ANALYSIS OF ACQUIRER ABNORMAL RETURNS IN LISTED EUROPEAN REAL ESTATE M&A TRANSACTIONS

by

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ABSTRACT

This thesis analyzes a sample of 70 listed European real estate M&A transactions between June 2013 and June 2023. The analysis is based on three filters: target country, real estate subsegment, and payment structure. The findings reveal significant discrepancies in bid premiums compared to NAV across subsegments, with industrial segment transactions exhibiting a significant average premium of 46% and retail segment transactions occurring at an average discount of 13% to NAV. Additionally, the study finds that cash offers in the sample have higher bid premiums on average than share offers, albeit lower than the premiums in mixed payment offers.

By using event study methodology, a sub-sample of 27 transactions is examined to analyze acquirer abnormal returns across multiple event windows. Consistent with prior research, the study demonstrates minor and statistically insignificant impacts on bidders' shareholder returns. Notably, an intriguing pattern emerged when grouping the sub-sample by payment method. For the [-5/+5] and [-10/+10] event windows, transactions financed with all-cash exhibited higher cumulative average abnormal returns (CAARs) compared to all-share transactions. However, for the [-1/+1] event window, the difference between all-share and all-cash offers was relatively narrow, with slightly higher returns observed for share offers. An additional finding was that for the [-10/+10] event window, combination offers, involving both cash and shares, experienced significantly greater abnormal returns than other offer types.

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TABLE OF CONTENTS

1. Introduction and Market Overview

The year of 2021 has been a significant milestone in the listed European real estate market and marked a deal record of public European real estate merger and acquisition (M&A) transactions. One notable highlight was the takeover offer of over €19bn by German residential landlord Vonovia to its key competitor, Deutsche Wohnen (Sullivan & Cromwell LLP, 2021). The successful takeover resulted in the emergence of the largest listed real estate company in Europe and one of the largest globally.

In recent years, the European real estate market has experienced a series of landmark transactions that have shaped the industry. Key drivers for many of these transactions included strategic consolidation considerations and anticipated financing benefits.

The objective of this thesis is to compare and analyze the key M&A transactions that have occurred in the listed European real estate market over the past ten years.

This section will provide a brief overview of the listed European real estate market, the level of transaction activity and current sector developments.

1.1 Overview of the listed European real estate market

Listed real estate refers to companies that generate revenue by owning, trading, and developing income-producing real estate assets, and these companies are publicly traded on official national stock exchanges, as defined by EPRA, the European Public Real Estate Association (EPRA, n.d.-a). Similar to other industries, retail and institutional investors can acquire shares of listed real estate companies, thereby allowing them to earn a proportionate share of the income derived from the underlying assets (EPRA, n.d.-a). By participating in this manner, investors gain indirect exposure to the real estate market and can potentially benefit from rental income, property appreciation, and other returns associated with real estate investments.

A significant turning point in the evolution of the listed European real estate sector, occurred in the early 2000s when market studies demonstrated that direct property returns had

outperformed those of all major European stock markets (PWC, 2022). Concurrently, Investors sought avenues to diversify their portfolios without the inherent complexities associated with direct cross-border real estate exposure. The launch of EPRA in 1999 laid the groundwork for the emergence of a sophisticated, transparent, and professional listed real estate market (PWC, 2022). EPRA, the European Public Real Estate Association, is a not-for-profit organization with a mission to represent, develop and promote the public European real estate sector (EPRA, n.d.-b). EPRA represents around 280 members from all different real estate spectrums, with over €790bn of real estate assets (EPRA, n.d.-b).

Based on the Q1-2023 real estate total markets study, a market research publication that is regularly conducted and updated by EPRA, the table below (Figure 1) provides an overview of the size of the listed real estate markets in Europe. The table is divided into developed markets and emerging markets; based on the market size and transaction activity, the primary focus of this research paper lies on the developed European markets.

The total European (developed) listed real estate market in Europe has a size of c. $377bn, compared to a size of $8,918bn of the total commercial real estate market. As a result, the listed real estate sector represents a mere 4.2% of the total commercial real estate market (EPRA, 2023b). In terms of absolute sizing, the largest listed real estate markets in Europe are the United Kingdom ($71bn), Germany ($61bn), Switzerland ($56bn), Sweden ($53bn), and France ($46 bn) (EPRA, 2023b).

From a relative size perspective, there are several countries that surpass the average market share of 4.2% of the listed real estate segment. Notably, Sweden holds with 20.1% the largest relative market share, followed by Switzerland (15.9%), Iceland (10.7%) and Belgium (10.5%) (EPRA, 2023b).

When comparing the listed real estate market to the overall stock markets of the respective countries, it is seen that on average, the listed real estate market accounts for only 2.3% of the total market in the developed markets. However, in the emerging real estate markets, this share is higher, averaging at 9.9%, with notably Romania (17.2%) and the Czech Republic (14.8%) exceeding a share of 10% (EPRA, 2023b).

EPRA	Dec-22	Dec-22	Dec-22	Mar-23	Mar-23	Mar-23	Mar-23	Mar-23	Mar-23	Mar-23	Mar-23
	GDP per Capita	GDP	Commercial Real Estate	Total Listed Real Estate	Number of Companies	REITs Market Cap	Of which REITs	Non-REITs Market Cap	Of which Non-REITs	Stock Market Size	Listed RE/Stock Market	Listed RE / Total CRE
	($)	($ Bln.)	($ Bln.)	($ Bln.)	#	($ Bln.)	#	($ Bln.)	#	($ Bln.)	%	%
Austria	52,264.87	471.69	208.95	6.28	7	-	-	6.28	7	142.98	4.39%	3.01%
Belgium	50,114.40	582.21	256.40	26.85	28	23.26	17	3.59	11	400.73	6.70%	10.47%
Denmark	66,516.08	390.68	171.66	2.58	8	-	-	2.58	8	751.61	0.34%	1.50%
Finland	50,655.13	281.05	127.16	4.30	6	-	-	4.30	6	271.59	1.58%	3.38%
France	42,409.05	2,784.02	1,260.42	46.40	47	41.39	28	5.01	19	3,257.52	1.42%	3.68%
Germany	48,636.03	4,075.40	1,833.83	60.87	51	2.37	6	58.50	45	2,416.05	2.52%	3.32%
Ireland	103,175.70	529.66	219.72	0.54	1	0.54	1	-	-	118.81	0.45%	0.24%
Italy	34,113.20	2,012.01	908.92	0.90	8	0.43	2	0.47	6	629.15	0.14%	0.10%
Luxembourg	127,579.81	82.34	36.17	-	-	-	-	-	-	15.25	-	-
Netherlands*	56,489.07	993.68	438.47	10.32	7	10.23	5	0.09	2	1,018.92	1.01%	2.35%
Norway	106,328.41	579.27	221.94	4.33	8	-	-	4.33	8	369.27	1.17%	1.95%
Poland	18,279.51	688.30	241.00	4.99	34	-	-	4.99	34	153.85	3.25%	2.07%
Portugal	24,522.08	252.38	99.66	0.10	3	0.06	2	0.04	1	90.43	0.11%	0.10%
Spain	29,420.62	1,400.52	593.18	28.26	93	23.60	80	4.65	13	681.72	4.14%	4.76%
Sweden	55,689.40	585.94	264.70	53.15	47	-	-	53.15	47	968.65	5.49%	20.08%
Switzerland	92,371.45	807.23	352.26	55.96	40	-	-	55.96	40	1,955.91	2.86%	15.89%
United Kingdom	45,294.81	3,070.60	1,683.22	71.49	76	65.35	51	6.14	25	2,992.71	2.39%	4.25%
Total Europe (Developed)		**19,586.97**	**8,917.65**	**377.31**	**464**	**167.22**	**192**	**210.09**	**272**	**16,235.16**	**2.32%**	**4.23%**

EPRA	Dec-22	Dec-22	Dec-22	Mar-23	Mar-23	Mar-23	Mar-23	Mar-23	Mar-23	Mar-23	Mar-23
	GDP per Capita	GDP	Commercial Real Estate	Total Listed Real Estate	Number of Companies	REITs Market Cap	Of which REITs	Non-REITs Market Cap	Of which Non-REITs	Stock Market Size	Listed RE/Stock Market	Listed RE / Total CRE
	($)	($ Bln.)	($ Bln.)	($ Bln.)	#	($ Bln.)	#	($ Bln.)	#	($ Bln.)	%	%
Czech Republic	27,612.93	290.40	115.52	5.62	1	-	-	5.62	1	37.88	14.83%	4.86%
Greece	20,615.21	219.24	80.16	4.24	10	2.93	6	1.32	4	63.72	6.66%	5.29%
Hungary	17,301.22	168.29	60.97	0.49	4	0.26	2	0.23	2	21.89	2.23%	0.80%
Iceland*	73,998.14	27.84	11.51	1.23	4	-	-	1.23	4	15.65	7.83%	10.65%
Romania	15,851.14	301.85	98.35	5.03	9	-	-	5.03	9	29.18	17.23%	5.11%
Total Europe (Emerging)		**1,007.62**	**366.50**	**16.60**	**28**	**3.19**	**8**	**13.41**	**20**	**168.33**	**9.86%**	**4.53%**

Figure 1: Size overview of total commercial and listed real estate market in Europe (Developed & Emerging Markets) (EPRAa, 2023)

1.2 Overview of the European real estate M&A market

"Over the last 20 years, real estate has emerged from the shadows and metamorphosed from an opaque industry to one that is integral to the financial markets" (PWC, 2023). This development has also been evident through a surge of M&A deals in recent years.

Over the past decade, the listed European real estate market has witnessed notable trends in terms of M&A transactions. In terms of aggregated transaction value, 2021 emerged as a standout year with a value of c. €63bn (Capital IQ Pro, 2023) in transactions. This upsurge aligns with a broader trend of increased deal making across industries, reaching all-time high levels (Intralinks, 2022). Furthermore, as a general trend over the last 10 years, the years of 2014 and 2017 also surpassed €50bn in aggregated transaction values (Capital IQ Pro, 2023). In terms of transaction volume, the year 2017 stood out as the most active year, recording a total of 524 transactions (Capital IQ Pro, 2023). Throughout this timeframe, certain markets demonstrated significant deal activity, with Germany, the United Kingdom, France and Sweden emerging as the most active markets (Capital IQ Pro, 2023).

Despite currently low Real Estate M&A activity in 2023 YTD, increasing allocations for real estate by institutional investors are expected and will further drive a continuation of high-profile corporate merger and acquisition activity and the trading of large platforms and portfolios (PWC, 2022).

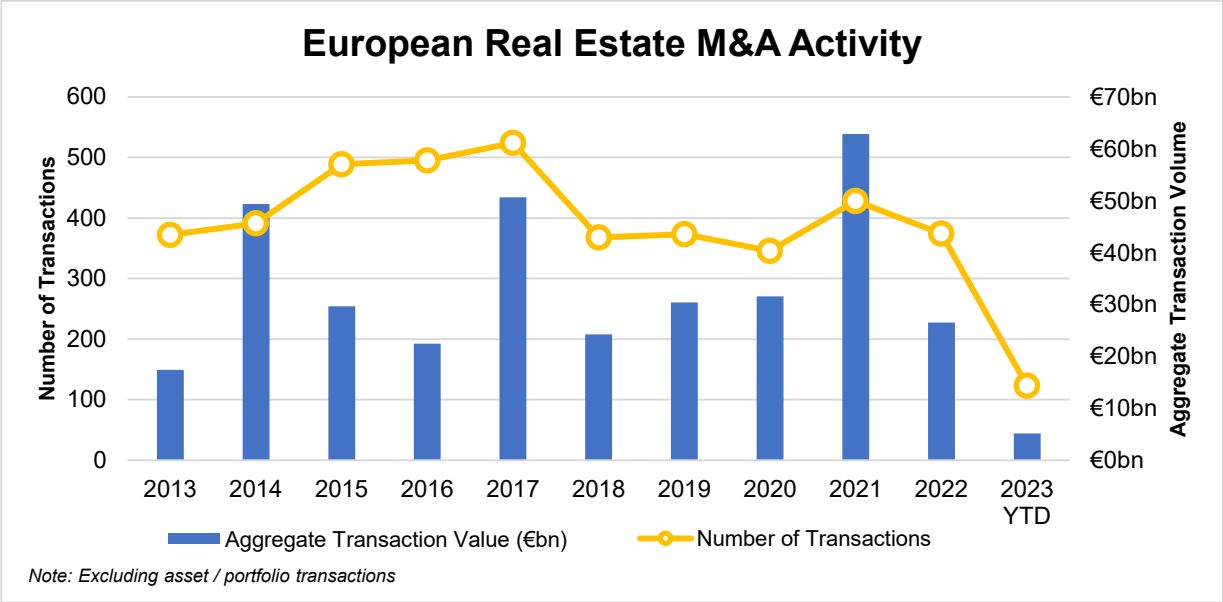

Chart 1: European Real Estate M&A activity based on Capital IQ Pro data as of June 8th 2023 (Capital IQ Pro, 2023*)*

1.3 Current market developments and growth potential

Overall, the year of 2022 represented a turning point in the financial and economic environment and also heavily impacted the listed Real Estate Sector on the back of geopolitical uncertainty, rising inflation and interest rates and a looming recession risk. Despite the changing environment, there are recent publications highlighting prospective avenues for further growth within the sector.

Between 2010 and December 2022, the listed European Real Estate Sector demonstrated a Compounded Annual Growth Rate (CAGR) of 6.1% (EPRA, 2023a). However, it fell short of the implied growth rate observed in the listed United States (US) Real Estate sector, which exhibited a CAGR of 10.1% (EPRA, 2023a). This superior growth can largely be attributed to a higher frequency of efficient capital increases, such as private placement transactions. In the context of a capital increase, a private placement transaction describes a transaction, where

a company's shares are exclusively offered to a select group of investors, as opposed to being made available publicly through the stock exchange (Deutsche Börse Group, 2023).

In terms of growth, the expansion of a pan-European portfolio faces greater complexity compared to the United States (EPRA, 2023a). This complexity arises from factors such as local legislation, the structure of domestic capital markets, and lower rates of economic growth. Consequently, it is unlikely that the European listed real estate market will attain a similar market size to the US counterpart (EPRA, 2023a).

	2010		2022		Var 2010-2022	
	Market Cap (m, EUR)	Nb of companies	Market Cap (m, EUR)	No. of companies	Market Cap	No. of companies
FEN US	282 550	126	896 950	112	3.2x	0.9x
FEN Europe	112 182	82	227 964	111	2.0x	1.4x

Figure 2: Full market cap and number of companies in FTSE EPRA Nareit (FEN) Europe Index vs. US (2010 – 2022) (EPRA, 2023a)

Within Europe, the growth of the listed real estate sector exhibited significant disparities among subsectors and countries. Notably, the markets of Belgium (5.8x), Germany (5.7x) and Sweden (5.1x) have experienced considerably higher growth rates than the average growth rate of the European sector, which stands at 2.0x (EPRA, 2023a). The primary reasons behind the relatively high growth in these markets can be attributed to allocations towards more specialized sectors, such as residential, healthcare, and logistics, as opposed to traditional predominant commercial sectors like office and retail (EPRA, 2023a). On the other hand, the growth of the listed sector in France, Italy, Austria and the Netherlands has been below average, due to a either relatively small market size or an allocation focused on a single asset type (EPRA, 2023a).

Country	2010 Number of companies	2010 Market Cap (EURm).	2022 Number of companies	2022 Market Cap (EURm).	Var. Market Cap (x)	CAGR (%)
Austria	2	1,898	1	2,855	1.5	3.5%
Belgium	6	3,733	12	21,838	5.8	15.9%
Finland	3	2,087	2	4,46	2.1	6.5%
France	9	35,708	6	24,264	0.7	-3.2%
Germany	9	6,478	9	36,985	5.7	15.6%
Greece*	2	534	0	0	ns	ns
Ireland	0	0	1	590	ns	ns
Italy	2	1,647	1	0,344	0.2	-12.2%
Netherland	6	9,16	5	9,272	1.0	0.1%
Norway	1	662	1	1833	2.8	8.9%
Spain	1	1,242	3	7,644	6.2	16.4%
Sweden	6	7,214	19	36,675	5.1	14.5%
Switzerland	4	7,47	7	17,762	2.4	7.5%
UK	31	34,349	44	63,443	1.8	5.2%
Total	**82**	**112,182**	**111**	**227,964**	**2.0**	**6.1%**

Figure 3: Full market cap of FEN Europe constituents (2010 – 2022) (As of December 30, 2022) (EPRA, 2023a)

According to a recent report published by the EPRA, there are several initiatives that could contribute to further growth of the listed European Real Estate market. These initiatives can be categorized into three main areas (EPRA, 2023a):

I. Change in focus asset classes: Shifting towards new and high-growth real estate sectors, such as Data Centers, Healthcare, Self-Storage, Student Housing and Urban Logistics, in some cases even including operating platforms, could further stimulate investor demand and drive market growth (EPRA, 2023a).

II. Capital markets adjustments: Expanding the investor base to include a more diverse range of investors, including generalists and retail investors, has the potential to foster further market growth (EPRA, 2023a). One potential catalyst for this could be the more widespread use of private placement capital increase transactions. Despite some underlying restrictions, these private placement capital increase transactions can be executed faster and may require lower discounts to prevailing share prices than rights issue capital increase transactions. However, certain European countries

may need to implement changes to existing legislation to enable and facilitate these private placement transactions (EPRA, 2023a).

III. Higher REIT Regime flexibility: Currently, many European countries have their own local Real Estate Investment Trust (REIT) regimes. A REIT describes a company that owns or finances income-generating real estate and must meet specific requirements to obtain the REIT status, which can vary across jurisdictions (European Commission, 2023). Generally, REIT classification can provide significant tax benefits at the corporate level, among other advantages (European Commission, 2023). Enhancing the flexibility of REIT regimes in Europe, similar to the United States, could streamline the process for companies to deliver sought-after products to the market and investors, consequently fostering further market growth (EPRA, 2023a).

2. Literature Review

While there exists a relatively large academic literature on different M&A aspects and Real Estate M&A activities, for the purpose of this thesis, the focus has been narrowed. In this section, selected contributions to the academic literature related to the M&A focus topics of this thesis are reviewed. In part A, a general overview of M&A transactions and theories on underlying motives is provided. Part B provides a brief literature overview of the peculiarities of listed European real estate M&A transactions. Part C and Part D then focus on existing academic literature regarding the role of bid premiums in listed real estate transactions and of abnormal returns.

2.1 M&A Transactions & Motives

Over the past decades, the utilization of M&A transactions has gained popularity as a strategic tool for expanding business activities and the frequency and scale of M&A transactions have significantly increased across industries (Tarba, 2017). According to Copeland and Weston (1988), the traditional scope of M&A has broadened to encompass takeovers and other related aspects such as corporate restructuring, corporate control and changes in the ownership structure of firms (Copeland & Weston, 1988).

Mittra defines M&A activities as a tool for companies to overcome challenges stemming from technological disruptions or financial deficits, which arise from a constant need for innovation and the maintenance of commercial sovereignty (Mittra, 2007). Geographically, M&A transactions can be broadly categorized into two types: domestic transactions, where the acquirer and target company are based in the same country, and cross-border transactions, where the acquirer and the target company are based in different countries (Shimizu & Hitt, 2004).

While the motives behind takeovers can be diverse and difficult to fully ascertain, several theories provide a general differentiation of merger motives. Overall, theories for merger motives can be distinguished between neoclassical theories on one side and agency and

behavioral theories on the other (Bernile & Bauguess, 2011). Neoclassical theories reason that mergers occur in response to external economic, financial, political or regulatory shocks and aim to sustain or create competitive advantages (Martynova & Renneboog, 2008). According to this perspective, the transactions are expected to lead to the creation of shareholder value and profit optimization (Martynova & Renneboog, 2008). Therefore, under this theory, merged firms are anticipated to operate more efficiently than their individual standalone entities, driven by synergies (Martynova & Renneboog, 2008). Additionally, the occurrence of merger waves, which will be further evaluated in this section, is commonly cited in support of neoclassical theories.

On the other hand, agency and behavioral theories entertain the possibility that takeovers may result in value-destroying transactions (Anderson et al., 2012). These theories consider that potential motives for M&A transactions include the existence of agency conflicts or biases between a firm's insiders and its investors (Roll, 1986). According to these theories, a company's managers may pursue acquisitive growth in an attempt to build an empire (Jensen, 1986). Since managerial compensation is often tied to sales growth, managers may be inclined to grow a firm beyond its optimal size (Jensen, 1986). Another recent theory, known as market timing, posits that insiders capitalize on temporary market 'misvaluations' (Rhodes-Kropf et al., 2005).

In addition, Berkovitch and Narayanan (1993) have identified three primary motives underlying M&A transactions: the synergy motive, the hubris hypothesis, and the agency motive (Berkovitch & Narayanan, 1993). The synergy motive suggests that M&A transactions lead to the realization of economic gains through the amalgamation of resources from the two merging firms (Ratcliffe et al., 2009). The hubris hypothesis on the other hand argues that management may make errors in evaluating potential targets and engage in acquisitions even when there is a lack of synergistic benefits (Roll, 1986). Lastly, the agency motive proposes that takeovers occur because they serve to enhance the welfare of acquirer management at the expense of acquirer shareholders (Mork et al., 1990). Altogether these motives provide a generic framework for understanding the potential underlying drivers and rationales behind M&A transactions.

As mentioned previously, a frequently mentioned phenomenon in the realm of M&A transactions is the occurrence of merger waves. Martynova and Renneboog (2008) assert that these waves often coincide at their beginning with political, economic or regulatory shocks. According to the authors, the then subsequent economic recovery often accompanied by rapid growth in capital markets, stimulates an upsurge in takeover activities (Martynova & Renneboog, 2008).

Current research indicates that none of the aforementioned theories are mutually exclusive (Berkovitch & Narayanan, 1993) or can comprehensively account for the occurrence of M&A activity and the patterns of takeover waves based on empirical evidence (Anderson et al., 2012).

2.2 Listed Real Estate M&A Transactions

Specifically to real estate M&A transactions, previous research suggests that mergers in the real estate sector would need to be evaluated separately from other sectors (Anderson et al., 2012). Anderson et al. (2012) base this finding on the many peculiarities of the real estate market and the almost complete absence of hostile takeover activity between real estate firms. Other peculiarities include the rare creation of monopolistic power in the context of listed real estate transactions and the existence of a competing large private market (Anderson et al., 2012).

The research also finds that this holds in particular for transactions involving publicly traded REITs due to the underlying specific regulatory guidelines (Anderson et al., 2012). Due to these guidelines, REITs tend to be homogenized. These guidelines then make synergistic merger gains more difficult and at the same time provide the opportunity for greater gains from economies of scale in operating costs (Anderson et al., 2012).

To investigate the drivers behind mergers in the real estate industry, Womack (2012) conducted a comprehensive study utilizing a quantification of the combined firm return across nearly three decades of real estate mergers (Womack, 2012). The study's main

findings reveal that real estate mergers often occur when firms with superior management capabilities acquire other firms that possess untapped opportunities for cost reduction and earnings growth, the so-called inefficient management hypothesis (Womack, 2012).
Moreover, the study's results indicate that, overall, real estate mergers are generally value-creating events, although shareholders may only experience modest gains or in some cases nonnegative returns (Womack, 2012).
Eichholtz & Kok (2008) assert that the real estate sector, characterized by its unique institutional environment, has produced inconsistent findings concerning shareholder wealth effects following takeovers. Moreover, the paper highlights that the real estate sector offers an intriguing and increasingly important field of research due to the institutionalization trend within the sector and its distinctive governance structure (Eichholtz & Kok, 2008). In light of these factors, Eichholtz & Kok (2012) conducted a research study to examine the effectiveness of the market for corporate control in the context of real estate takeovers (Eichholtz & Kok, 2008). The results of the study indicate that, contrary to the disciplining effect of hostile takeovers observed in other sectors, the market for corporate control in the real estate sector does not effectively hold managers accountable (Eichholtz & Kok, 2008). However, the study result supports that poor firm performance serves as a predominant motive for takeovers (Eichholtz & Kok, 2008).

Regarding the comparison of transaction structures of REIT M&A transactions, Glascock et al. (2018) conducted a sample study encompassing 883 initial REIT bids spanning the period from 1980 to 2016. Their research reveals several differences in comparison to other industries (Glascock et al., 2018). Firstly, they observe that REIT M&A transactions tend to be larger than standard M&A transactions (Glascock et al., 2018). In terms of transaction structure, they note a lower prevalence of all-stock and all-cash REIT M&A offers within their sample, with mixed payment offers constituting the majority (Glascock et al., 2018). Additionally, in terms of average deal size, Glascock et al. find that mixed payment offers are associated with significantly larger average deal sizes compared to other payment methods

(Glascock et al., 2018). The same effect held true in their study for private-to-public transactions compared to public-to-public transactions (Glascock et al., 2018).

Finally, according to a study conducted by Ling & Petrova (2011), different types of buyers in the REIT industry exhibit distinct acquisition strategies. Ling & Petrova (2011) find that private acquirers tend to target underleveraged REITs with poor operating performance, aiming to enhance value creation or operational improvements (Ling & Petrova, 2011). In contrast, public buyers, with a typically higher focus on market positioning and scale, tend to target comparably more leveraged REITs with greater institutional ownership and superior operating results (Ling & Petrova, 2011).

2.3 The role of bid premiums in real estate M&A transactions

The bid premium refers to the additional price paid by the acquiring firm during an M&A transaction, exceeding the market price of the target firm's shares before the transaction announcement (Mishra, 2018). This payment is made to ensure the satisfaction of the target firm's shareholders, encouraging them to relinquish their shareholding in exchange for a substantial amount of compensation (Mishra, 2018). By offering a considerate bid premium, the acquiring firm aims to facilitate a smooth execution of the transactions and to gain (complete) control over the target entity (Mishra, 2018).

However, the determination of bid premiums encounters complexities due to various factors. Greenfield (1992) concludes in his research that the shareholders of the target company must agree to a bid premium and be willing to give up their stake in the company (Greenfield, 1992). If the offered price does not sufficiently satisfy the shareholders of the target company, they may hesitate to accept the offer, preferring to wait for a more lucrative takeover bid from another company capable of offering a higher price (Mishra, 2018). Consequently, a higher bid premium increases the likelihood of obtaining a high acceptance rate for the takeover from the shareholders of the target firm (Mishra, 2018). From the perspective of the acquiring company, the perception of the bid premium differs as the focus lies on the synergies arising from the M&A transaction. Furthermore, the magnitude of the

bid premium is crucial for the acquiring firm as it influences the reaction of shareholders to the M&A announcement (Mishra, 2018).

For real estate M&A transactions specifically not only the premium to the share price but also the price-to-Net Asset Value (NAV) ratio displays an important metric (Kim & Wiley, 2019).

Geltner et al. (2007) provide an explanation for the significance of the Net Asset Value (NAV) metric in their book "Commercial Real Estate Analysis & Investments". They emphasize that the NAV of REITs serves as a quantitative measure of the current valuation of the REIT's property holdings in the private market (Geltner et al., 2007). By comparing the NAV (per share) to the corresponding share price in the stock market, a premium or discount to NAV can be calculated, indicating a differential valuation of the same assets in two markets (Geltner et al., 2007).

According to a research paper conducted by Wiley & Kim (2019) on REITs, the price-to-NAV ratio impacts the acquisition and disposition strategy. They find that the net investment (acquisitions minus disposals) is positively related to price-to-NAV ratios and that shareholders are incorporating the price-to-NAV ratio into their investment decisions (Kim & Wiley, 2019).

Chacon and Morillon (2020) conducted a research study to examine the relationship between price-to-NAV and deal premiums in the context of REIT M&A transactions. Their findings indicate that REITs trading at a discount to their NAV are more likely to be targeted in M&A transactions (Chacon & Morillon, 2020). Additionally, they note that M&A transactions consistently occur at a deal value that surpasses the stock price of the target (Chacon & Morillon, 2020).

Consequently, opportunities to acquire a REIT at or near its NAV arise when the REIT's stock price falls below the NAV (Chacon & Morillon, 2020). Conversely, when REITs trade at premiums to their NAV, the deal value will inevitably exceed the NAV due to a higher stock price relative to the NAV ((Chacon & Morillon, 2020). In terms of price levels, Glascock et. al (2018) find in their research study that across their sample bid levels for listed real estate

M&A transactions are consistently higher than those in standard business mergers (Glascock et al., 2018).

2.4 Abnormal returns around real estate M&A transactions

In order to assess takeover gains, event studies utilize cumulative abnormal returns (CAR) to measure share price movements around corporate events (Glascock et al., 2018). Khotari & Warner (2006), in their paper titled "Econometrics of Event Studies", define the concept of abnormal return as the disparity between the observed return and the predicted return (Khotari & Warner, 2006). Equivalently, it can be described as the difference between the return unaffected by an event and the return influenced by an event (Khotari & Warner, 2006).

In the general finance literature, it is consistently documented that target firms experience substantial positive abnormal returns when acquisitions are announced (Ling & Petrova, 2011). According to Glascock et al. (2018), the average cumulative abnormal return (CAR) of target firms across industries is approximately 14.6% in the announcement period and around 6.8% during the run-up period. The run-up period encompasses an extended duration before and after the announcement (run-up period in days from -42, 2), while the announcement period captures the immediate period around the announcement (Announcement period in days from -1, 1) (Glascock et al., 2018).

Moreover, the study conducted by Servaes (1991) revealed that the target abnormal returns vary depending on the offer structure (Servaes, 1991). Servaes (1991) found average abnormal returns of 20.5% for stock transactions and of 26.7% for all-cash transactions (Servaes, 1991).

For acquirers, the CAR is, on average, positive but of a smaller magnitude compared to target firms. According to Glascock et al. (2018) the average is at 0.49% during the run-up period and 0.73% during the announcement period for acquirers (Glascock et al., 2018).

In the realm of real estate literature, several studies have examined the observed and measured abnormal returns in listed real estate M&A transactions. For the purpose of this

thesis, a primary focus was placed on reviewing publications that examine the abnormal returns of acquiring firms.

One of the first studies in the area was conducted by Allen & Sirmans (1987), who investigated the stock price reaction of acquiring firms to merger proposals (Allen & Sirmans, 1987). The authors hypothesized that the shareholder wealth effects in real estate M&A transactions might differ from those observed in non-REIT firms due to the industry's unique characteristics (Allen & Sirmans, 1987). Their findings indicated a statistically significant wealth increase for acquiring firms based on their sample set (Allen & Sirmans, 1987).

In their publication from 2018, Glascock et al. conducted a comprehensive comparison of research results from various academic studies that measured abnormal returns of acquirers in real estate (mainly REIT) M&A transactions during the announcement period. The measured CARs reported in these studies ranged from -1.6% to 1.5% (Glascock et al., 2018). Ratcliffe et al. (2009) concluded that the evidence on the impact of acquiring shareholders is somewhat mixed. While earlier studies found significant excess returns for acquirers, later studies tended to report lower excess returns (Ratcliffe et al., 2009). One possible explanation for this discrepancy, as suggested by Campbell et al. (2001), is the increased size of REITs, which may contribute to lower acquirer returns (Campbell et al., 2001).

Another common finding in the literature is that acquirers tend to achieve higher abnormal returns when the target firm is private and the transaction is structured as an all-cash transaction [Glascock et al., (2018) and Campbell et al., (2011)]. However, despite short-term positive abnormal returns, Campbell et al. (2009) found that similar to other sectors, acquirers in a REIT merger scenario might experience post-acquisition underperformance of approximately -10% over a time period of around 5 years (Campbell et al., 2009).

3. Data and Methodology

The subsequent section of this thesis marks the beginning of the empirical analysis and initially elaborates on the research questions. In order to effectively address these research questions, the selected statistical methodologies will be discussed and applied.

3.1 Research Question

Market / Sector Research (Part 1): Overview and comparison of selected listed European real estate M&A transactions

The first phase of the research represents a significant step towards conducting an event study to investigate the abnormal returns for bidding firms. As outlined in section 3.3, this first research phase will utilize a sample set comprising 70 transactions. The sample set, which is further described in section 3.3.1, consists of listed European real estate M&A transactions that will be analyzed. The analysis will specifically focus on various factors, including a comparative examination of different countries, bid premiums, payment methods, and acceptance rates.

Research Question (Part 2): Do the stock returns of the bidding firm show a positive abnormal change upon the announcement of an M&A transaction in the listed European real estate sector?

Based on the analysis of existing academic literature regarding abnormal returns in real estate M&A transactions, the outlined research question has been formulated. The primary objective is to conduct an event study focusing on the abnormal returns experienced by bidding firms surrounding the announcement of takeover offers. The event study will utilize a subset of the initial sample size, as described in detail in section 3.3.2. The empirical objective is to determine whether bidding firms, on average, experience positive abnormal returns and to identify any discernible patterns among different offer types.

3.2 Methodology

3.2.1 Quantitative Transaction Analysis

The first phase of the quantitative analysis is based on a selected sample of M&A transactions within the listed European real estate sector. The detailed description of the sample selection and data collection process will be presented in section 3.3.1. The values obtained from the sample set have been meticulously collected to improve reliability and relevance. Following the data collection, key financial figures associated with the transactions will be mapped and compared. The transaction analysis will focus on the following aspects:

I. Target Country: A comparative analysis will be conducted to assess the transactions across different European countries included in the sample.
II. Target Subsegment: A comparative analysis will be performed to evaluate the transactions across the various real estate subsegments included in the sample.
III. Method of Payment: A comparative analysis will be undertaken to examine the payment structures (all-cash offers, all-share offers, combination offers) present in the sample.

Each of these aspects will be compared using bid premiums and acceptance rates as indicators. Moreover, the analyses for target countries and real estate subsegments will incorporate payment structures.

To manage and collect the numerical data, Microsoft Excel spreadsheets will be utilized due to their intuitive interface and the availability of useful tools, such as the S&P Capital IQ Excel Add-In, which facilitate the practical execution of the analysis.

3.2.2 Event Study

In order to examine the stock price effects on the bidding firm around the announcement of an M&A transaction, an event study will be conducted. An event study is an empirical method used to investigate the return behavior of a sample of firms experiencing a common type of event (Khotari & Warner, 2006). The study will employ the market model approach, which has been commonly used in previous academic literature, to measure the expected return (Coutts et al., 1994). The market model aims to observe the performance of stock returns relative to a market index.

Firstly, to measure the overall event impact, the event window and the pre-event estimation window will be established. The event window defines the timeframe, in terms of number of days, to appropriately capture the impact of the event. Additionally, a pre-event estimation window will be defined to determine the necessary input factors for calculating the expected return using the market model. For this analysis, three different event windows have been selected to measure the M&A transaction announcement effect, as outlined in Chart 2 below. The decision to use these three specific event windows was based on a review of previous research publications and their respective event windows. The pre-event estimation window encompasses a timeframe of 140 trading days and is not part of the event window, given that normal expected returns have to be separately observed from the event related returns (Mishra, 2018).

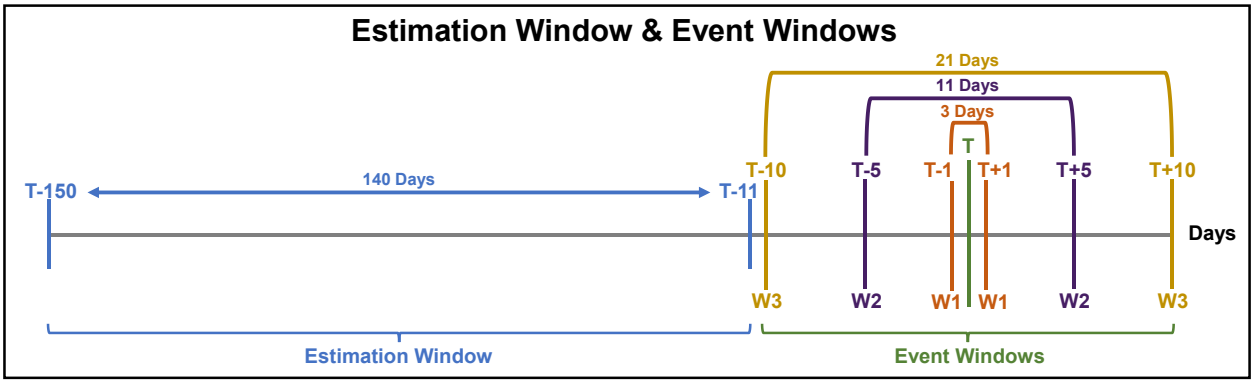

Chart 2: Estimation Window and Event Windows; Note: Days refers to Trading Days

After determining the estimation window, the market model is employed with the following equation:

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

$E(R_{i,t})$ = The expected return on security *i* on day *t*

α_i = The intercept term

β_i = The slope coefficient

$R_{m,t}$ = The observed return for the market index, FTSE EPRA Nareit Europe (further explained in section 3.3.2), on day *t*

$E_{i,t}$ = The standard error term.

In the next step, the individual daily abnormal returns ($AR_{i,t}$) of the security are calculated using the following formula:

$$AR_{i,t} = R_{i,t} - E(R_{i,t})$$

$R_{i,t}$ = The actual return on security *i* on day *t*

$E(R_{i,t})$ = The estimated return on security *i* on day *t.*

The abnormal return is measured by subtracting the expected return based on the market model from the actual daily share price returns. A positive abnormal return indicates a high return than expected, while a negative abnormal return indicates underperformance.

Due to the relatively small sample size and to increase the relevance of the results, the affected securities of the selected transaction sample have been grouped into portfolios. In addition to an initial portfolio including all transactions from the sample, several sub-portfolios are created based on payment structures (cash offer, share offer, mixed offer).

To measure the impact of abnormal returns from multiple securities on a particular day during the event window, Average Abnormal Returns (AAR_i) for the created portfolios are calculated as follows:

$$AAR_t = \frac{1}{N}\sum_{i=1}^{N} AR_{i,t}$$

N = Number of securities included in the portfolio.

In the subsequent step, to investigate the development of abnormal returns for individual securities and portfolios, Cumulative Abnormal Returns (CAR_i) and Cumulative Average Abnormal Returns (CAAR) are calculated.

$$CAR_i = \sum_{t_1}^{t_2} AR_{i,t}$$

t_1, t_2 = Days of the selected event window

$$CAAR = \sum_{t_1}^{t_2} AAR_t.$$

To determine the statistical significance of the calculated (cumulated) average abnormal returns, a cross-sectional test statistic will be conducted.

$$AAR - t - statistic = \frac{AAR_t}{\sigma(AAR_t)} * \sqrt{N}$$

$$CAAR - t - statistic = \frac{CAAR}{\sigma(CAAR)} * \sqrt{N}$$

σ = Estimation period standard deviation.

3.3 Data

3.3.1 Data for Transaction Sample

The analysis for this thesis is based on a sample of 70 listed real estate M&A transactions across European countries. A transaction was considered as a European transaction if the target company was headquartered within a European market and had a majority of its portfolio within Europe. The analysis focused on a 10-year period from June 2013 to June 2023. The distribution of the sample across countries and years is depicted in the two charts below (Charts 3 and 4).

The sample transactions were selected through a screening process conducted with Mergermarket and S&P Capital IQ Pro, filtered for the largest listed European real estate M&A transactions by equity offer value. Additionally, the sample set includes a few transactions of slightly smaller offer values that were triggered in the context of larger transactions. A transaction was considered as a listed transaction if the target had a public primary listing with a European stock exchange. The buyer side of the sample set includes private and listed companies. In addition, only successfully completed deals were included in the sample.

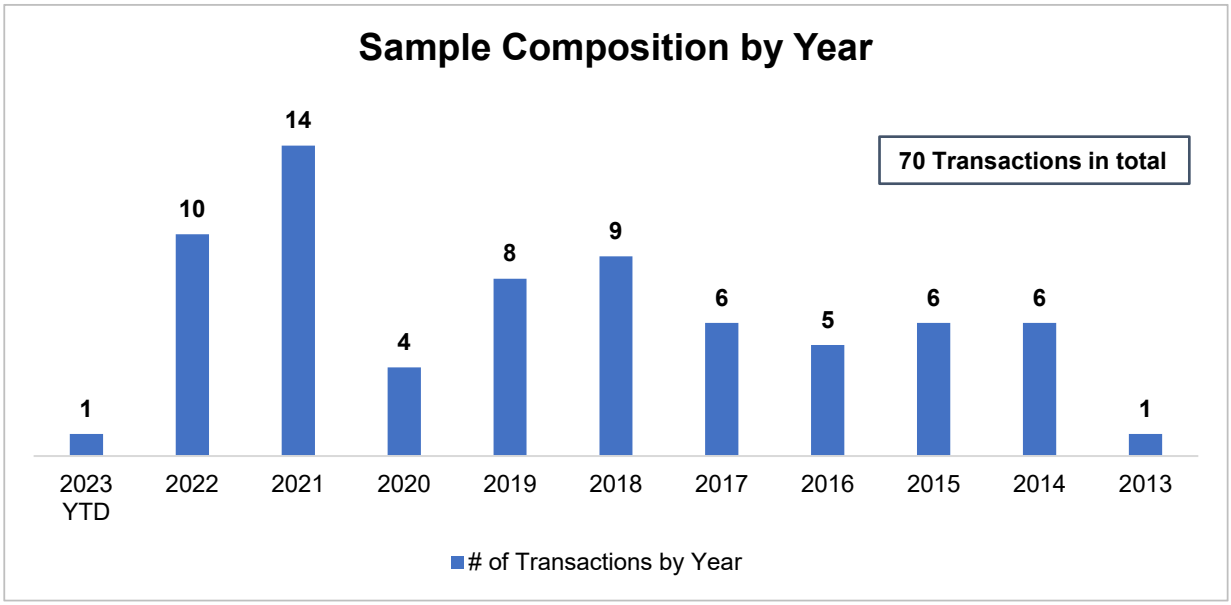

Chart 3: Composition of transaction sample by Year (June 2013 – June 2023) (Data as of June, 2023)

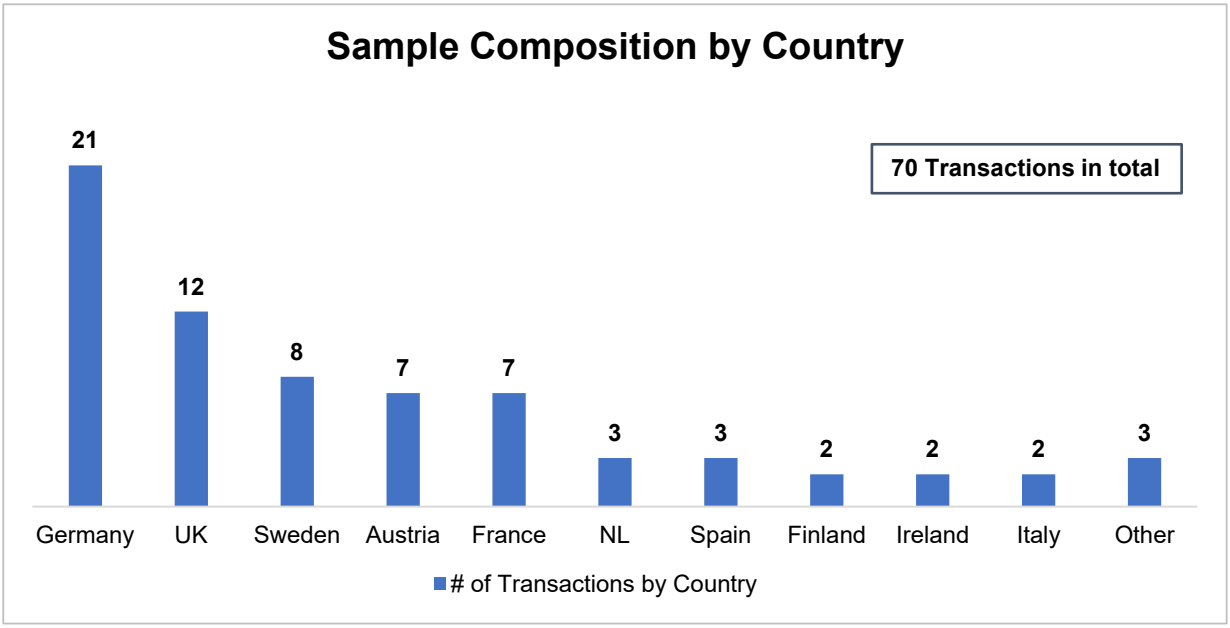

Chart 4: Composition of transaction sample by country (June 2013 – June 2023) (Data as of June, 2023)

In a second step, the necessary data points for analyzing transaction structures and bid premiums were manually collected and compiled into a table. This involved reviewing offer documents, press releases and newspaper articles for the individual transactions to obtain the required data points. Table 1 provides an overview of the selected criteria basis for the transaction screening and comparison.

Criteria for Transaction Screening and Comparison	
Transaction Announcement Date	Prem. / (Disc.) of Offer price to last pre-announcement closing price
Acquirer Company Name	Prem. / (Disc.) of Offer price to 3M VWAP (volume-weighted average price)
Acquirer Type (Listed or Private Company)	Prem. / (Disc.) to NAV (based on EPRA NTA or EPRA NAV when applicable)
Target Company Name	Offer Type (Voluntary, Mandatory, Scheme of Arrangement, Delisting)
Target Country (Headquarter)	Offer Structure (100% Cash, 100% Share, Mixed)
Stake held by Acquirer pre-offer	Final stake post-offer
Equity Offer Value (Based on actual take-up)	Implied total Take-up (incl. tender agreements with shareholders)
Equity Offer Value (Maximum Offer amount)	Tender agreements with shareholders (e.g. Irrevocable Undertakings)
Equity Offer Value (100% of the Equity)	Implied total Take-up (excl. tender agreements with shareholders)

Table 1: Overview of selected criteria for the transactions screening and comparison

All currency values in this thesis are reported in Euro (€). For transactions conducted in currencies other than Euro, the prices were converted into the equivalent Euro amount at

the respective transaction announcement date, before being included in the study. This conversion was necessary to ensure a standardized currency metric for comparison purposes across the sample.

3.3.2 Data for Event Study

As explained in section 3.3.1 for the initial sample, a set of listed European real estate M&A transactions between June 2013 and June 2023 had been selected.

For the purpose of the Event Study, the initial sample of 70 transactions, had been subject to screens explained below, before the transactions had been included in the sample. Daily share prices for the selected transactions in Table 2 for the event study have been obtained from Capital IQ Pro. The following selection criteria had been applied:

- The share prices of the bidding firm must be listed in S&P Capital IQ Pro for a period beginning 150 trading days prior to the announcement and ending 10 days after the announcement, a total of 161 days.
- Both the bidding firm and the target firm are listed entities and classified as real estate management firm or REIT, according to S&P Capital IQ Pro.
- Transactions where the bidding company had a very limited share of free float, below 10%, and/or experienced consistently low average daily trading volumes of 0.05% of share capital were also excluded.

Transaction Sample for Event Study	
Sample History	**Transactions**
Initial Sample Size	70
(-) Transactions with private company acquirers	(27)
Eligible Transactions for Event Study	43
(-) Transactions with unavailable Data	(2)
(-) Transactions with other non-eligible factors (i.e. technical listing, very limited freefloat etc.)	(14)
Final Sample for Event Study	**27**

Table 2: Overview of selected transaction sample for Event Study

Descriptive Statistics for Event Study (in €m)				
Variable		**Mean**	**Median**	**Std. Deviation**
Max. Equity Offer Value		1,832	1,042	2,570
Bidder market cap		6,241	2,860	7,221
Prem. / (Disc.) to 3M VWAP		*21.1%*	*17.4%*	*10.7%*
Prem. / (Disc.) to NAV (EPRA NTA or EPRA NAV)		*10.4%*	*8.4%*	*30.5%*
Offer Type	**100% Cash**	**100% Share**	**Cash / Share Mix**	**Total Sample**
Method of Payment	11	8	8	27

Table 3: Descriptive statistics for Event Study (in €m)

Note: Listed European Real Estate M&A transactions between June 2013 and June 2023 with listed Acquirers

A total of 27 transactions matching the above-listed criteria were identified from the initial sample size. Table 3 presents an overview of the descriptive statistics of the event study. The average equity offer value amounts to €1,832 million. Notably, the average bidder size is significantly larger at €6,241 million, making the bidder around 3.5 times the size of the average target. The standard deviation is relatively high due to a substantial discrepancy among both the transaction and bidder sizes across the sample. It is interesting to note that on average bidders offered a premium of c. 21% to the three-month Volume-Weighted Average Price (VWAP) of the target, and a premium of approximately 10% to the target's last reported NAV. In terms of payment method, the sample is rather diversified with 11 pure cash offers, 8 pure share offers and 8 combination offers involving both shares and cash.

While this sample, in general, represents a relatively smaller sample for an M&A event study, it offers the advantage that all transactions were retrieved from the same sector and geographical scope. Consequently, the entire sample utilizes the same comparative real estate market index, namely the FTSE EPRA Nareit Europe Index. This index is specifically designed to track the performance of listed real estate companies and REITS in both developed and emerging European markets (FTSE Russell, 2023). To ensure suitability for investment products such as Exchange Traded Funds (ETFs), the index constituents undergo free-float adjustments and screenings on liquidity, size and revenue criteria (FTSE Russell, 2023). The index comprises a total of 116 European real estate companies with a combined net market capitalization of approximately €162 billion as of May 31, 2023 (FTSE Russell,

2023). In terms of sub-segment weights, the largest allocations are attributed to diversified real estate companies (28.7%), residential real estate companies (18.6%) and industrial real estate companies (15.8%) (FTSE Russell, 2023). Geographically, the index demonstrates significant exposure to the UK (36.4%), Sweden and Germany (approximately 12.5% each), followed by France (11.7%) (FTSE Russell, 2023).

4. Results and Analysis

Based on the described methodologies and data sets, an Excel model has been created to further analyze the research analysis and question outlined in section 3.

4.1 Transaction Analysis

As described in section 3.2.1, the following transaction analysis will focus on the aspects: target country, real estate subsegment and method of payment.

4.1.1 Target Country

The table below (Table 4) presents the number of transactions per country included in the selected sample of 70 transactions. It is important to note that the limited sample size allows for general trend conclusions but provides limited reliability on a country level. Transactions from countries with only one occurrence have been grouped under the category 'Other'. The countries have been sorted in descending order based on the number of transactions.

The cumulative maximum equity offer value in the sample resulted in approximately €87 billion. For this analysis, the maximum offer value is defined as the offer value for a 100% equity stake in the company at the offer price, unless stated differently in the offer documentation, excluding any stake in the target held pre-announcement by the bidder or parties acting jointly with the bidder. On the other hand, the actual offer value takes into account the final acceptance rate of the offer after the termination of the additional acceptance period, recalculating the offer value based on this final acceptance rate. Regarding cumulative actual offer values, Germany has the highest offer value followed by the United Kingdom (UK), Sweden, Austria and the Netherlands (NL).

In addition, the average acceptance rate by country has been analyzed. While some differences were observable on a country level, each deal would need to be further analyzed in detail and the dataset would need additional structuring to increase the meaningfulness of the outcomes. For instance, given that the sample has been selected based on transaction

size, a few large partial takeover offers are included, which impact the average acceptance rates especially for Austria and France. Furthermore, a special court-approved process, known as the Scheme of Arrangement represents a predominant M&A structure in the United Kingdom and Ireland (Cooley M&A, 2022). As these schemes are considered all-or-nothing transactions, and the sample only includes successful transactions, the acceptance rate in these jurisdictions appears higher than in other European countries (Alqobali & Li, 2022). Additionally, a majority of transactions in the sample involve tender agreements with investors, such as irrevocable undertakings, which represent an average of around 16% across the sample. This proportion is included in the outlined final average acceptance rates.

Country	# of Transactions	Equity Offer Value (Maximum) (in €m)	Total Equity Offer Value (Actual) (in €m)	Final Avg. Acceptance Rate
Germany	21	c. 31,348	c. 26,180	*c. 61%*
United Kingdom	12	c. 14,003	c. 12,015	*c. 80%*
Sweden	8	c. 8,975	c. 7,850	*c. 60%*
France	7	c. 3,458	c. 3,258	*c. 43%*
Austria	7	c. 11,099	c. 7,673	*c. 44%*
Netherlands	3	c. 5,284	c. 4,595	*c. 57%*
Spain	3	c. 2,966	c. 2,454	*c. 48%*
Finland	2	c. 2,493	c. 2,458	*c. 98%*
Ireland	2	c. 2,427	c. 2,427	*c. 100%*
Italy	2	c. 895	c. 889	*c. 49%*
Other	3	c. 4,288	c. 4,248	*NM*
Total	**70**	**c. 87,236**	**c. 74,047**	***c. 63%***

Table 4: Overview of transactions and acceptance rates included in the sample by target country.

With regard to the bid premiums observed in the sample transactions, three different reference prices have been utilized for comparison with the offer price. These reference prices align with the commonly used reference prices found in the published takeover offer documents of the sample. The first reference point is the unaffected closing price on the day prior to the announcement of the offer. The second reference point is the volume-weighted average closing price (VWAP) for the three-month period preceding the offer announcement. The third reference price point is the last reported net asset value (NAV) before the offer

announcement. To ensure consistent NAV definitions that reflect the nature of real estate companies, the EPRA Net Tangible Asset Value (EPRA NTA) or its predecessor, EPRA NAV have been employed. The publication of the EPRA NTA follows a guideline of recommendations provided by the European Public Real Estate Association (EPRA).

Overall, the sample results in some variations between countries, with the countries exhibiting on average the highest premium highlighted in green, and those with the lowest premium highlighted in red (Table 5). Nevertheless, on average, positive bid premiums are observed for all three reference prices in the sample. The average premium amounts to 17% compared to the last closing price, 22% compared to the three-month VWAP, and approximately 3% compared to the NAV. These overall offer premium levels align with those reported in other industries. A study conducted by Deloitte in 2018, analyzing offer premiums between 1990 and 2016, found that the average premium levels across industries were at around 20% (Deloitte, 2018). Furthermore, the average bid premiums are consistent with a study by Chacon & Morillon (2020), which suggests that REITs trading at discounts to NAV are more likely to be takeover targets and receive high premiums on their current stock price (Chacon & Morillon, 2020). Additionally, potential patterns across subsegments will be further investigated in the following section.

Country	Prem. / (Disc.) to last closing price	Prem. / (Disc.) to 3M VWAP	Prem. / (Disc.) to NAV (EPRA NTA)
Germany	*c. 17%*	*c. 21%*	*c. 6%*
United Kingdom	***c. 26%***	***c. 30%***	*c. 0%*
Sweden	***c. 10%***	*c. 20%*	***c. 18%***
Austria	*c. 10%*	*c. 16%*	*c. (7%)*
France	*c. 16%*	*c. 24%*	*c. 0%*
Netherlands	*c. 12%*	***c. 14%***	*c. 9%*
Spain	*c. 12%*	*c. 15%*	*c. 15%*
Finland	*c. 17%*	*c. 24%*	*c. 1%*
Ireland	*c. 20%*	*c. 21%*	*c. (2%)*
Italy	*c. 14%*	*c. 27%*	***c. (15%)***
Other	*c. 20%*	*NM*	*NM*
Total	***c. 17%***	***c. 22%***	***c. 3%***

Table 5: Overview of average bid premiums included in the sample by target country.

In terms of method of payment, this thesis assesses whether transactions were structured as all-cash, all-share or as combination offers consisting of cash and shares. As illustrated in Chart 5 below, the majority of the transaction sample was structured as all-cash transactions (c. 61%), followed by all-share transactions (c. 21%) and mixed offers (c. 17%). These findings slightly differ from a previous research study conducted by Glascock et al. (2018), which analyzed REIT acquisitions across a global sample of 673 transactions. Their research reported a higher occurrence of more mixed offers (c. 45%), and fewer all-cash (c. 39%) and all-share offers (c. 16%) (Glascock et al., 2018). In the present sample, among the countries with a larger number of transactions, in particular the United Kingdom and Austria are dominated by an all-cash structuring.

However, it is worth noting that the relatively high occurrence of all-cash deals in this thesis' sample may be attributed to the fact that 27 out of the total 70 transactions (c. 39%) were conducted by private companies.

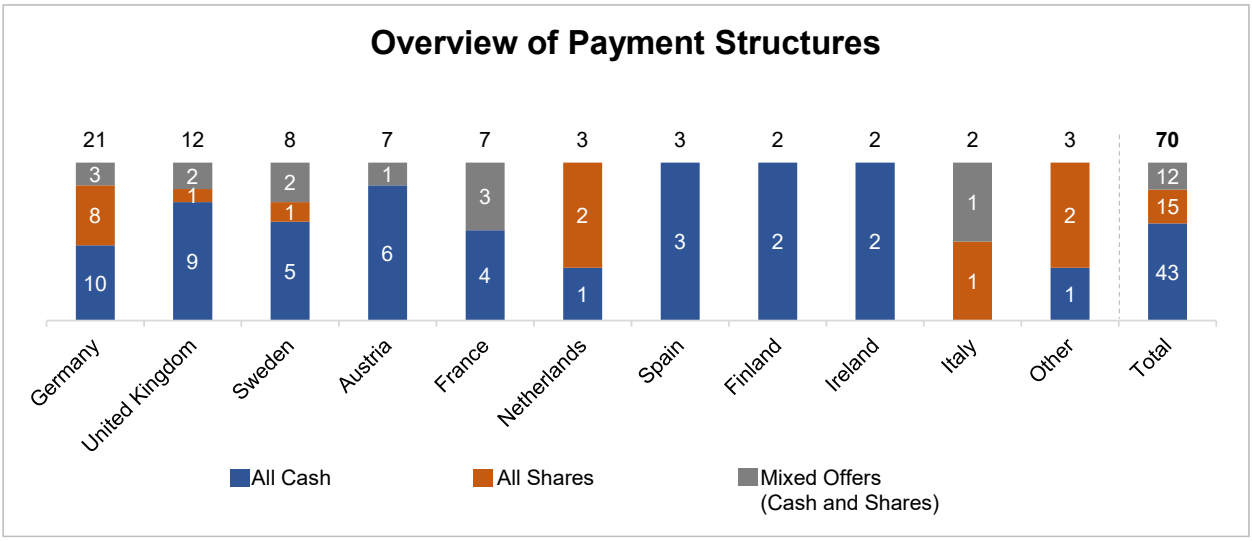

Chart 5: Overview of payment structures by target country.

4.1.2 Target Subsegment

The table below (Table 6) presents the number of transactions per real estate subsegment included in the selected sample of 70 transactions. Transactions from subsegments with only one occurrence have been grouped under the category 'Other'. The countries have been sorted in descending order based on the number of transactions.

The largest number of transactions is observed in the diversified subsegment (24), followed by the office (14) and residential (13) segments. In terms of actual offer value, the residential subsegment exhibits the highest value, followed by the diversified and office segments. It is important to note that, similar to the comparison on a country level, there may be deal specific characteristics influencing some of the average acceptance rates within subsegments. According to the sample output, the industrial segment demonstrates the highest acceptance rate at approximately 78%. However, it is important to note that this conclusion is based on a limited sample contribution of only five transactions. On the other hand, the residential segment exhibits the lowest acceptance rate in the sample, with an average value of c. 58%.

RE Subsegment	# of Transactions	Equity Offer Value (Maximum) (in €m)	Total Equity Offer Value (Actual) (in €m)	Final Avg. Acceptance Rate
Diversified	24	c. 27,217	c. 23,159	*c. 60%*
Office	14	c. 13,264	c. 10,926	*c. 65%*
Residential	13	c. 28,677	c. 23,905	*c. 58%*
Retail	6	c. 9,688	c. 7,932	*c. 70%*
Industrial	5	c. 2,573	c. 2,690	*c. 78%*
Development	5	c. 2,749	c. 2,553	*c. 66%*
Other	3	c. 3,068	c. 2,881	*NM*
Total	**70**	**c. 87,236**	**c. 74,047**	***c. 63%***

Table 6: Overview of transactions and acceptance rates included in the sample by target subsegment.

The sample variations between subsegments are highlighted in Table 7 below. While a premium on the last closing price and the three-month VWAP is observed across asset classes, the largest discrepancy among asset classes can be seen in the premium or discount to NAV. Notably, the industrial segment exhibits a significant average offer price premium of

46% to the last reported NAV. This suggests that, on average, industrial real estate target firms were already trading at a premium to NAV prior to the offer announcement. In contrast, transactions in the retail segment occurred at an average discount of 13% to NAV. These findings align with a study conducted on REITs in Australia by Erol & Tyvimaa (2019), which found that specialty REITs focusing on niche markets traded at higher premiums compared to other property stocks (Erol & Tyvimaa, 2019). Furthermore, the study indicated that these specialty REITs were valued higher by the market than companies pursuing a diversified real estate strategy or those specializing in the office or retail segment (Erol & Tyvimaa, 2019).

RE Subsegment	Prem. / (Disc.) to last closing price	Prem. / (Disc.) to 3M VWAP	Prem. / (Disc.) to NAV (EPRA NTA)
Diversified	*c. 14%*	***c. 19%***	*c. (3%)*
Office	*c. 21%*	*c. 23%*	*c. 1%*
Residential	***c. 10%***	*c. 19%*	*c. 8%*
Retail	*c. 22%*	*c. 23%*	***c. (13%)***
Development	***c. 26%***	*c. 29%*	*NM*
Industrial	*c. 22%*	***c. 32%***	***c. 46%***
Other	*c. 8%*	*c. 20%*	*c. 7%*
Total	***c. 17%***	***c. 22%***	***c. 3%***

Table 7: Overview of average bid premiums included in the sample by target subsegment.

While the transactions in the sample set with targets in the diversified segment were more distributed across offer types, the majority of transactions in other segments were dominated by all-cash transactions. An exception is observed in the retail segment, where most transactions in the sample were driven by all-share offers. It might be worth exploring whether there is a relationship between the high occurrence of share offers and the higher discount of the offer value compared to the NAV, which could be investigated in further studies.

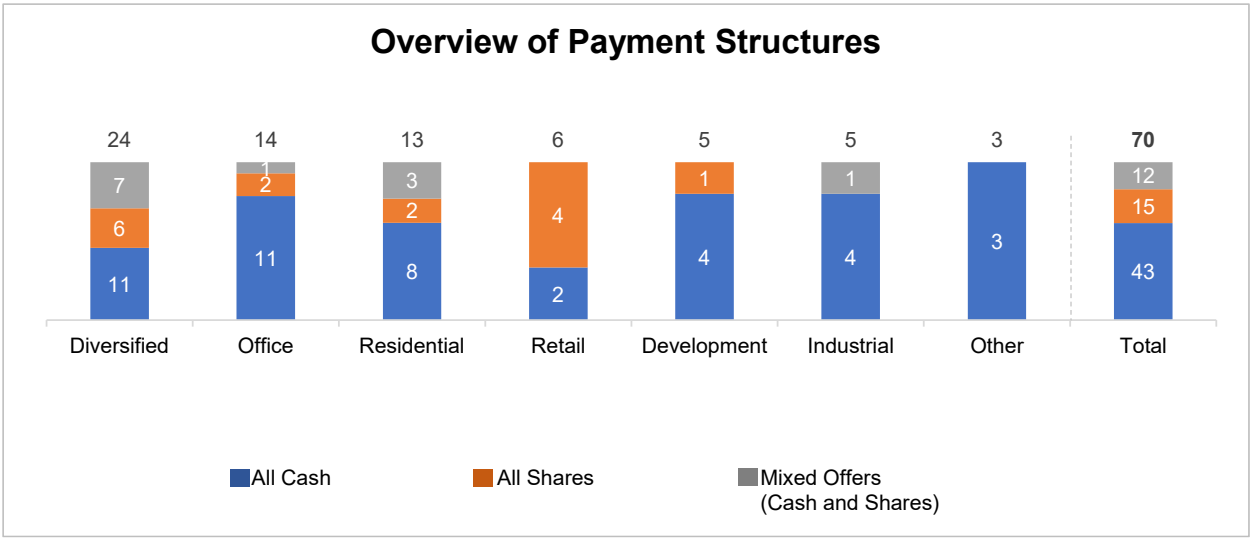

Chart 6: Overview of payment structures by real estate subsegment.

4.1.3 Method of Payment

Through an analysis of the sample set based on the payment methods, it becomes apparent that the majority of transactions are structured as all-cash payments, both in terms of number of transactions and the cumulative value. Furthermore, it appears that the average final acceptance rate for all-cash transactions is lower compared to other payment structures. In addition to individual transaction factors, one potential factor influencing these lower acceptance rates could be the potential tax implications for target shareholders. According to (Keehnen, 2016), all-cash offers may trigger capital gains taxes for target shareholders, necessitating higher bid premiums compared to all-share transactions (Keehnen, 2016).

Table 9 below demonstrates that, on average, cash offers in the sample have higher premiums than share offers, although still lower than those of mixed payment offers. It is worth noting that mixed offers, across the three reference prices, have the highest premiums, while all-share offers exhibit the lowest implied premiums.

Payment Structure	# of Transactions	Equity Offer Value (Maximum) (in €m)	Total Equity Offer Value (Actual) (in €m)	Final Avg. Acceptance Rate
100% Cash	43	c. 52,001	c. 41,110	*c. 55%*
100% Share	15	c. 19,182	c. 17,736	*c. 78%*
Mixed Offers (Cash and Shares)	12	c. 16,053	c. 15,200	*c. 77%*
Total	**70**	**c. 87,236**	**c. 74,047**	***c. 63%***

Table 8: Overview of transactions and acceptance rates included in the sample by payment method.

Payment Structure	Prem. / (Disc.) to last closing price	Prem. / (Disc.) to 3M VWAP	Prem. / (Disc.) to NAV (EPRA NTA)
100% Cash	*c. 18%*	*c. 23%*	*c. 2%*
100% Share	***c. 12%***	***c. 17%***	***c. (4%)***
Mixed Offers (Cash and Shares)	***c. 19%***	***c. 25%***	***c. 14%***
Total	***c. 17%***	***c. 22%***	***c. 3%***

Table 9: Overview of average bid premiums included in the sample by payment method.

4.2 Event Study

In order to evaluate the impact of M&A transaction announcements on the average abnormal returns of the bidders, we formed sample portfolios comprising the selected transactions that meet the criteria outlined in section 3.3.2.

Chart 7 illustrates the development of the bidder cumulative average abnormal return (CAAR) over the event window of [-10/+10] for the total sample portfolio of 27 M&A transactions. The graph depicts an initial decline on the day of the transaction announcement, followed by a subsequent rise on the trading day immediately after. Notably, in the days preceding the announcement, there is a discernible step-up in CAAR, which may suggest the presence of potential information leakage influencing share prices in certain transactions. In the days following the announcement, after the initial rise, the CAAR exhibits a relatively neutral trajectory, followed by a subsequent decline, and concludes with a slight positive trend towards the end of the event window.

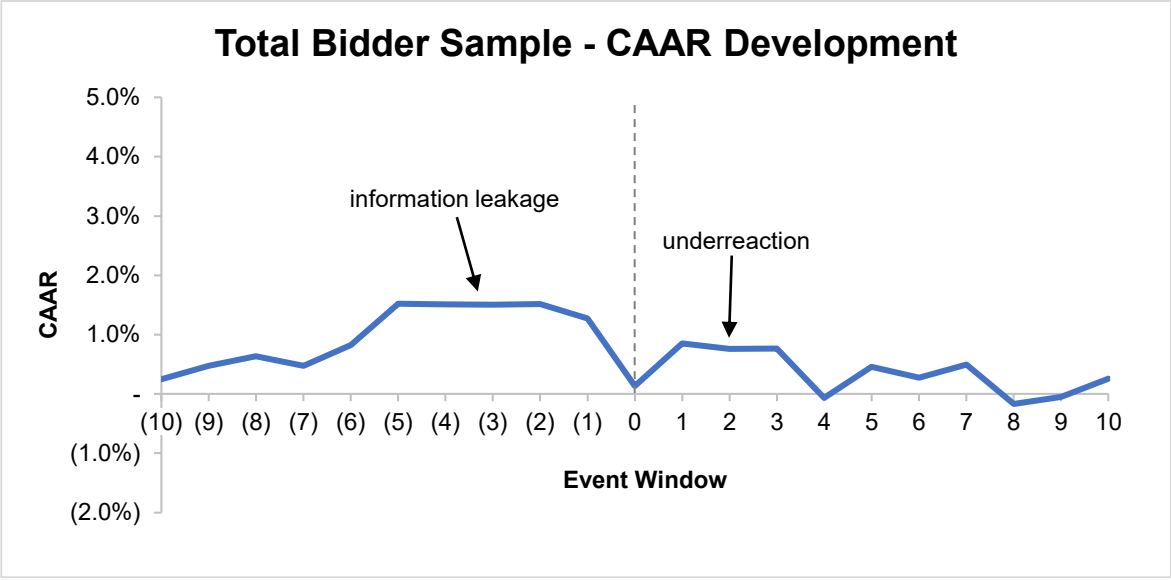

Chart 7: Cumulative average abnormal returns (CAAR) development for the sample bidder portfolio

Note: Sample bidder portfolio of 27 M&A transactions from 2013 to 2023 over the event window [-10,10].

To further investigate the impact of M&A transaction announcements on bidders' shareholder wealth, additional sub-portfolios based on payment methods were formed and the analysis of CAAR's was expanded across different event windows. The results of these analyses are presented in Table 10.

	Sample Size	CAAR	P Values
Event Window 1: [-1/+1] Day		(0.7%)	0.154
Event Window 2: [-5/+5] Days		(0.4%)	0.352
Event Window 3: [-10/+10] Days		0.3%	0.578
Total Sample	**27 Transactions**		
Event Window 1: [-1/+1] Day		(0.4%)	0.289
Event Window 2: [-5/+5] Days		1.5%	0.869
Event Window 3: [-10/+10] Days		1.0%	0.706
100% Cash Offers	**11 Transactions**		
Event Window 1: [-1/+1] Day		(0.2%)	0.438
Event Window 2: [-5/+5] Days		(1.8%)	0.245
Event Window 3: [-10/+10] Days		(4.9%)	0.086*
100% Share Offers	**8 Transactions**		
Event Window 1: [-1/+1] Day		(1.4%)	0.132
Event Window 2: [-5/+5] Days		(1.5%)	0.194
Event Window 3: [-10/+10] Days		4.3%	0.961
Mixed Cash / Share Offers	**8 Transactions**		

Table 10: Overview of CAARs for the total sample and by payment method across different event windows.

*Note: *, **, *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.*

Upon analyzing the total sample of 27 transactions, the CAARs exhibit slightly negative results for the [-1/+1] and [-5/+5] event windows, while the [-10/+10] event window shows a slightly positive CAAR. The fact that the results differ between the longer event window [-10/+10] as opposed to the shorter event windows suggests market leakage prior to the event and underreaction subsequent to the event, as it takes time for markets to fully react to the event. Consistent with previous research in this area, and considering the limited sample size, most of the observed CAARs do not reach statistical significance. Previous research studies have produced mixed findings, with most studies suggesting minor and statistically

insignificant impacts on shareholder returns. Table 11 provides a comparison of selected previously conducted event studies on bidder CAARs in the real estate sector. In addition to the studies referenced below, several comparable studies have explored especially the [-1/+1] event window, with some reporting slightly positive cumulative (average) abnormal returns (CARs or CAARs), such as Eichholtz & Kok (2008), while others observed slightly negative values, as seen in Hasan et al. (2014). Many of these studies report returns ranging in an area of -1.6% to 1.5% according to (Glascock et al., 2018) who conducted a comparative study. It is worth noting that the observed -0.7% CAAR in our sample also falls within this range. The findings are also consistent with the inefficient management hypothesis discussed in the literature review, which suggests relatively insignificant abnormal returns for bidding companies (Womack, 2012).

	Li, Elayan and Meyer 2001		Ratcliffe et al. 2009		Campbell, Gosh, Petrova, Sirmans 2011		Womack 2012	
Sample Description	97 REIT M&As from 1972 to 1996		36 REIT mergers in Australia from 1995 - 2008		132 US REIT mergers from 1997 - 2006		94 US Real estate M&As from 1980 - 2007	
	CAAR	**Z Test**	**CAAR**	**P Values**	**CAR**	**Z Test**	**CAR**	**P Values**
Event Window 1: (+/-1 Day)	**1.44%**	Z test significant	**0.86%**	0.003***	**0.00%**	Z test not significant	**(0.76%)**	0.1520
Event Window 2: (+/-5 Days)	**1.43%**	Z test significant	**0.86%**	0.158			**(0.08%)**	0.9310
Event Window 3: (+/-10 Days)								
Total Sample	**27 Transactions**		**36 Transactions**		**132 Transactions**		**94 Transactions**	
Event Window 1: (+/-1 Day)			**(0.22%)**	0.9230	**0.07%**	Z test not significant	**(2.29%)**	0.3760
Event Window 2: (+/-5 Days)			**0.38%**	0.8430				
Event Window 3: (+/-10 Days)								
100% Cash Offers	**11 Transactions**		**14 Transactions**		**24 Transactions**		**NA Transactions**	
Event Window 1: (+/-1 Day)					**(0.88%)**	Z test significant	**0.67%**	0.7330
Event Window 2: (+/-5 Days)								
Event Window 3: (+/-10 Days)								
100% Share Offers	**8 Transactions**				**52 Transactions**		**NA Transactions**	
Event Window 1: (+/-1 Day)			**1.55%**	0.000***	**0.81%**	Z test significant	**(0.92%)**	0.2315
Event Window 2: (+/-5 Days)			**1.18%**	0.099*				
Event Window 3: (+/-10 Days)								
Mixed Cash / Share Offers	**8 Transactions**		**22 Transactions**		**56 Transactions**		**NA Transactions**	

*Table 11: Summary of selected previous research studies on bidder real estate M&A announcement induced CAAR stock returns. Note: *, **, *** show statistical significance at the 10%, 5% and 1% level respectively*

In the following analysis, the sample was divided and analyzed by payment method, as highlighted in Table 10, with the aim to investigate abnormal return impacts of different payment methods. The resulting figures reveal that among the 11 all-cash offers included in the sample, there was a slight negative CAAR for the first event window [-1/+1], followed by positive CAARs for the subsequent two event windows [-5/+5] and [-10/+10]. On the other hand, the 8 all-share offers in the sample experienced negative CAARs across all three event

windows, with an increasing magnitude. These findings align with previous studies that have examined the relationship between payment method and abnormal returns, indicating that bidder and target cumulative abnormal returns tend to be higher when the transaction is financed with cash (Ratcliffe et al., 2009). Further support for these findings can be found in the theories of information asymmetry and the pecking order hypothesis. The pecking order hypothesis, initially proposed by Myers & Majluf (1984), suggests that companies, due to information asymmetry with the market, have a preference ranking for financing sources in investment decisions (Myers & Majluf, 1984). This hierarchy begins with internal funds, followed by debt, and finally equity (Leary & Roberts, 2010). The rationale behind this hierarchy is to minimize adverse selection costs (Leary & Roberts, 2010). In the context of M&A transactions, this implies that bidding firms may have more information about the intrinsic value of their company, and the chosen payment method reflects their assessment of their own equity's valuation (Keehnen, 2016). Consequently, the most lucrative financing structure for the bidding firm and its shareholders will be selected (Keehnen, 2016). According to this theoretical framework, bidding firms may choose an all-share payment structure if they believe their equity is overvalued, while an all-cash transaction might be selected if the equity is perceived as undervalued. This preference for specific payment methods may result in a negative market reaction to all-share offers, as they may be interpreted as negative news, whereas all-cash offers may be viewed as positive market news, in line with the theory.

Another potential influencing factor is the tax considerations mentioned in section 4.13, which might lead to higher average premiums for all-cash transactions, as also observed in the selected sample of this thesis.

The third payment method analyzed was the combination of cash and shares. Among the 8 transactions included in the sample, the first two event windows [-1/+1] and [-5/+5] exhibited negative CAARs, while the third event window [-10/+10] showed a positive CAAR with a greater magnitude than any other event window in the sample. One potential influencing factor could be that the combination payment may signal an efficient use of cash (Ratcliffe et al., 2009). The relatively positive return during some event windows for mixed payment

scenarios has been observed in a few other event studies, such as, Ratcliffe et al. (2009) but the underlying reasons for this pattern are not fully explainable and warrant further research. It is important to note that, similar to the overall sample output, many of the return factors for the different payment methods were statistically non-significant due to the relatively small sample size. However, the overall findings are consistent with previous event studies on acquirer abnormal returns in real estate M&A transactions, suggesting that sample selection bias does not appear to be a significant issue in this thesis.

5. Conclusion

This thesis first analyzed a sample of 70 listed European real estate M&A transactions that occurred between June 2013 and June 2023. On average, the bids in the sample represented premiums of 17% and 3% to the last closing price and the net asset value (NAV), respectively. The most active countries in the sample were Germany (21 transactions), followed by the UK (12 transactions) and Sweden (8 transactions). In terms of payment method, the majority of transactions in the sample were structured as all-cash (c. 61%), followed by all-share transactions (c. 21%) and mixed offers (c. 17%).

Further analysis of the sample was conducted based on three filters: target country, real estate subsegment, and payment structure. Notably, bid premiums related to the closing share price and three-month VWAP were comparable across subsegments, but significant discrepancies were observed compared to the NAV. Industrial segment transactions exhibited a significant average premium of 46%, while retail segment transactions occurred at an average discount of 13% to NAV. This finding can be explained by the recent high demand and the relative scarcity of sizeable industrial portfolios. It is supported by a study conducted by Erol & Tyvimaa (2019) on REITs in Australia, which found that specialty REITs focusing on niche markets traded at higher premiums compared to other property stocks (Erol & Tyvimaa, 2019).

Furthermore, the thesis revealed that cash offers in the sample had higher bid premiums on average than share offers, although still lower than the premiums in mixed payment offers. The difference may be attributed to potential tax implications for the target shareholders, as all-cash offers may trigger capital gains taxes directly (Keehnen, 2016). Additionally, the theories of information asymmetry and the pecking order hypothesis may play a role in understanding the distribution of offer premiums for different payment methods.

In the next step, this thesis examined the announcement impact of real estate M&A transactions on bidders' abnormal returns. While there are existing research studies focusing on global, US and Australian samples, no publications specifically analyzing European markets could be found. Therefore, the focus of this event study was entirely on

transaction sample sets in European markets. A sub-sample of 27 transactions meeting defined criteria from the initial sample was utilized, employing the event study methodology. The cumulative average abnormal returns (CAARs) in the sample exhibited slightly negative results for the [-1/+1] and [-5/+5] event windows, which turned slightly positive for the [-10/+10] event window. These returns fall within the range of -1.6% to 1.5% reported in a comparative research study on M&A announcement acquirer abnormal returns in the real estate sector conducted by Glascock et al. (2018). Additionally, these findings align with those of many previous research publications which suggested minor and statistically insignificant impacts on bidders' shareholder returns.

An interesting pattern emerged when analyzing the event study for the transactions grouped by payment method. While in general, the result had been in line with findings from previous research, suggesting that following the theory of asymmetric information, bidder and target cumulative abnormal returns tend to be higher when the transaction is financed with cash (Ratcliffe et al., 2009). In the sample set of this thesis, this held true for the [-5/+5] and [-10/+10] event windows. However, for the [-1/+1] event window, the difference between all-share and all-cash offers was relatively narrow, with slightly higher returns observed for share offers. Even though a higher return for all-cash offers is observed compared to all-share offers for the event window [-10/+10], the combination offers with a cash and a share component experienced a significantly greater abnormal return. This effect was also found during some event windows of a few other event studies, such as the one conducted by Ratcliffe et al. (2009) on the Australian REIT M&A market. While a potential explanation could be a positive market signal resulting from a perceived to be efficient offer structure, or the higher average bid premiums of these transactions in the sample, the underlying reasons for this pattern are not fully explainable and would warrant further research. Additionally, future studies could investigate the relationship between acquirer returns and bid premiums to determine whether the height of the premium affects the abnormal return of the bidder. Furthermore, it could be valuable to analyze additional event windows, such as the offer completion period.

6. List of Tables

7. List of Charts

8. List of Figures

9. Bibliography

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