European M&A transactions. The reported difference in means is evaluated with a two-tailed test (acquirer-clustered standard errors) of whether recession and non-recession averages differ. Median comparisons rely on the two-sample Mann–Whitney U statistic, which tests the null that the central tendency of the two subsamples is identical. Panel A compares the balance sheet and market characteristics of acquiring firms in the two periods. The mean (median) log market capitalization of acquirers is 7.31 (7.37) in recessions versus 7.24 (7.22) outside them. The gap is economically small and statistically insignificant, indicating that recessions do not systematically push only very large or small firms into M&A. A notable difference is that recession acquirers trade at a 0.58-point lower mean market-to-book ratio, and the difference is significant at a 5% level. The median difference is likewise significant but at a 1% level. The markedly lower market-to-book ratios for recession-period bidders may indicate a composition effect, i.e. a higher proportion of inherently 'value' acquirers choosing to transact when sentiment is weak. Equally, the recession itself may compress valuations throughout equity markets, temporarily depressing firms' market-to-book ratios. The weaker market multiples coincide with a more levered capital structure. Mean leverage is 0.29 in recessions versus 0.25 outside ($p < 0.10$). The average cash-flow-to-assets and profitability (ROA) fall by -0.015 and -2.03%, respectively, and both differences are significant at a 5 % level. Together with the lower market-to-book, these patterns point to acquirers that enter recessions in weaker operating shape yet still choose to acquire, raising the possibility that they see opportunistic bargains.

Panel B turns to deal-level and target features. The difference in *Deal Value* is insignificant and the absolute difference is quite small, suggesting that deal sizes may remain relatively unchanged in different economic environments. Transactions agreed during recessions tend to convey a smaller stake to the acquirer (mean 58.57 % of the target's equity against 64.78% in normal times). The share of all-cash offers rises to 67.9 % in recessions, up from 63.0 % in expansions, which is broadly consistent with the idea that depressed share prices make equity a less appealing currency. All-stock bids remain uncommon in both regimes but edge higher by roughly 3 p.p. during downturns. That said, these shifts in payment forms, as well as the small differences in *Competition, Hostile, Diversification, Cross-border, and Public Target*, are statistically insignificant, so they should be viewed as descriptive rather than substantive. Lastly, recession deals appear to progress more slowly. The average time from announcement to completion stretches to roughly 145 days, compared with 108 days for non-recession observations. This suggests that financing hurdles or regulatory reviews may take longer to resolve when credit and equity markets are under strain.

In panel C, we perform univariate tests on acquirer CARs and 24 month-BHARs. *ACAR3* is the acquirer cumulative abnormal return for a 3-day $(-1, 1)$ announcement window based on the Fama French 3 Factor Model, which is estimated over the window $(-280, -10)$ relative to the M&A

announcement date. *BHAR24* is the acquirer buy-and-hold abnormal return for 24 months after the acquisition announcement, computed using country-specific share indices as benchmark portfolios. A complete list of the benchmark indices used for each country can be found in Appendix 6.

For all deals we report positive (0.405%) average acquirer CARs. The median is also positive (0.226%) but smaller than the mean, indicating that our sample of CARs is positively skewed. Interestingly, the positive result is mainly driven by non-recessionary deals which have larger (0,473%) average CARs and comprise the majority of the full sample. By contrast, recessionary deals exhibit negative mean and median CARs of -0,210% and -0,186%, respectively. The difference in means is -0,683% and -0,456% for medians. Both differences are mildly significant ($p<0.1$), which is interesting given that it implies slight support against $H1$.

The 24-month mean BHARs are positive for all subsamples. BHARs from recessionary deals are on average 0.214 pp larger than those from non-recessionary deals, but the difference is insignificant. Notably, despite similar means between the recession and non-recession sub-samples, the median BHARs are considerably lower in recessions (2.603%) than in non-recessions (8.886 %). This indicates that our sample of recession BHAR is very positively skewed even in spite of winsorizing at the 1% and 99% cut-offs. Still, like the difference in means, the difference is medians is insignificant. As such, we find no support for $H2$.

Table 3: Summary statistics

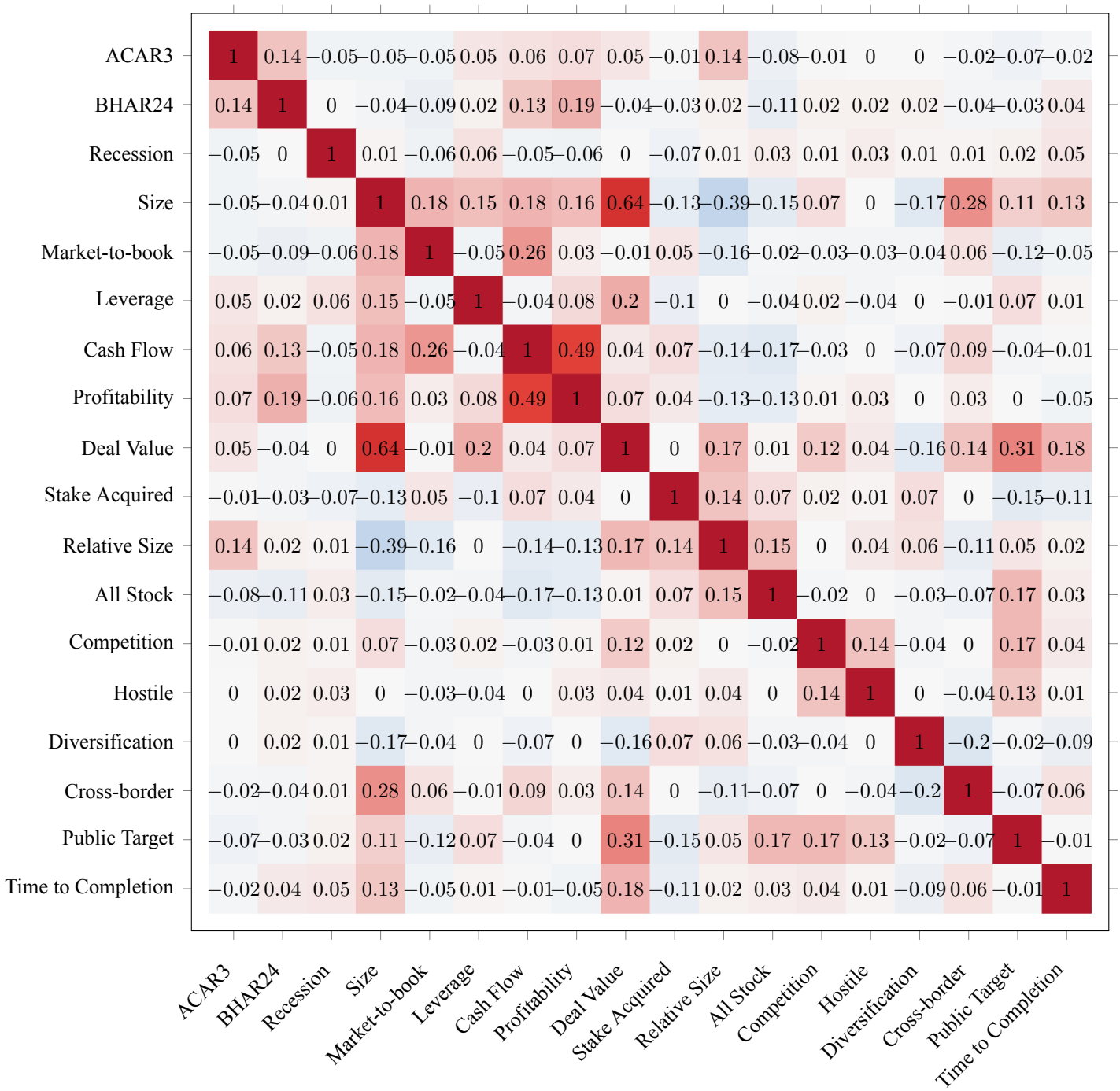
Variable	Stat	(1)	(2)	(3)	(3-2)
		All	Non-Recession	Recession	Difference
Panel A: Acquirer characteristics					
Size	mean	7.248	7.241	7.308	0.066
	median	7.217	7.215	7.369	0.154
Market-to-book	mean	2.541	2.598	2.019	-0.580**
	median	1.617	1.634	1.262	-0.372***
Leverage	mean	0.256	0.253	0.285	0.032*
	median	0.248	0.245	0.296	0.050**
Cash Flow	mean	0.065	0.066	0.052	-0.015**
	median	0.060	0.062	0.045	-0.016*
Profitability	mean	4.849	5.052	3.023	-2.030**
	median	5.170	5.340	3.725	-1.615***
Panel B: Target/Deal characteristics					
Deal Value	mean	4.107	4.111	4.078	-0.033
	median	4.076	4.081	3.946	-0.135
Stake Acquired	mean	64.160	64.781	58.570	-6.211***
	median	63.000	64.000	57.190	-6.810**
Relative Size	mean	0.165	0.164	0.173	0.009
	median	0.044	0.044	0.042	-0.003
All Stock	mean	0.095	0.092	0.123	0.030
	median	0.000	0.000	0.000	0.000
All Cash	mean	0.635	0.630	0.679	0.049
	median	1.000	1.000	1.000	0.000
Competition	mean	0.016	0.016	0.019	0.003
	median	0.000	0.000	0.000	0.000
Hostile	mean	0.009	0.008	0.019	0.010
	median	0.000	0.000	0.000	0.000
Diversification	mean	0.508	0.506	0.519	0.013
	median	1.000	1.000	1.000	0.000
Cross-border	mean	0.479	0.477	0.500	0.023
	median	0.000	0.000	0.500	0.500
Public Target	mean	0.367	0.364	0.396	0.032
	median	0.000	0.000	0.000	0.000
Time to Completion	mean	111.960	108.237	145.466	37.228
	median	43.500	42.000	82.500	40.500**
Panel C: Main dependent variables					
ACAR3	mean	0.405%	0.473%	-0.210%	-0.683%*
	median	0.226%	0.269%	-0.186%	-0.456%*
BHAR24	mean	10.981%	10.959%	11.173%	0.214%
	median	8.404%	8.886%	2.603%	-6.283%

Notes: This table presents the means and medians for a set of firm and deal-level characteristics (Panel A and Panel B), 3-day CARs, and 24-month BHARs (Panel C) for a sample of 1,060 public and private European M&A deals. The last column reports the differentials in variables between recession deals and non-recession deals. Variable descriptions can be found in Appendix 2. Mean differences are assessed using two-tailed t-tests derived from univariate regressions. Median differences are evaluated using the two-sample Mann–Whitney U test, which examines the null hypothesis that the two subsamples share the same central tendency. Statistical significance at the 10%, 5%, and 1% levels is denoted by *, **, and ***, respectively.

The correlation matrix in Figure 1 confirms that correlation is not a serious concern among regression variables. With the exception of two intuitive pairings, namely *Size* and *Deal Value* ($\rho \approx 0.64$), and *Cash Flow* and *Profitability* ($\rho \approx 0.49$), all absolute correlations stay below 0.40. These magnitudes are below the conventional 0.70 "red-flag" threshold, so variance-inflation factors (VIFs) should remain at acceptable levels if all variables are entered jointly in the regressions. There are, however, a few secondary patterns worth noting. For one, relative deal size is inversely related to bidder size ($\rho \approx -0.39$), reflecting the mechanical effect that acquisitions loom larger for smaller acquirers. Additionally, cross-border transactions are slightly less likely to be diversifying (*Diversification* × *Cross-border*, $\rho \approx -0.20$), suggesting that foreign deals in the sample often target the same industry. We also note that public targets tend to command larger headline valuations (*Public Target* × *Deal Value*, $\rho \approx 0.31$), which is consistent with higher transparency and bargaining power. All other pairwise coefficients, including those involving completion time, are close to zero, indicating that most variables contribute independent information. Moreover, none of the variables have a VIF above 5, which somewhat alleviates the concern of multicollinearity and redundant variables. The full results of the multicollinearity test are reported in Appendix 5, Table 8. Overall, the strongest relationships are economically intuitive, and no variables appear to be strongly redundant in the regression models.

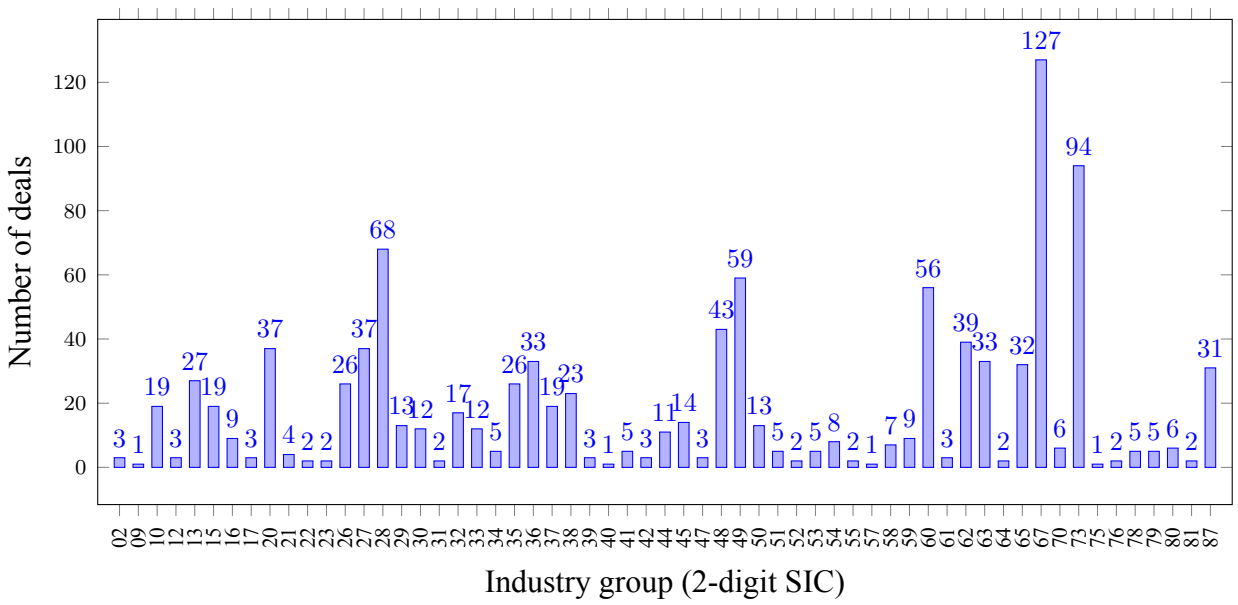
Figure 2 plots the distribution of the 1,060 observations across two-digit SIC groups. The sample spans 59 2-digit SIC industries, with some sectors appearing to be more acquisition-intensive. Holding & other investment offices (SIC 67) lead the count with 127 deals (12 % of the sample), which is unsurprising given that M&As are the core of these firms' business models. Business services (SIC 73) is the second most frequent sector with 94 deals (9 %), which is also reasonable given the sector's asset-light economics and frequent reliance on acquisitions for geographic and capability expansion. Chemicals and allied products (SIC 28) represent the third largest industry-group, with 68 observations (6 %). The sector is highly driven by scale economies in R&D and production, competitive advantages that can be created through M&A. Beyond these three sectors, the remaining 771 transactions are spread across 56 additional SIC codes, reducing the likelihood that any single sector drives the results that follow.

Figure 1: Correlation matrix



Notes: This figure displays the correlation between all dependent variables and independent variables used in regressions. It excludes All Cash since it is not included in the regression

Figure 2: Deals per industry group



Notes: This figure displays the number of deals per 2-digit SIC industry group.

In summary, we see that recession-period bidders are firms with weaker internal cash generation that nevertheless favor cash-financed transactions, acquire marginally smaller stakes and face longer completion lags. The patterns coincides with our theoretical expectation that tighter capital markets, lower equity valuations and a reduced pool of competing bidders reshape both the structure and the timing of European M&A during downturns.

5 Empirical results

To begin this section, we estimate the multivariate OLS models introduced in Section 3.3.2. The specifications incorporate a broad set of acquirer, deal, and target-level controls, thereby isolating the incremental effect of recessionary periods that the univariate comparisons cannot capture. The results are reported in section 5.1. In section 5.2, we elaborate on robustness and fixed effects.

5.1 CARs and BHARs

This section explores whether the observed disparities in mean and median CAR and BHAR can be explained by deal, acquirer, or target characteristics that are not captured in the univariate analysis. We perform 5 multivariate OLS regressions per dependent variable (10 in total), where the difference lies in the inclusion/exclusion of controls and fixed effects (industry and/or year). The dependent variables are *ACAR3* in panel A and *BHAR24* in Panel B . The main independent variable in both panels is *Recession*, which takes the value 1 if the deal is announced in a recessionary envi-

ronment, and 0 otherwise. As described in section 3.2.2, we control for important variables which have been shown to have explanatory power for acquirer returns. These are: *All Stock, Size, Deal Value, Stake Acquired, Relative Size, Competition, Hostile, Diversification, Cross-border, Public Target, Time to Completion, Market-to-book, Leverage, Cash Flow, and Profitability*. The prudent reader will note that we exclude *All Cash* from the regression, and this is a deliberate decision since *All Cash* and *All Stock* move inversely to each other. Including both would introduce a redundant variable without new explanatory power.

We begin by presenting the results in Panel A. On average, acquirers announcing deals in recessions attain a 0.31-0.68 p.p. lower 3-day CAR than their non-recession counterparts. For the average acquirer with a mean market capitalization of €1.4 billion (inflation-adjusted) in 2015 terms (ln 7.248 in *Deal Value*, see table 3 Panel A), this corresponds to a €4-10 million loss in shareholder value in 2015 terms. However, the coefficient of the recession indicator is negative across all four regressions (2)-(5), and only mildly significant for the baseline specification ($p<0.1$, column 1), which provides evidence against our first hypothesis. The implications of this finding is that, after controlling for other explanatory variables, the effect of a recession on an acquirer's CAR is insignificantly different from zero. As such, we find no support for $H1$. The coefficient signs of the other control variables align with expectations based on prior research. For instance, all-stock deals are negatively associated with CARs in all regression specifications (2)-(5). On average, acquirer CARs are 0.75-1.05 p.p. lower for all-stock deals, although the effect is only significant ($p<0.05$) in regressions (2) and (4). Moreover, acquisitions of public targets on average exhibit 0.64-0.85 p.p. lower CARs, and the effect is significant for all specifications at the 5% level, in line with the notion of a liquidity discount. Larger acquirers are associated with lower CARs, consistent with the size effect found in literature, and the effect is significant for regressions (2) and (4) ($p<0.05$). In economic terms, a one-unit increase in *Size* corresponds to approximately a €2.4 billion increase in market capitalization for a firm with the mean market cap of €1.4 billion, and that increase in *Size* is associated with a -0.1 to -0.2 p.p. decrease in CAR. Finally, diversifying deals drive lower CARs, although this effect is insignificant across all regressions (2)-(5). The control variables with surprising coefficients are *Leverage* and *Hostile*. The positive coefficient on *Leverage* would indicate that more levered acquirers realize higher CARs. *Hostile* is also positive, which suggests that acquirers in hostile takeovers create larger returns, in contrast with past research. Still, both coefficients are insignificant, so we cannot draw substantive conclusions from these results.

The results in Panel B tell a similar story. The *Recession* coefficient is positive for all regressions. For an average size acquirer with a market capitalization of €1.4 billion (inflation-adjusted) in 2015 terms, announcing deals in recessions on average yield a €3-64 million gain in 2015 terms. However, this gain insignificant across all specifications, including the baseline (column 6). In other words, the effect of recessions on acquirer 24-month BHARs does not significantly differ

from zero. Thus, we find no support for $H2$ either. Other control variables are relatively in line with prior research. All-stock deals yield 14.46-16.43 p.p. lower BHARs, and the effect is significant across all specifications (7)-(10). Similarly, firms with higher *Profitability* attain higher BHARs and the effect is significant at a 1% level. Notably though, the effect is small, varying depending on regression between 0.80-0.97 p.p. increase per percentage point increase in ROA. However, there are some surprising results. For instance, the coefficient on *Leverage* is positive for all regressions, and significant for regressions (6) and (8). Moreover, for deals with competing bidders, acquirers realize 10.88-15.34 p.p. higher CARs, and the effect is significant for regressions (8) and (10). Thus, for the average acquirer, announcing a deal, which is contested by rival bidders, yields 24-month shareholder gains of €152-215 million in 2015 terms. Finally, while the positive sign and significance of *Cash Flow* might not stand out, the magnitude does. However, one should note that the variable is defined as operating cash flow scaled by total assets, meaning that the variable takes small values.

5.2 EABCN recession data, fixed effects, and robustness tests

Given the importance of the Recession variable, we utilize an alternative classification of recessions by the EABCN, as previously mentioned in section 3.2.1. With this data, 145 out of 1,060 deals are now classified as recession deals. Then, we re-estimate the regressions in Table 4, and notably, the coefficient on Recession remains statistically insignificant across all model specifications (1) - (10), further reinforcing the evidence against our hypotheses $H1$ and $H2$. The full regression results are provided in Appendix 1.

In line with previous research, we re-run our main regression specifications on a sub-sample excluding all financial firms from our main sample. The rational is that some argue that financial firms (e.g. private equity firms, investment companies, and insurance companies) have a capital structure substantially different from firms in other industries (Foerster & Sapp, 2005). Dropping these firms yield a sample of 768 M&A deals, of which 73 are recession deals. With this new sample, the effect of recessions on CARs remains negative, ranging from -0.50 to -0.68 p.p. Conversely, for BHARs, the effect is positive (1.09 to 4.31). However, the coefficient is insignificant across all specifications for CARs and BHARs, strengthening our results (see Appendix 7 for the full results). Moreover, in testing our hypotheses, we alternately include and exclude both industry and year fixed effects to assess their influence on the results. These fixed effects help control for unobserved heterogeneity that may bias the estimates. Industry fixed effects account for systematic differences in M&A activity across sectors, while year fixed effects control temporal fluctuations in M&A intensity across different M&A cycles. Their inclusion mitigates the risk of omitted variable bias arising from sectoral and time-specific variation. Notably, regardless of the inclusion or exclusion of fixed effects, the recession coefficients are insignificant for all specifications except the baseline CAR regression (1).

Table 4: Acquirer return regressions

	Panel A: ACAR3					Panel B: BHAR24				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Base	No FE	Industry FE	Year FE	Ind&Year FE	Base	No FE	Industry FE	Year FE	Ind&Year FE
Recession	-0.68*	-0.63	-0.54	-0.37	-0.31	0.21	1.21	2.04	4.43	4.60
	(0.08)	(0.10)	(0.18)	(0.45)	(0.55)	(0.97)	(0.83)	(0.70)	(0.51)	(0.48)
Size		-0.18**	-0.10	-0.20**	-0.12		-1.02	-2.03	-1.40	-2.42
		(0.03)	(0.28)	(0.02)	(0.20)		(0.42)	(0.16)	(0.27)	(0.10)
Market-to-book		-0.06*	-0.06	-0.06*	-0.06		-2.13***	-2.40***	-1.93***	-2.20***
		(0.08)	(0.13)	(0.10)	(0.15)		(0.00)	(0.00)	(0.01)	(0.01)
Leverage		0.83	0.41	1.03	0.53		3.53	26.50**	6.15	26.02**
		(0.24)	(0.63)	(0.15)	(0.54)		(0.75)	(0.03)	(0.57)	(0.03)
Cash Flow		3.07*	2.32	3.39*	2.70		60.71*	74.14**	65.11**	79.93**
		(0.07)	(0.22)	(0.05)	(0.17)		(0.05)	(0.02)	(0.05)	(0.02)
Profitability		0.02	0.02	0.02	0.02		0.94***	0.80***	0.97***	0.82***
		(0.21)	(0.13)	(0.16)	(0.13)		(0.00)	(0.00)	(0.00)	(0.00)
Deal Value		0.23**	0.25**	0.21**	0.23**		-0.88	-0.95	-0.89	-0.70
		(0.01)	(0.01)	(0.02)	(0.02)		(0.53)	(0.51)	(0.53)	(0.63)
Stake Acquired		-0.01*	-0.01	-0.01*	-0.01		-0.08	-0.08	-0.09	-0.09
		(0.07)	(0.10)	(0.09)	(0.10)		(0.30)	(0.31)	(0.27)	(0.28)
Relative Size		1.21***	1.37***	1.09**	1.24***		5.89	5.17	4.51	3.27
		(0.01)	(0.00)	(0.02)	(0.01)		(0.46)	(0.51)	(0.58)	(0.69)
All Stock		-0.99**	-0.74	-1.05**	-0.82		-16.39***	-14.95**	-16.43***	-14.46**
		(0.04)	(0.13)	(0.03)	(0.10)		(0.01)	(0.01)	(0.01)	(0.01)
Competition		-0.14	-0.31	-0.37	-0.47		11.05	15.34**	10.88	13.98**
		(0.77)	(0.57)	(0.49)	(0.43)		(0.14)	(0.03)	(0.15)	(0.05)
Hostile		0.35	0.22	0.50	0.28		3.19	6.15	7.79	9.36
		(0.50)	(0.73)	(0.38)	(0.70)		(0.84)	(0.70)	(0.66)	(0.58)
Diversification		-0.09	-0.08	-0.10	-0.10		0.94	-1.68	0.30	-1.95
		(0.71)	(0.77)	(0.68)	(0.69)		(0.79)	(0.66)	(0.93)	(0.60)
Cross-border		-0.07	-0.29	-0.02	-0.25		-4.57	-3.27	-4.20	-3.11
		(0.78)	(0.29)	(0.95)	(0.36)		(0.21)	(0.38)	(0.25)	(0.41)
Public Target		-0.80***	-0.85***	-0.64**	-0.70**		-2.59	-2.18	-0.90	-1.52
		(0.00)	(0.00)	(0.02)	(0.02)		(0.52)	(0.60)	(0.84)	(0.73)
Time to Completion		-0.00	-0.00*	-0.00	-0.00		0.02**	0.01**	0.02**	0.02**
		(0.18)	(0.06)	(0.30)	(0.16)		(0.03)	(0.04)	(0.02)	(0.02)
Industry FE	No	No	Yes	No	Yes	No	No	Yes	No	Yes
Year FE	No	No	No	Yes	Yes	No	No	No	Yes	Yes
N	1060	1060	1060	1060	1060	1060	1060	1060	1060	1060
Adjusted R^2	0.00	0.04	0.04	0.06	0.05	-0.00	0.06	0.10	0.08	0.11

Notes: This table presents OLS regressions of ACAR3 and BHAR24 on the Recession indicator and other deal, firm, and target-level control variables. The Recession variable takes the value of 1 if the deal was announced in a recession defined on a country-level. Detailed variable descriptions are presented in Appendix 2. Standard errors are clustered at the acquirer level, and p-values are reported in parentheses. Statistical significance at the 10%, 5%, and 1% levels is denoted by *, **, and *** respectively.

As discussed in section 3.1.1, information leakage about M&A deals may affect short-term CARs, and stock price effects may be delayed if information about the deal is gradually disseminated post-announcement. Therefore, we rerun the regression in column (4), but for four other CARs with different event windows: $(-3, 3)$, $(-5, 5)$, $(-30, 1)$, $(10, 10)$. The coefficient on Recession is positive for event windows $(-3, 3)$, $(-5, 5)$, and $(-10, 10)$, with coefficients of 0.24, 0.27, and 0.95, respectively, and negative (-0.43) for the $(-30, 1)$ window. Regardless, it remains insignificant across all different event windows, providing strong evidence against $H1$. The full results are showcased in Appendix 4.

Moreover, we evaluate the robustness of the models by testing for multicollinearity among the independent variables. Given the broad set of independent variables, there is a risk of including correlated variables that add limited explanatory power. Multicollinearity, which arises when explanatory variables are highly correlated, can distort coefficient estimates and reduce interpretability, though it does not invalidate the model (Farrar & Glauber, 1967). We report variance inflation factors (VIFs) in Appendix 5. A VIF of 1 indicates no correlation with other regressors, and values below 10 are generally considered acceptable (Wooldridge, 2013), although this threshold can vary by context (O'Brien, 2007). For our variable set, 14 out of 16 independent variables have VIFs below 2, with the two largest values being Size and Deal Value, which have VIFs of 3.53 and 3.22, respectively. Accordingly, we consider the risk of multicollinearity affecting our results to be low.

6 Analysis

6.1 Sample analysis

In the construction of our sample, we utilize multiple criteria that filter out many observations from the final sample. In general, the largest sample loss occurs in the filtering process in Eikon itself, where we screen for M&A deals with available transaction data and fulfilling the criteria mentioned in section 4.1. For one, we deliberately exclude deals under €1 million to avoid small outliers which may affect the significance of our results. However, this may limit the ability to generalize our results to broader populations of M&A deals. But since the majority of past literature include a form of size filter, not using one would reduce the comparability of our results with other literature. Additionally, in merging the three datasets from Eikon, Datastream, and Worldscope together we lose observations with dysfunctional and missing Datastream identifiers and insufficient financial data. As such, there is potentially a risk of sample selection bias in that the deals with missing identifiers share certain patterns that could affect our results. Still, the final sample includes 1,060 deals that cover 59 two-digit SIC industries, 33 European countries, and a long timeframe from 1995-2022, improving the cross-sectional heterogeneity. To further reduce the risk of studying a biased sample, the study could have been extended to other use M&A databases, which would raise the sample

size and potentially contribute with more variation. However, this was deemed outside of the scope of this study given our restricted access to other databases. Additionally, approximately 9% of our sample includes non-control deals, which is a result of the screening design. Notably though, their presence is handled through the variable *Stake Acquired*, so differences in ownership transfers are contained in a single variable rather than affecting all other coefficients. Another noteworthy point is that the inclusion of financial firms (SIC-codes starting with 6) is a divisive topic in M&A literature. Some argue that financial firms (e.g. private equity firms, investment companies, and insurance companies) should be excluded since their capital structure is substantially different from firms in other industries (Foerster & Sapp, 2005). We choose to include financial firms in our sample to maintain our sample size. For robustness though, we re-run our regressions on a sub-sample excluding all financial firms from our main sample and the main results remain unchanged (see Appendix 7). Lastly, to remedy survivorship bias, we choose to retain firms which are delisted during the 24-month period after the acquisition, by setting their returns to zero for the remainder of the period after delisting. The rationale is that excluding firms delisted during the post-announcement period risks biasing BHARs upwards since a major cause of delistings is poor stock performance.

6.2 Analysis of results

6.2.1 Hypothesis 1

From the univariate tests performed in Table 3, it appears that the relationship between recessions and CARs is negative. Average acquirer 3-day CARs fall from 0.473% to -0.210% for recessions, although the difference of -0.683% is only mildly significant ($p<0.1$). The results thus appear to be the inverse of what we hypothesized earlier, although the low significance prevents us from drawing strong conclusions. To further analyze the effect of recessions, we regress the main variable *Recession* and other control variables on acquirer CARs. As shown in Table 4 column (1), the acquirer CARs drop by 0.68 p.p. on average when acquirers announce deals in recessions and the effect is mildly significant ($p<0.1$). However, for specifications with control variables and fixed effects the coefficient on *Recession* is negative (-0.63 to -0.31) but insignificant for all regression variations in columns (2) - (5). Considering delayed effects through using additional event windows for CARs does not alter the results. As reported in Table 7 in Appendix 4, while acquirer CARs for $(-3, 3)$, $(-5, 5)$, and $(-10, 10)$, on average increase by 0.238 to 0.953 p.p., the effect is insignificant, as is the effect on CARs with a $(-30, 1)$ event window. Furthermore, when using an alternative recession classification method as described in section 3.2.1, the results remain insignificant for all specifications. Even with this alternative dataset from EABCN and new recession classifications, all regressions (1)-(10) yield an insignificant coefficient for the *Recession* variable (see Appendix 1 for the full results). Therefore, we deem it unlikely that our findings are driven by the particular way recessions are dated. In other words, the insignificance of the *Recession* variable appears robust to alternative recession definitions.

The evidence thus suggests that the hypothesized relationship does not hold and that we do not find support for the hypothesis in $H1$. In other words, the short-term cumulative abnormal return does not appear to be higher for acquirers announcing deals during recessions than for acquirers announcing deals in non-recessionary periods. Our results stand in contrast to the study performed by Silva & Gallucci-Netto (2022), who find a positive and significant effect of recessions on 3-day acquirer CARs. While the time periods are quite similar; Silva & Gallucci-Netto (2022) use a 2002-2017, while we use 1995-2022, the geographical setting is different. Our study focuses on European firms while Silva & Gallucci-Netto (2022) focus exclusively on Brazilian firms. It is possible that the differences in the institutional environments affect the extent to which firms may engage in opportunistic M&A during downturns. For instance, EU has particularly strong institutions, surpassing their US counterparts in terms of independence, which is notable given that the US invented modern antitrust legislation (Gutiérrez & Philippon, 2018). In contrast, Brazil faces persistent challenges with corruption. According to Transparency International's Corruption Perceptions Index, Brazil ranks 107th out of 180 countries, indicating a high level of perceived public sector corruption (Transparency International, 2025). This institutional weakness may make it easier for firms in Brazil to capitalize on recession-induced bargains, as regulatory authorities may be less likely to block mergers on competition grounds compared to their European counterparts. This would suggest that the findings do not generalize well to a developed market context. The sample composition may also contribute to the differing results. Silva & Gallucci-Netto (2022) use a sample of 279 M&A deals, whereas our study includes 1,060 deals. This difference in sample size may influence the findings, as a smaller sample may capture a narrower cross-section of firms and deal types. Consequently, their results may be more sensitive to specific firm or deal characteristics. In a small sample, even a few positive outliers in recession periods or negative ones in non-recession periods can disproportionately influence the estimated *Recession* coefficient. For instance, in their sample, there is one deal in 2009 (a recession year) with a 7-day CAR of 38,1% and a deal with -34,8% in 2011 (a non-recession year). While we do not have access to their entire dataset, the existence of such outliers suggest that this could be an issue.

Conversely, however, our results are in line with two other past studies performed in the US. For one, Bouwman et al. (2009) use a sample of US acquirers between 1979 and 2002 and find that the average acquirer 3-day CARs increase by 3.17 p.p. ($p<0.01$) if the acquisition is announced in a high valuation market. In other words, they do not find a recession premium. Similarly, Wann & Lamb (2016) examine US M&As between 1971 and 2003 and find evidence that cross-industry mergers announced in non-recessions on average yield acquirer CARs 0.76 p.p. ($p<0.1$) greater than their recession counterparts. However, the differences in CARs for their same-industry merger sample yields a positive, albeit insignificant difference between non-recessions and recessions. As such, Wann & Lamb (2016) do not find evidence of a recession premium on CARs. They hypothe-

size that the surprising results may stem from market participants' viewing M&As in downturns as riskier than M&As executed in a better economic environment.

In conclusion, prior U.S.-based studies such as those by Bouwman et al. (2009) and Wann & Lamb (2016) align with our findings in rejecting the presence of a recession premium. We hypothesized earlier that there should be a recession premium as well-capitalized firms are able to acquire liquidity-distressed peers with low market valuations. However, these potential benefits may be outweighed by the overall negative market sentiment during recessions. For instance, the heightened uncertainty coupled with the large capital outlays in M&As may have a large negative effect on acquirer CARs.

6.2.2 Hypothesis 2

Similar to *H1*, we do not find evidence in support of *H2*. In the univariate tests in Table 3, there is a slight positive difference in average BHARs, with recession deals exhibiting higher BHARs than non-recession deals (+0.214 p.p), but the difference is insignificant. Likewise, the difference in medians is insignificant. As for the regressions, all regressions (6) - (10) in Panel B (see Table 4) have an insignificant *Recession* coefficient. And with the alternative recession classification, the *Recession (EABCN)* coefficient remains insignificant, indicating robustness across recession definitions. This suggests that the long-term buy-and-hold abnormal return is not significantly higher for acquirers announcing deals during recessions than for acquirers announcing deals in non-recessionary periods. Notably, the *Recession* coefficient is positive across regression (7) - (10) but given the insignificance, it is imprudent to infer strong conclusions from the sign of the coefficients. There are limited studies linking explicitly linking economic conditions to BHARs . Bouwman et al. (2009) consider BHARs and find that bidders who buy in high-valuation markets realize significantly lower BHARs, while controlling for payment method and acquirer characteristics. They attribute the results to herding behavior in merger waves, wherein managers acting later in a wave may follow the acquisition decisions of earlier firms rather than rely on their own private assessments. Empirically, they find that acquirers who enter a high-valuation merger wave early tend to realize neutral or even positive long-term returns, while those acquiring later suffer significantly negative BHARs, consistent with the idea that herding intensifies as the wave progresses. These results imply that the underperformance of high-market acquisitions may stem from deteriorating decision quality as firms increasingly defer to peer behavior. Our study may be less sensitive to this effect, as our dataset comprises a comparatively smaller and more dispersed set of acquisitions (1,060 deals over 28 years) than that of Bouwman et al. (2009), whose sample includes 2,944 deals over a shorter 23-year period. With this in mind, an interesting avenue for further research would be to replicate the study with a broader set of M&A databases from a variety of data providers to enrich the final sample.

6.2.3 Interpreting the statistical insignificance

Although earlier sections have outlined potential explanations for the insignificant results, this section provides a more in-depth examination of the underlying drivers.

One plausible explanation for the insignificance of the recession dummy lies in the composition of the recession sub-sample. Firms that acquire during downturns already exhibit a classic "value" profile in that their mean market-to-book ratio is 2.02 versus 2.60 for non-recession bidders, a 0.58-point gap that is significant ($p < 0.05$, Table 3). They generate 1.5 percentage-points less operating cash-flow-to-assets ($p < 0.05$), carry 3.2. p.p. more leverage ($p < 0.10$), and earn a lower ROA (3.0% vs 5.1%, $p < 0.05$). In short, recession acquirers are characterized by cheaper equity currencies, tighter balance sheets and weaker profitability.

In theory, a "value" bidder paying cash could signal confidence and curb empire-building (Shleifer & Vishny 2003; Jensen 1986). In practice, once we control for these fundamentals, the recession dummy adds no extra explanatory power. Investors appear to price the firm characteristics, i.e. low valuation, higher leverage, subdued cash flow, rather than the macro timing itself. Faced with bidders that are simultaneously cheap and capital-constrained, the market may doubt their ability to finance integrations, absorb post-merger shocks, or fund the investments needed to unlock synergies. The synergy narrative is would therefore be discounted ex-ante, pushing the recession effect on CARs and BHARs toward zero. Moreover, only about 10% of our deals occur in recession quarters, and the acquirer quality within that tenth is visibly lower. If stronger firms can simply defer M&A until equity markets rebound, the pool that transacts in recessions is negatively selected. In that case the recession dummy is acting as a proxy for firm quality, not the macro state, which further explains the lack of significance.

Alternatively, another plausible reason lies in the discount rate applied by investors. We suspect that the recession dummy never attains conventional significance because the discount rate spikes during downturns, and that increase is not fully captured by our event study methodology. Our CARs are benchmarked with the Fama–French three-factor model, whose betas are estimated over the quiet window $(t - 280, t - 10)$ before the announcement. Those betas strip out systematic risk relatively well, but they are static by construction. In other words, they cannot react when macro stress and firm-level financial vulnerability suddenly raise the idiosyncratic return investors demand around the announcement date. As previously mentioned, the recession bidders in our sample appear to be riskier firms with lower market-to-book ratios, higher leverage and lower cash flow. If markets re-price that extra firm-specific risk when an recession deal is announced, even a modest premium to the discount rate would shrink the present value of a given synergy stream, offsetting the "bargain" element that we hypothesized is present in recession deals. In other words, a deal-specific discount rate premium may become salient only once the firm commits to a large purchase in fragile conditions. As for BHARs, the usual premise is that, once the compounded return on the

benchmark portfolio is netted out, any residual performance reflects the economic quality of the deal itself. That premise implicitly requires the acquirer and the benchmark to face the same discount rate. In recessions this symmetry breaks down. The bidders in our sample are more levered, more liquidity-constrained and more exposed to post-merger execution risk than the representative index firm. As such, the recession-driven increase in their discount rates may exceed the increase embedded in the benchmark. The higher firm-specific discount rate pushes the announcement-day share price to a lower starting level, yet the benchmark strips out only the market-wide component of that shock. BHARs therefore begin compounding from a depressed base. All else equal, the statistic thus registers a smaller abnormal return even when deal synergies are intact. In other words, recession BHARs are contaminated by bidder-specific discount-rate news that the benchmark does not fully account for. This would counteract the hypothesized positive effect of recessions on BHARs. In light of this, the consistently insignificant effect of recessions on CARs and BHARs, is not entirely surprising because two forces are pulling in opposite directions. While cheaper purchase prices and improved bargaining power may push returns up, recession-induced spikes in discount rates may pull them back down, leaving the net effect statistically indistinguishable from zero.

However, as mentioned in the delimitation section (1.4), we concede that the recession group is relatively thin. In particular, the recession sub-sample contains only 106 recession deals, which represents 10% of the sample. As such, the estimates for this subgroup are inherently less precise. Thus, even if a meaningful difference exists, the statistical tests may lack the sensitivity to detect it with confidence. It is also worth noting that the timing of M&A announcements may not be random. Firms may strategically choose when to pursue acquisitions depending on macroeconomic conditions and internal readiness. This introduces a potential self-selection bias, as our recession indicator may capture differences in acquirer characteristics, risk tolerance, or opportunity sets, not just the macroeconomic state. While our analysis does not directly control for this, we acknowledge it as a limitation and an avenue for future research.

6.2.4 Analysis of control variables

The direction of the control variables were mostly in line with the prior literature outlined in section 3.2.2. The main purpose of the controls is to capture the effects of other M&A determinants and thus isolate the effect of *Recession* on value creation. We focus the discussion on those covariates whose estimated signs or magnitudes diverge from the patterns usually reported in the M&A literature. Controls that follow the prior literature, for example, the higher CARs in private M&A, which our study also finds evidence of through negative and significant ($p<0.05$) coefficients across all CAR regressions (2) - (5), are fully reported in Table 4 but not elaborated upon further.

Firstly, we note that CARs are on average higher by 0.22 to 0.50 p.p. if the bid is *Hostile* , and BHARs are on average 3.19 to 9.36 p.p. larger for *Hostile* bids, as seen in columns (2-5;7-10) This finding goes against prior literature. Schwert (2000) note that hostile bids trigger larger short-run

gains for targets and more negative CARs for acquirers as takeover premiums are on average higher in hostile takeovers. However, as our *Hostile* coefficients are insignificant, our results may simply be a unique and non-representative feature of the sample we study.

Furthermore, prior literature suggests that larger deals are associated with greater value destruction (Alexandridis et al. 2013). Therefore, we would expect *Relative Size* to have a negative coefficient. However, as reported in Table 4, we find a consistently positive and significant ($p<0.05$) effect for CAR regressions (2) - (5), and a positive and insignificant effect for all BHAR regressions (6)-(10). Similarly, *Deal Value* has a positive and significant ($p<0.05$) coefficient across all CAR regressions. In other words, and negative and insignificant coefficients across all BHAR regressions. Taken together, the results indicate that larger deals, both in absolute and relative terms, are associated with higher acquirer CARs but not necessarily higher BHARs.

A plausible explanation is that the European deals are subject to different institutional and regulatory environments than the U.S. context studied by Alexandridis et al. (2013). The EU is generally considered to enforce stricter corporate governance standards, which may shape how large transactions are perceived and executed[1]. For instance, Moeller et al. (2004) suggest that larger acquirers in the U.S. tend to overpay for targets due to issues such as managerial hubris, implying that such deals may reflect overconfidence rather than sound strategic judgment. However, if stronger governance mechanisms in the EU constrain such behavior more effectively, large deals may be subject to greater scrutiny and discipline, potentially leading to more value-enhancing outcomes. This institutional difference could help explain why our findings diverge from US literature.

7 Conclusion

7.1 Summary

This thesis set out to test whether European bidders generate superior shareholder value when they announce acquisitions in recessions, relative to expansions. Using 1,060 completed deals from 33 countries during 1995-2022, we measured short-term performance with three-day cumulative abnormal returns (CARs) estimated from a Fama–French three-factor model, and long-term performance with 24-month buy-and-hold abnormal returns (BHARs). A recession indicator, using the common definition of a recession as two consecutive quarters of negative real GDP growth, with a one-quarter buffer, was introduced in univariate tests and multivariate OLS regressions alongside

[1] Across Europe, corporate governance rests on national codes that every member-state adopted after the EU's 2003 company-law Action Plan; these codes use the "comply-or-explain" principle that originated from the Cadbury Report, which was published in the UK in 1992. The codes are reinforced by a continuing stream of EU directives and recommendations, giving listed firms a detailed, legally backed rule-set to which they must report. In the United States, by contrast, day-to-day board oversight is anchored in federal statutes such as the Sarbanes-Oxley Act but the rest of corporate law remains state-centred, so there is no single, nationwide governance code and the disclosure discipline it imposes is correspondingly lighter compared to that in the EU (Swedish Corporate Governance Board, n.d.).

15 deal- and firm-level controls and firm- and year fixed effects.

Across all specifications, the macro environment proved largely irrelevant. Mean CARs were positive in normal times (+0.473%) but negative in recessions (-0.210%), producing a -0.68 p.p. difference that was only marginally significant in univariate tests ($p \approx 0.09$). Mean BHARs were positive in both regimes and the difference between recessions and non-recession deals (+0.214 pp) was statistically indistinguishable from zero. The recession coefficient remained small and insignificant for both CARs and BHARs across the main regressions, and this result survived alternative event windows, an EABCN business-cycle calendar, and various robustness checks. Put differently, European acquirers neither gain nor lose systematically by timing deals to downturns, contradicting our hypotheses $H1$ and $H2$. Closer inspection of bidder traits and market conditions reveals two offsetting forces behind this null effect: 1) bidders that strike during downturns are generally smaller, more leveraged, and less profitable, which may be linked to lower abnormal returns, while 2) recession-driven jumps in discount rates erode any bargain-purchase surplus. Taken together, these factors may neutralize the net shareholder impact of announcing deals in recessions.

These findings refine the debate on whether "crisis bargains" translate into shareholder gains. For boards and executives, the message is pragmatic: macro timing alone is unlikely to rescue an otherwise mediocre transaction and value still hinges on deal quality, governance, and integration discipline. Investors may likewise moderate expectations of higher CARs simply because a bid is struck in a recession. To the best of our knowledge, no study have examined this question in a pan-European setting. Our results suggest that macroeconomic conditions add limited explanatory power once micro-level fundamentals are accounted for, complementing existing US-focused research and pointing to the potential role of institutional context. At the same time, the limited number of recession deals ($\approx$10 % of the sample) reduces statistical power, and our market-based metrics cannot fully speak for post-merger operating synergies. These are two caveats that future research could address with broader samples and accounting data. Overall, the analysis suggests that in Europe, recessions are not the decisive backdrop some practitioners assume; sound fundamentals, not business-cycle timing, appears to remain the primary driver of acquirer value creation.

7.2 Further research

There are several interesting avenues to further research. Firstly, our analysis relies exclusively on market-based measures of value creation (CARs and BHARs). While these metrics are widely used and offer real-time insight into investor expectations, they do not capture post-deal operating outcomes or realized synergies. Future research could complement our findings by incorporating accounting-based performance indicators such as changes in ROA, operating margins, or cost synergies post-merger. This would allow for a richer understanding of whether recession-period deals create value beyond what is immediately priced in by the market. Some scholars argue that short-term stock prices alone make it difficult to separate genuine expectations of economic improvement

from potential market mispricing (Healy et al., 1992). Moreover, performance indicators derived from accounting, like ROA, cash flow, revenue, workforce expansion, or profit margins, can more directly reflect the synergistic effects of an acquisition and illustrate the added value it generates (Fu et al., 2013).

Our sample includes only completed M&A transactions. However, future research could extend the analysis to withdrawn or cancelled deals, which often exhibit meaningful announcement reactions even if the transaction ultimately fails. This is particularly relevant in recessions, where heightened uncertainty, financing constraints, or regulatory hurdles may increase the likelihood of deal failure. Studying such deals could shed light on whether investors initially price recession-period bids differently depending on their perceived likelihood of completion, and whether macroeconomic conditions influence not just value creation but also deal execution risk.

Our definitions of recessions are backward-looking, based on realized GDP figures (the baseline classification method) or ex-post business-cycle classifications (the EABCN classification). It would be valuable for future studies to examine forward-looking indicators of recessions, such as PMI indices which have been shown to anticipate changes in GDP growth and correlate strongly with equity prices and global financing conditions (Erik et al., 2019), consumer sentiment, or financial stress measures. This could offer a more accurate reflection of the macroeconomic environment as perceived by investors at the time of a deal, which is likely relevant for understanding how recession expectations affect value creation around the announcement date.

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9 Appendix

9.1 Appendix 1: Regressions with EABCN data

Table 5: Acquirer return regressions using EABCN recession data

	Panel A: ACAR3					Panel B: BHAR24				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Base	No FE	Industry FE	Year FE	Ind&Year FE	Base	No FE	Industry FE	Year FE	Ind&Year FE
Recession (EABCN)	-0.57	-0.58	-0.42	-0.24	0.15	7.89	5.45	4.98	10.72	9.09
	(0.12)	(0.12)	(0.28)	(0.67)	(0.80)	(0.17)	(0.34)	(0.41)	(0.32)	(0.41)
Size		-0.18**	-0.10	-0.20**	-0.12		-1.05	-2.08	-1.39	-2.44*
		(0.03)	(0.30)	(0.02)	(0.20)		(0.40)	(0.15)	(0.27)	(0.10)
Market-to-book		-0.06*	-0.07*	-0.06*	-0.07		-2.08***	-2.33***	-1.94***	-2.18***
		(0.07)	(0.10)	(0.10)	(0.14)		(0.00)	(0.00)	(0.01)	(0.01)
Leverage		0.78	0.38	1.00	0.52		3.50	26.44**	6.65	26.37**
		(0.27)	(0.66)	(0.16)	(0.55)		(0.75)	(0.03)	(0.54)	(0.03)
Cash Flow		3.24*	2.43	3.49**	2.80		59.22*	73.01**	64.16**	79.19**
		(0.06)	(0.20)	(0.05)	(0.16)		(0.06)	(0.03)	(0.05)	(0.02)
Profitability		0.02	0.02	0.02	0.02		0.94***	0.80***	0.96***	0.82***
		(0.19)	(0.13)	(0.15)	(0.13)		(0.00)	(0.00)	(0.00)	(0.00)
Deal Value		0.23**	0.24**	0.21**	0.23**		-0.78	-0.86	-0.88	-0.66
		(0.01)	(0.01)	(0.02)	(0.02)		(0.58)	(0.55)	(0.54)	(0.66)
Stake Acquired		-0.01*	-0.01	-0.01	-0.01		-0.08	-0.08	-0.09	-0.09
		(0.10)	(0.13)	(0.10)	(0.11)		(0.27)	(0.28)	(0.23)	(0.24)
Relative Size		1.22***	1.39***	1.10**	1.25***		5.68	5.03	4.48	3.24
		(0.01)	(0.00)	(0.02)	(0.01)		(0.47)	(0.52)	(0.58)	(0.69)
All Stock		-1.01**	-0.76	-1.06**	-0.84*		-16.40***	-14.89**	-16.62***	-14.53**
		(0.03)	(0.12)	(0.03)	(0.10)		(0.01)	(0.01)	(0.00)	(0.01)
Competition		-0.15	-0.30	-0.36	-0.46		11.14	15.39**	10.84	13.89*
		(0.75)	(0.57)	(0.50)	(0.45)		(0.14)	(0.03)	(0.16)	(0.06)
Hostile		0.25	0.13	0.43	0.25		3.62	6.71	9.10	10.73
		(0.63)	(0.84)	(0.44)	(0.73)		(0.82)	(0.67)	(0.60)	(0.52)
Diversification		-0.10	-0.09	-0.10	-0.10		1.02	-1.54	0.38	-1.84
		(0.68)	(0.74)	(0.68)	(0.70)		(0.78)	(0.69)	(0.91)	(0.62)
Cross-border		-0.09	-0.31	-0.03	-0.26		-4.44	-3.12	-4.04	-3.01
		(0.72)	(0.26)	(0.92)	(0.35)		(0.22)	(0.41)	(0.27)	(0.42)
Public Target		-0.79***	-0.84***	-0.64**	-0.71**		-2.71	-2.31	-1.12	-1.77
		(0.00)	(0.00)	(0.02)	(0.01)		(0.50)	(0.57)	(0.79)	(0.68)
Time to Completion		-0.00	-0.00*	-0.00	-0.00		0.01**	0.01**	0.02**	0.02**
		(0.19)	(0.07)	(0.31)	(0.17)		(0.03)	(0.04)	(0.02)	(0.02)
Industry FE	No	No	Yes	No	Yes	No	No	Yes	No	Yes
Year FE	No	No	No	Yes	Yes	No	No	No	Yes	Yes
N	1060	1060	1060	1060	1060	1060	1060	1060	1060	1060
Adjusted R^2	0.00	0.04	0.04	0.06	0.05	0.00	0.06	0.10	0.08	0.11

Notes: This table presents OLS regressions of ACAR3 and BHAR24 on the Recession (EABCN) indicator and other deal, firm, and target-level control variables. The recession dummy takes the value of 1 if the deal was announced in a quarter defined as a recession by the Euro Area Business Cycle Network (EABCN). The data yields 145 recession deals out of 1,060 deals in the full sample. Standard errors are clustered at the acquirer level, and p-values are reported in parentheses. Statistical significance at the 10%, 5%, and 1% levels is denoted by *, **, and *** respectively.

9.2 Appendix 2: Variable descriptions

Table 6: Variables

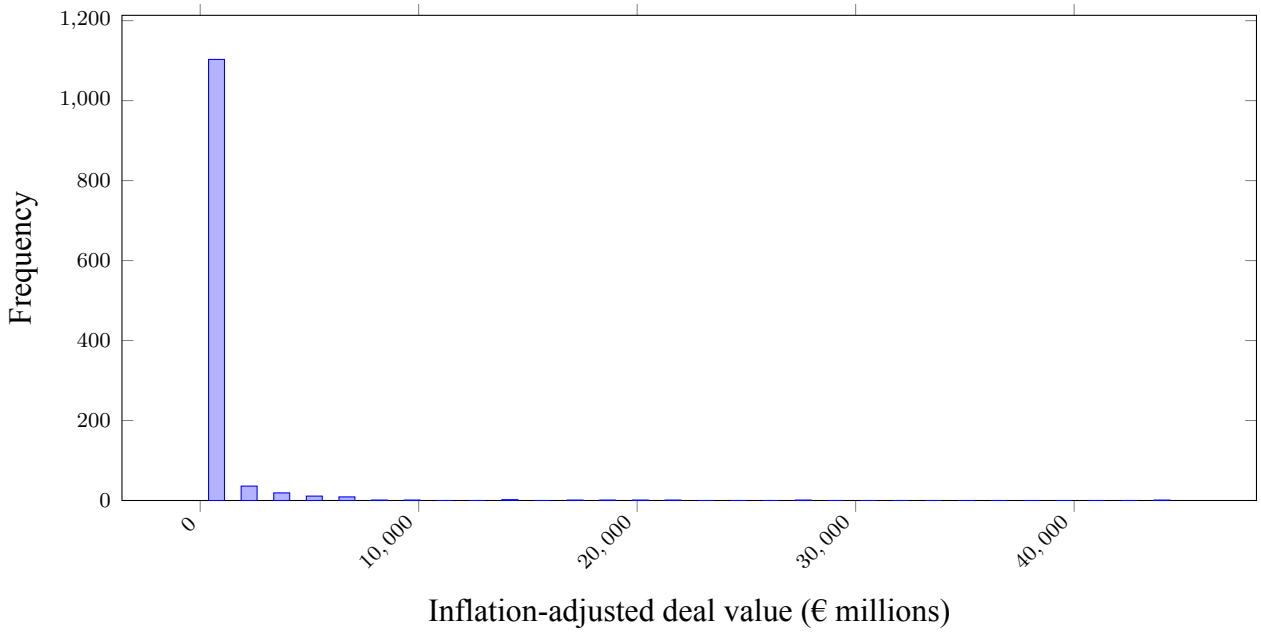
Variable	Description	Source
ACAR3	The cumulative acquirer abnormal return over the 3 days around the acquisition announcement date. The expected returns are modeled with the Fama French 3 Factor Model, and the parameters are estimated over a window (-280, -10) relative to the announcement.	Datastream, Kenneth R. French Data Library
BHAR24	The buy-and-hold abnormal return over 24 months after the acquisition announcement date. The benchmark portfolio is chosen based on the acquirer's home nation and is a broad, country-specific stock index. For a complete list of the benchmark indices used for each country, please refer to Appendix 6	Datastream
Recession	Dummy variable 1 if the deal is announced in an recession, 0 if not. Computed by checking if the acquisition announcement date lies within a +- 1 quarter range of a recessionary quarter. A recessionary quarter is defined as any quarter that is part of a sequence of two consecutive quarters of negative GDP growth.	Eurostat, UK Office for National Statistics
Size	The natural logarithm of the acquirer's market capitalization in 2015 euro terms 30 days prior to the acquisition announcement, in millions.	Datastream, Eurostat
Market-to-book	The acquirer's market capitalization 30 days prior to the acquisition announcement, scaled by the acquirer's total assets. Closing balances for the latest fiscal year prior to the acquisition are used for total assets.	Datastream, Worldscope
Leverage	Defined as the acquirer's total debt scaled by its total assets. Both figures are closing balances from the latest fiscal year prior to the acquisition.	Worldscope
Cash Flow	The acquirer's operating cash flow scaled by total assets, both numbers from the latest fiscal year prior to the acquisition.	Worldscope
Profitability	Return on assets, calculated as EBIT/Total assets and expressed as a percentage. Average assets are used, based on the closing and opening balance of total assets, and EBIT as of the latest fiscal year prior to the acquisition.	Worldscope
Deal Value	The natural logarithm of the inflation-adjusted deal value in millions (2015 euros).	SDC M&A Database, Eurostat

Variable	Description	Source
Stake Acquired	The percentage of the target's shares outstanding acquired in the M&A transaction, expressed as a percentage.	SDC M&A Database
Relative Size	Inflation-adjusted deal value over the inflation-adjusted market capitalization of the acquirer, 30 days prior to the acquisition.	SDC M&A Database, Datastream, Eurostat
All Stock	A dummy variable equal to 1 if the deal was fully paid for in acquirer stock, 0 if not.	SDC M&A Database
Competition	A dummy variable equal to 1 if there were more than 1 bidders involved in the M&A transaction, i.e. if the acquiring company faced bidding competition during the deal.	SDC M&A Database
Hostile	Equal to 1 if the deal attitude was categorized as a Hostile deal according to the SDC. Hostile deals are deals in which an acquirer attempts to gain control without the consent of the target firm's Board of Directors.	SDC M&A Database
Diversification	A dummy equal to 1 if the acquirer and the target have different 2-digit SIC codes, 0 if not. In other words, it indicates whether or not the deal was a diversifying deal (=1) or a related acquisition (=0).	SDC M&A Database
Cross-border	Dummy variable equal to 1 if the acquirer and target have different home nations, i.e. the nation in which they are headquartered. Serves as an indicator of whether or not the deal was a within-border or a cross-border transaction.	SDC M&A Database
Public Target	A dummy variable equal to 1 if the target company is a publicly listed firm, 0 if not. Distinguishes a private M&A transaction from a public.	SDC M&A Database
Time to Completion	The time elapsed, in days, between the deal announcement and deal completion date.	SDC M&A Database

9.3 Appendix 3: Skewness correction

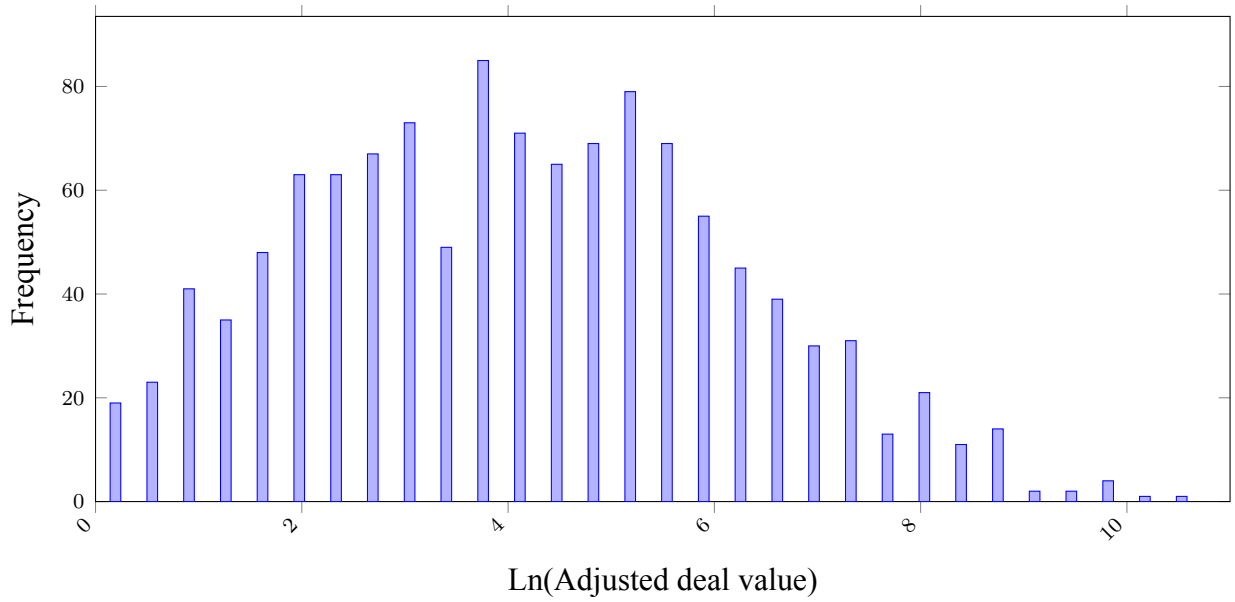
The following figures illustrate the motivation for using the natural logarithm of deal value (*Deal Value*) and market capitalization (*Size*) in the regression analyses, rather than the raw values. Based on the main sample of 1,060 M&A deals, the histograms demonstrate that the log-transformed variables more closely approximate a normal distribution, making them more suitable for linear regression models.

Figure 3: Distribution of deal values



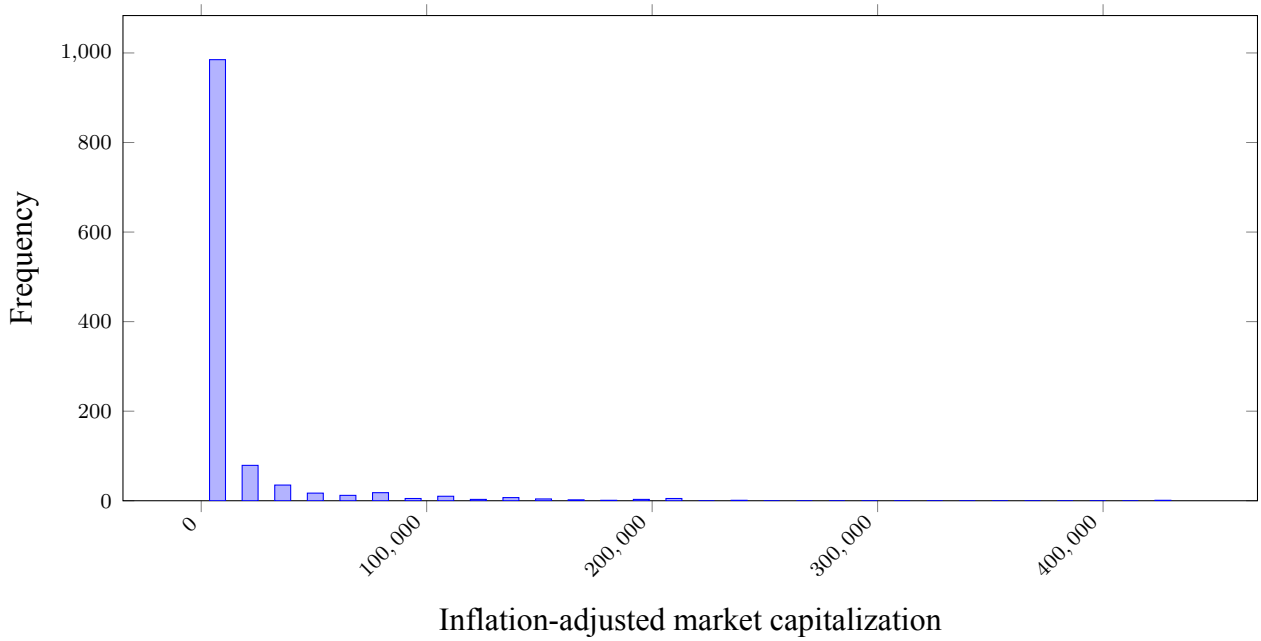
Notes: Histogram of inflation-adjusted deal values in € millions for the full sample of 1,060 M&A deals.

Figure 4: Distribution of log-transformed deal values



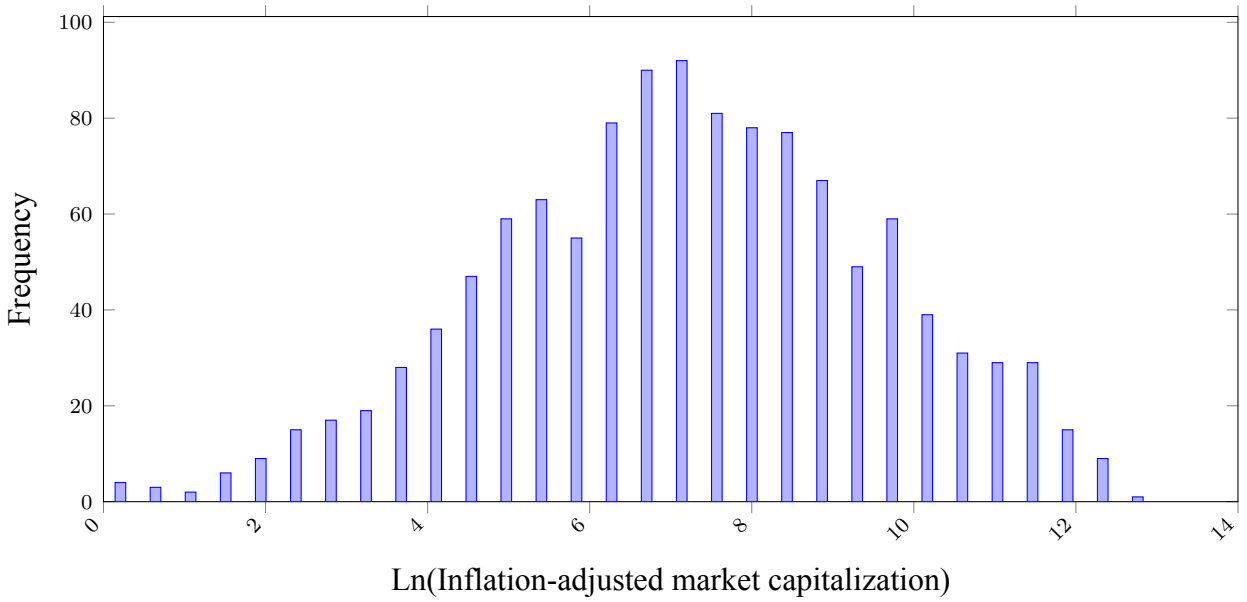
Notes: Histogram of log-transformed adjusted deal values. The natural logarithm is used to transform the values.

Figure 5: Distribution of inflation-adjusted market capitalizations



Notes: Histogram of inflation-adjusted acquirer market capitalizations (in € millions) across the full sample of 1,060 deals. The values are from 30 trading days before the acquisition announcement day.

Figure 6: Distribution of log-transformed market capitalizations



Notes: Histogram of the natural log of inflation-adjusted acquirer market capitalizations. The values are from 30 trading days before the acquisition announcement day.

9.4 Appendix 4: Regressions with other CAR event windows

Table 7: Acquirer CAR regressions using different event windows

	(1)	(2)	(3)	(4)
	CAR [-3,3]	**CAR [-5,5]**	**CAR [-10,10]**	**CAR [-30,1]**
Recession	0.238	0.267	0.953	-0.425
	(0.771)	(0.769)	(0.483)	(0.785)
Size	-0.204	-0.311	-0.305	-0.272
	(0.192)	(0.133)	(0.257)	(0.363)
Market-to-book	-0.056	-0.093	-0.019	-0.264
	(0.484)	(0.382)	(0.908)	(0.117)
Leverage	1.095	1.544	1.763	4.825**
	(0.378)	(0.343)	(0.463)	(0.038)
Cash Flow	1.966	1.656	-5.230	-11.012
	(0.515)	(0.670)	(0.370)	(0.115)
Profitability	0.070**	0.105***	0.196***	0.103*
	(0.012)	(0.004)	(0.000)	(0.069)
Deal Value	0.258	0.443**	0.631**	0.596**
	(0.101)	(0.024)	(0.019)	(0.034)
Stake Acquired	-0.001	0.003	0.002	-0.008
	(0.884)	(0.751)	(0.865)	(0.595)
Relative Size	1.195	0.466	0.501	-0.385
	(0.208)	(0.692)	(0.731)	(0.792)
All Stock	-0.798	-0.804	-0.681	0.049
	(0.336)	(0.444)	(0.618)	(0.974)
Competition	-0.699	-0.952	-2.536	-1.434
	(0.491)	(0.577)	(0.179)	(0.407)
Hostile	0.952	1.843	2.543	0.622
	(0.534)	(0.339)	(0.403)	(0.869)
Diversification	0.063	0.111	0.365	-0.700
	(0.880)	(0.826)	(0.606)	(0.368)
Cross-border	0.196	0.876*	0.281	0.721
	(0.635)	(0.071)	(0.678)	(0.325)
Public Target	-0.616	-0.832	-1.481*	-2.293***
	(0.150)	(0.121)	(0.051)	(0.007)
Time to Completion	-0.001	-0.001	0.001	0.001
	(0.422)	(0.466)	(0.626)	(0.577)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	1060	1060	1060	1060
Adjusted R^2	0.019	0.036	0.051	0.013

Notes: This table presents OLS regressions of four CAR windows on a Recession indicator and control variables. The event windows are (-3,3), (-5,5), (-10,10), and (-30,1) days around the announcement date t=0. Both industry and year fixed effects are used for all regressions (1)-(4). Standard errors are clustered at the acquirer level, and p-values are reported in parentheses. Statistical significance at the 10%, 5%, and 1% levels is denoted by *, **, and ***, respectively.

9.5 Appendix 5: Multicollinearity testing

Table 8: Multicollinearity test

Variable	VIF
Recession	1.02
Size	3.53
Market-to-book	1.16
Leverage	1.08
Cash Flow	1.48
Profitability	1.38
Deal Value	3.22
Stake Acquired	1.13
Relative Size	1.90
All Stock	1.12
Competition	1.06
Hostile	1.04
Diversification	1.09
Cross-border	1.14
Public Target	1.29
Time to Completion	1.07

Notes: This table reports the results of multicollinearity test for all independent variables used in the multivariate OLS regressions (Table 4). Variance inflation factors (VIFs) are calculated by regressing each variable on all others listed in the table, with the resulting R-squared used to compute the VIF. As a rule of thumb, VIF values exceeding 10 suggest high multicollinearity, whereas values near 1 indicate low multicollinearity.

9.6 Appendix 6: Table of index benchmarks used for each country

Table 9: Country-specific benchmark indices

Country	Index	Description
Austria	ATX	ATX (Austrian Traded Index) is the key benchmark of the Vienna Stock Exchange, tracking the most actively traded Austrian blue-chip stocks.
Belgium	BEL All-Share	Represents the full breadth of Euronext Brussels, including all listed Belgian companies.
Bulgaria	SOFIX	SOFIX (Sofia Index) includes the 15 most liquid stocks on the Bulgarian Stock Exchange and reflects overall market trends.
Croatia	CROBEX	CROBEX tracks the largest and most traded Croatian equities listed on the Zagreb Stock Exchange.
Cyprus	CSE General Index	Covers all listed shares on the Cyprus Stock Exchange and represents the Cypriot equity market as a whole.
Czech Republic	PX Index	PX is the main index of the Prague Stock Exchange, tracking top Czech companies by market cap and liquidity.
Denmark	OMX Copenhagen All-Share	Encompasses all Danish stocks on Nasdaq Copenhagen, giving a full picture of the Danish equity market.
Estonia	OMX Tallin GI	The Gross Index version of Nasdaq Tallinn, including all Estonian stocks and reinvested dividends.
Finland	OMX Helsinki All-Share	Represents all Finnish shares listed on Nasdaq Helsinki, both large and small caps.
France	CAC All-Tradable	A broad French index including all stocks eligible for CAC indices on Euronext Paris.
Germany	CDAX	CDAX (Composite DAX) tracks all German stocks in the Prime and General Standard segments of the Frankfurt Exchange.
Greece	ASE General Index	Athens Stock Exchange's benchmark index, reflecting the largest and most traded Greek companies.
Hungary	BUX Index	BUX is the primary index of the Budapest Stock Exchange, focused on major Hungarian blue-chip stocks.
Iceland	OMX Iceland All-Share	Includes all domestic shares on Nasdaq Iceland, representing the country's full listed market.
Ireland	ISEQ Overall Index	Captures the entire Irish equity market as listed on Euronext Dublin, including major and minor stocks.

Country	Index	Description
Italy	FTSE Italia All-Share	Combines large, mid, and small-cap stocks across Italian sectors to reflect the overall equity market.
Latvia	OMX Riga	The main equity index of Nasdaq Riga, covering all listed Latvian companies.
Lithuania	OMX Vilnius	Tracks the Lithuanian market via all companies listed on Nasdaq Vilnius.
Luxembourg	STOXX Europe 600	A pan-European index with 600 companies from 17 countries, widely used for regional benchmarking.
Malta	MSE Index	The Malta Stock Exchange's benchmark index, comprising the most traded Maltese equities.
Netherlands	AEX All-Share	Represents all companies listed on Euronext Amsterdam, broader than the AEX 25.
Norway	Oslo Exchange All Share	A comprehensive index of all shares on the Oslo Børs, covering the full Norwegian equity market.
Poland	WIG	WIG (Warszawski Indeks Giełdowy) is a broad total-return index covering all Warsaw Stock Exchange listed stocks.
Portugal	PSI All-Share	Tracks all Portuguese listed stocks on Euronext Lisbon, offering a complete market overview.
Romania	STOXX Europe 600	Used to represent Romania's market in pan-European studies, due to EU integration and data availability.
Slovakia	STOXX Europe 600	Serves as a proxy for Slovakia's market, given limited local index representation.
Slovenia	STOXX Europe 600	Used for benchmarking Slovenia's market, given limited local index representation.
Spain	IBEX 35	The main index of the Madrid Stock Exchange, comprising the 35 most liquid Spanish stocks.
Sweden	OMX Stockholm All-Share	Includes all shares on Nasdaq Stockholm, reflecting the full breadth of Sweden's equity market.
Switzerland	SPI	SPI (Swiss Performance Index) covers nearly all Swiss equities listed on the SIX Swiss Exchange.
Turkey	BIST 100	BIST 100 (Borsa İstanbul 100 Index) tracks the top 100 Turkish companies by liquidity and size.

Country	Index	Description
Ukraine	PFTS Index	The primary benchmark of the Ukrainian stock market, representing key PFTS-listed equities.
United Kingdom	FTSE All-Share	Covers all eligible UK stocks on the LSE main market, used widely for UK equity performance.

9.7 Appendix 7: Regressions on the sub-sample excluding financial firms

Table 10: Acquirer return regressions for a sub-sample of non-financial firms

	Panel A: ACAR3					Panel B: BHAR24				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Base	No FE	Industry FE	Year FE	Ind&Year FE	Base	No FE	Industry FE	Year FE	Ind&Year FE
Recession	-0.68	-0.72	-0.62	-0.56	-0.50	1.09	1.36	2.94	3.78	4.31
	(0.19)	(0.17)	(0.25)	(0.35)	(0.45)	(0.88)	(0.85)	(0.66)	(0.65)	(0.59)
Size		-0.21**	-0.11	-0.20**	-0.11		-1.70	-2.41	-1.81	-2.67
		(0.04)	(0.33)	(0.04)	(0.32)		(0.26)	(0.17)	(0.25)	(0.14)
Market-to-book		-0.08**	-0.08*	-0.08**	-0.08*		-1.94***	-1.98**	-1.81**	-1.81**
		(0.02)	(0.07)	(0.04)	(0.09)		(0.01)	(0.02)	(0.02)	(0.04)
Leverage		0.79	-0.07	0.80	0.04		5.12	20.46	5.73	17.51
		(0.40)	(0.95)	(0.41)	(0.97)		(0.72)	(0.19)	(0.69)	(0.27)
Cash Flow		2.07	2.08	2.52	2.50		41.50	66.24*	46.65	72.06*
		(0.35)	(0.37)	(0.25)	(0.28)		(0.29)	(0.09)	(0.24)	(0.07)
Profitability		0.03*	0.03*	0.03*	0.03*		1.07***	0.83***	1.09***	0.87***
		(0.10)	(0.07)	(0.08)	(0.07)		(0.00)	(0.00)	(0.00)	(0.00)
Deal Value		0.30***	0.32***	0.29**	0.29**		-1.30	-1.68	-1.54	-1.56
		(0.01)	(0.01)	(0.01)	(0.01)		(0.44)	(0.34)	(0.37)	(0.38)
Stake Acquired		-0.01*	-0.01*	-0.01*	-0.01*		-0.14	-0.12	-0.18*	-0.15
		(0.09)	(0.09)	(0.08)	(0.07)		(0.12)	(0.23)	(0.06)	(0.13)
Relative Size		1.34***	1.63***	1.30**	1.60***		7.73	7.31	7.91	7.41
		(0.01)	(0.00)	(0.02)	(0.01)		(0.36)	(0.38)	(0.38)	(0.42)
All Stock		-0.67	-0.35	-0.67	-0.38		-21.74***	-21.07***	-22.38***	-20.65***
		(0.25)	(0.57)	(0.24)	(0.55)		(0.01)	(0.01)	(0.00)	(0.01)
Competition		0.08	-0.35	-0.34	-0.64		12.63	18.09*	13.23	17.68
		(0.90)	(0.67)	(0.67)	(0.47)		(0.27)	(0.07)	(0.24)	(0.10)
Hostile		0.39	0.22	0.80	0.50		-7.52	-0.99	2.30	7.90
		(0.50)	(0.79)	(0.30)	(0.61)		(0.73)	(0.97)	(0.93)	(0.75)
Diversification		0.06	0.05	0.02	-0.02		-0.94	-4.47	-2.14	-4.93
		(0.85)	(0.89)	(0.95)	(0.95)		(0.83)	(0.37)	(0.63)	(0.33)
Cross-border		-0.01	-0.19	0.09	-0.11		-1.42	0.57	-1.30	0.49
		(0.97)	(0.59)	(0.78)	(0.76)		(0.74)	(0.90)	(0.76)	(0.92)
Public Target		-0.79**	-0.82**	-0.73**	-0.77**		2.49	3.13	4.43	3.85
		(0.02)	(0.02)	(0.03)	(0.03)		(0.62)	(0.53)	(0.39)	(0.46)
Time to Completion		-0.00	-0.00	-0.00	-0.00		0.01	0.01	0.01	0.01
		(0.55)	(0.30)	(0.87)	(0.58)		(0.15)	(0.17)	(0.10)	(0.11)
Industry FE	No	No	Yes	No	Yes	No	No	Yes	No	Yes
Year FE	No	No	No	Yes	Yes	No	No	No	Yes	Yes
N	768	768	768	768	768	768	768	768	768	768
Adjusted R^2	0.00	0.04	0.04	0.06	0.05	-0.00	0.07	0.10	0.08	0.10

Notes: This table presents OLS regressions of ACAR3 and BHAR24 on the Recession indicator and other deal, firm, and target-level control variables for a subsample excluding all financial firms (SIC-codes starting with 6). The Recession variable takes the value of 1 if the deal was announced in a recession defined on a country-level. Detailed variable descriptions are presented in Appendix 2. Standard errors are clustered at the acquirer level, and p-values are reported in parentheses. Statistical significance at the 10%, 5%, and 1% levels is denoted by *, **, and *** respectively.

9.8 Appendix 8: Generative AI statement

We used generative AI for improving language, wording, and clarity.