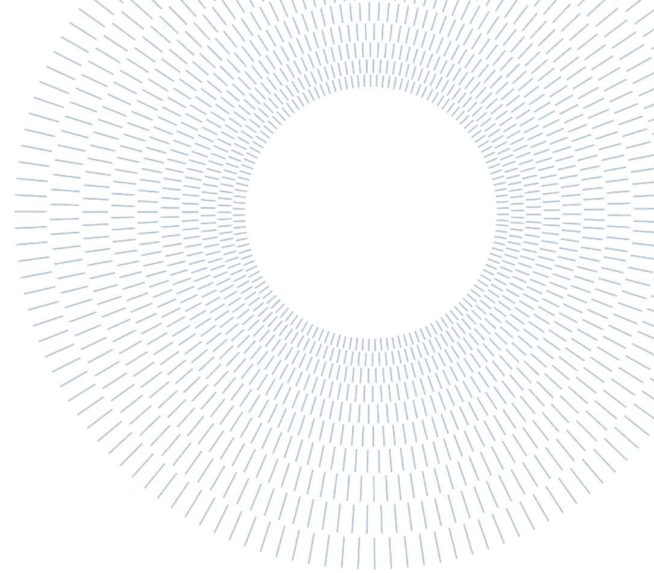




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EXECUTIVE SUMMARY OF THE THESIS

Investigation of Delisting Premium Determinants in European Capital Markets

TESI MAGISTRALE IN MANAGEMENT ENGINEERING – INGEGNERIA GESTIONALE

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1. Introduction and Objective

Over the last two decades, **equity markets** have been characterized by a **persistent contraction** in the number of listed firms. Available data suggest that the decline in the number of listed firms is part of a **broad structural phenomenon** affecting both major **European** financial centres and the **United States**, as reported by Intermonte–Politecnico di Milano report ‘Sliding doors’ (2022). Consistent with this, as noted by Baldi, Parco & Mancini (2022), data from the **European Commission** (2023) show that the **number of listed companies** in the European Union **declined** by approximately **15%** between 2010 and 2022, falling from around 7,400 to just over 6,300. This trend has raised growing concerns regarding the long-term **attractiveness of public markets in Europe**. In practice, **delisting** refers to the *withdrawal of a company’s shares from trading on a regulated stock exchange, thereby ceasing to be publicly traded* (Zingales, 1995; OECD, 2022). In practice, delistings are most commonly executed

through a tender offer addressed to current shareholders, often minority investors, initiated by an acquiring entity. The difference between the tender offer price and the pre-announcement trading price of the stock of the going-private firm is regarded to as the **delisting premium**.

$$Premium_n = \frac{P_d - P_n}{P_n}$$

Where:

- P_d is the delisting (offer) price;
- P_n is the unaffected stock price measured ‘n’ trading days before the announcement.

Existing empirical research has examined the determinants of such premium in the context of Anglo-Saxon markets, especially the United Kingdom and the United States, where large waves of delisting transactions have been observed since

the 1980s (Renneboog, Simons, and Wright, 2007). By contrast, Continental Europe has been relatively underexplored. The primary **objective** of this dissertation is to fill this gap by providing a systematic empirical investigation of the **determinants of delisting premiums** in the **European** context.

2. Delisting types and configurations

It is possible to classify **delisting transaction types** drawing on the framework proposed by Onesti et al. (2013). At a first level, a distinction is made between **voluntary delistings**, initiated by the company or its controlling shareholders, and **involuntary delistings**, imposed by market authorities due to regulatory breaches, insufficient free float, or financial distress. Voluntary delistings may involve either a **public-to-private transaction**, in which the firm becomes privately held, or a **public-to-public transaction**, where the company merges with another listed entity. Within the voluntary category, a further classification that combines three independent dimensions is proposed: the continuity or discontinuity of the controlling subject, the speculative or growth-oriented purpose of the transaction, and the operating conditions of the firm (equilibrium or crisis). This framework generates eight clusters, ranging from pre-sale and hidden-potential delistings to control-strengthening and takeover delistings, each of which may also occur under conditions of financial distress.

This classification though does not account for the **technical modalities** in which such transactions are carried out. In practice, these are most commonly carried out via tender offers to existing shareholders, particularly minorities, launched either by insiders or external investors. When promoted internally, they typically take the form of **management buyouts (MBOs)**. By contrast, external initiatives include **management buyins (MBIs)**, where an external management team acquires control, and **institutional buyouts (IBOs)** led by institutional sponsors, e.g. private equity funds. A possible outcome is the **buyout-driven squeeze-out**, whereby majority shareholders surpass legal thresholds that allow them to compel the sale of remaining minority stakes. Distinct from these are **going-dark strategies**, in which firms

deregister securities and suspend disclosure obligations without a takeover or ownership consolidation.

3. Data

The empirical analysis relies on the construction of a novel dataset from **FactSet** encompassing **665 delisting transactions** completed in **European equity markets** between **2012 and 2024**. The **mean premium** calculated considering the stock price **one-month** prior to the announcement in the full sample amounts to **31.75%**. When measured on the **two-week** window, the mean declines to **31.39%**.

Composition

The dataset covers a wide **European geographical** scope, encompassing UK, France, Germany, Italy, Sweden, Norway, Netherlands, Finland, Spain, Denmark, Belgium and Portugal. Both **regulated exchanges** and **alternative growth segments** are represented, ensuring coverage across different institutional settings. At the **sectoral** level, the sample spans Services, Technology, Financials, Industrials, Healthcare, Real Estate, Materials, Energy, Retail, Consumer and Utilities.

Cross-country differences

When analysed at country-level, clear differences emerge. The **UK** is both the largest market (N=206) and the **most generous**, with average premiums of 45.2%, reflecting competitive, sponsor-backed buyouts. **Italy** shows the opposite profile: despite a sizable number of cases (N=62), it records the **lowest** mean premium (11.7%), consistent with family-driven or distress-related exits and the higher expropriation risk linked to concentrated ownership. **France** and **Germany** occupy an intermediate position, with averages of 28.5% and 21.2%. The **Nordic countries** (26–35%) exhibit relatively high premiums, in line with stronger minority protection regimes. Other continental markets (Netherlands, Belgium, Portugal, Spain) contribute fewer observations, with averages generally between 12% and 26%, except Spain at 34.6%.

Cross-sector differences

Sectoral evidence shows that **strategic industries** tend to command higher premiums. **Utilities** report the highest mean (49.2%) but with very few cases. **Energy** (40.6%, N=23), **Technology** (36.3%, N=136), **Financials** (36.1%, N=85), and **Healthcare** (35.3%, N=47) all display elevated averages, reflecting growth prospects and strategic importance, though some results are influenced by outliers. By contrast, **Services, Industrials, and Real Estate** record more moderate premiums (26–32%), while **Materials, Retail, and Consumer** show lower values (22–29%), with limited observations restricting generalizability. Overall, the data suggest that high-growth or strategically regulated sectors systematically attract higher delisting premiums, but caution is required where sample sizes are small.

Delisting activity time series

The time-series of delisting activity confirms a cyclical pattern.

- **2014** marks a clear **peak**, largely reflecting acquisitions after the **Eurozone sovereign debt crisis**, when valuations were compressed.
- **2017** represents the lowest point of the sample.
- Two further troughs appear in **2020** and **2023**. The former reflects the paralysis caused by the **COVID-19 pandemic**, which temporarily froze buyout activity despite weaker fundamentals. The latter corresponds to the **inflationary shock** and rising interest rates, which increased the cost of leveraged finance and reduced deal feasibility.

4. Methodology – Regression Analysis

Building on the above described dataset, the next step is to formally investigate all the possible **determinants of delisting premiums** (described in the next sections) derived from literature and beyond through a **regression analysis**. The baseline regressions were estimated using OLS, with **HC1** heteroskedasticity-consistent

standard errors (White, 1980) to correct for non-constant residual variance and ensure valid inference. To strengthen robustness, three complementary control procedures were applied for each model: (i) **Cook’s Distance filtering**, excluding the 1% most influential observations (final dataset includes 658 observations); (ii) **Winsorization**, trimming premiums at the 1st and 99th percentiles to limit the effect of extreme values; and (iii) **Interquartile Range filtering**, which removed outliers beyond $1.5 \times IQR$, reducing the sample to 458. The guiding principle is that results consistent across these checks are more reliable, whereas significance found only in specific subsamples warrants caution. Robustness is further reinforced by comparing outcomes across the two premium windows (1-month and 2-weeks): determinants that remain significant in both provide stronger evidence of explanatory power, reducing the risk that findings are driven by market noise or event-window choice.

Dependent, Independent and Control Variables

As outlined in the previous sections, the **dependent variables** are the **delisting premiums**, measured as the difference between the offer price and the market price before the announcement. Two versions were used: one based on the stock price **one month before** the announcement and another one based on the price **two weeks before** the announcement, to check if results hold across different time windows.

As for the **independent variables**, the empirical analysis is grounded in a set of **hypotheses** derived from the corporate finance literature and beyond. These hypotheses represent the potential determinants of the premiums offered in delisting transactions, which will be now described, also with specifications on expected signs of the respective coefficients:

- **Incentive Realignment Hypothesis:** it suggests that delisting creates more value when post-transaction managerial ownership increases, because stronger alignment of interests reduces agency costs (Kaplan, 1989a). The variable used to test this is the “MBO_yes” dummy, which

takes value 1 if the delisting is under a management buyout and 0 otherwise. The expected sign of the effect on premiums is positive.

- **Free Cash Flow Hypothesis:** based on Jensen (1989), this hypothesis argues that firms with excess cash are prone to inefficiency and benefit more from going private. The variable “Cash flow HP” to test for this thesis is computed, under co-advisors’ advice, using data from the last fiscal year before the delisting announcement, as

$$\frac{Op.CF - Capex}{Total Assets}$$

The expected effect is positive.

- **Transaction Costs Hypothesis:** according to DeAngelo et al (1984), Leuz et al. (2008) and Thomsen & Vinten (2014), delisting can serve as a means to avoid high listing fees and compliance burdens, especially on regulated exchanges, where such costs are higher. The proxy variable is “Exchange_Unregulated”, equal to 1 if the delisting occurs in an unregulated exchange, with lower economic burdens, and 0 otherwise. The expected sign is negative.
- **Informational Undervaluation Hypothesis:** when a firm is undervalued, managers may exploit their superior knowledge to pay a premium and extract value through going private. This is captured by the interaction variable “MBO * Performance12”, which measures the percentage change in the stock price over the twelve months preceding the announcement, but only for management buyouts. The form of the variable was inspired by Renneboog, Simons and Wright (2007). The expected sign is negative, since better past performance reduces the scope for capturing hidden value.
- **Market Undervaluation Hypothesis:** it is crucial to be complemented with the

informational undervaluation proxy. Unlike the **Informational Undervaluation Hypothesis**, which assumes that managers or controlling shareholders exploit superior private information to time the transaction, the Market Undervaluation Hypothesis reflects a discount visible to all market participants. In this case, it is not insider knowledge that drives perceptions of undervaluation, but rather the fact that the firm is trading at a multiple lower than its peers. The variable “Undervaluation” is defined as:

$$\frac{\left(\frac{P}{E}\right)_{pre-announcement} - \left(\frac{P}{E}\right)_{benchmark}}{\left(\frac{P}{E}\right)_{benchmark}}$$

Such a discount may exist as a sign of undervaluation of the firm, causing minority shareholders to require stronger compensation to tender their shares, as the undervaluation is already evident to the market. Therefore, a negative sign is expected: the greater the undervaluation relative to peers, the higher the premium demanded by investors. The company multiple is based on fiscal-year pre-announcement data, while the benchmark multiple is sourced from Damodaran’s industry data.

- **Opportunity cost Hypothesis:** if a stock outperforms its benchmark, shareholders are expected to demand higher premiums to give it up. The relevant variable is “Relative Return 6m”, calculated as the difference between the stock’s absolute return in the last six months and the return of the main geographical index (EUROSTOXX50 for all firms, as suggested by co-advisors). The expected effect is positive.
- **Volatility Hypothesis:** higher stock volatility increases the risk of adverse price movements, so investors require larger premiums to be compensated. The variable Volatility is defined as the average daily stock volatility in the 90 days

before the announcement. The expected sign is positive.

Finally, as for the **control** variables, the following ones were included:

- **Country-level dummies** (equal to 1 if the delisting incurred in the specified country, else 0): UK, France, Germany, Sweden, Norway, Netherlands, Finland, Spain, Denmark, Belgium, Portugal;
- **Sector-level dummies** (equal to 1 if the delisting incurred in the specified industry, else 0): Services, Technology, Industrials, Healthcare, Real Estate, Materials, Energy, Retail, Consumer, Utilities;
- **Deal-level dummies**: *CompetingBid_{Yes}* (measuring if the bid was competitive), *TypeofBuyer_{Financial}* (controlling for whether the buyer was a financial one).

As it is possible to observe, the Italy and Financials dummies are missing because the regression considers as base case to measure the differential effects exactly the case of Italian firms operating within the financial industry.

5. Results

In Tables 1 and 2 the results of base and control models are summarized, respectively using the **one-month** and **two-week premium**. Only the **explanatory variables** are shown for visualization purposes, even though **control variables** are actually included within the models.

Table 1 - Summary of all the regressions output using one-month premium as dependent variable.

Variable	Base Model	Leverage	Winsor	IQR
<i>const</i>	59.256*	61.191*	47.271*	18.614**
<i>MBO*Share Performance12</i>	-0.629	-2.032	-0.475	Not included
<i>MBO_yes</i>	18.569**	23.645**	18.940**	Not included
<i>Cash Flow HP</i>	1.791***	-21.603	1.765***	-18.662
<i>Exchange_Unregulated</i>	-32.786	-35.616	-26.502	5.803
<i>Undervaluation</i>	-1.64	-9.115	-1.211	-4.739
<i>Relative Return 6m</i>	5.227**	5.293**	6.997***	6.489***
<i>Volatility</i>	23.739***	23.641***	17.639***	16.834***
R squared	0.335	0.337	0.305	0.332

Note: *corresponds to a pvalue <10%, **to pvalue <5%, *** to pvalue <1%

Table 2 - Summary of all the regressions output using two-week premium as dependent variable

Variable	Base Model	Leverage	Winsor	IQR
<i>const</i>	55.996	63.315*	46.801*	12.216*
<i>MBO*Share Performance12</i>	-0.269	-1.529	-0.385	Not included
<i>MBO_yes</i>	18.545**	22.674*	18.528**	Not included
<i>Cash Flow HP</i>	1.135***	-35.253	0.983***	36.334
<i>Exchange_Unregulated</i>	-39.208	-47.870	-28.406	15.282***
<i>Undervaluation</i>	-1.450	-27.212***	-0.989	-10.864
<i>Relative Return 6m</i>	3.552	3.604	4.577**	3.329*
<i>Volatility</i>	18.579***	18.305***	17.173***	19.313***
R squared	0.275	0.283	0.291	0.329

Note: *corresponds to a pvalue <10%, **to pvalue <5%, *** to pvalue <1%

The strongest result refers to the only included technical variable: **volatility**. A consistently **significant** and **positive** relationship between stock price volatility and delisting premiums was detected by the models. While not strictly grounded in classical valuation theories, this effect can be rationalised by analogy to the discount in rights issues: as volatility rises, investors require higher premiums to compensate for the risk that market prices may deteriorate during the transaction process, ensuring that potential pitfalls do not erode the value of the offer.

Robust evidence emerges in relation to hypotheses that have received less systematic attention in the prior literature. In particular, the **opportunity cost hypothesis** is strongly supported: the coefficients are positive, as expected, and significant in all specifications for both the 2-week (at least 15% level) and 1-month premiums (at least at 5% level).

Consistent with the **incentive realignment hypothesis**, the **Management Buyout** dummy exhibits a positive (as expected) and significant effect across all specifications for the 2-week and 1-month premiums (except for IQR, due to lack of sufficient data), confirming that transactions characterised by stronger alignment of managerial incentives are associated with higher shareholder gains.

Evidence in support of **Jensen's (1989) free cash flow hypothesis** is weaker: the coefficient on free cash flow is positive, as expected, when significant,

except for a couple of control specifications (Low Leverage and IQR) both in the 1-month and 2-weeks models. This suggests at best partial support for the claim that firms with excess liquidity generate higher delisting premiums once brought under tighter governance.

The **transaction cost hypothesis** finds no empirical validation, as dummies distinguishing between regulated and unregulated exchanges are mostly insignificant.

Similarly, hypotheses rooted in **undervaluation** receive no empirical support, as neither book-to-price multiples nor the interaction between the MBO dummy and the pre transaction performance of the shares display statistical significance.

Finally, **UK** is consistently significant among the control variables, with positive coefficient. This means that delisting operation in UK are associated with a higher premium.

6. Conclusions

The analysis of 665 European public-to-private transactions completed between 2012 and 2024 provides new insights into the determinants of delisting premiums in Continental Europe and growth markets. The findings contribute to the literature by confirming some established hypotheses while rejecting others, thereby refining the understanding of the mechanisms underlying value redistribution in delistings. As compared to the UK-focused study carried out by Renneboog, L., Simons, T., & Wright, M., the findings show only one common significant hypothesis: the one related to **incentive realignment**. The remaining results mark a **shift** from the aforementioned work, where the most significant hypotheses revealed to be undervaluation and increased interest tax shields. Beyond its academic contribution, this research has practical relevance for several **stakeholders**:

- For **European shareholders**, the results provide a framework to assess whether a proposed delisting offer is fair, by highlighting the factors that systematically justify higher or lower premiums.
- For **acquirers and buyout sponsors**, the findings clarify which conditions

require stronger compensation to gain shareholder approval, thereby informing deal structuring.

- For **regulators and policymakers**, the evidence underscores the influence of governance structures, market volatility, and investor opportunity costs in shaping shareholder outcomes, offering insights into the broader implications of the shrinking pool of listed firms.

These results suggest that delisting should not be interpreted solely as a defensive or distress-driven move. In specific contexts, particularly where incentive realignment and opportunity costs are key drivers, delisting can represent a voluntary strategic choice that enhances **value creation**. The observed premiums provide evidence that, under such conditions, leaving public markets may benefit both acquirers (thanks to post-transaction gains) and minority shareholders, highlighting that value creation is not limited to the initial listing decision but can also occur through delisting.

In sum, the thesis contributes to the ongoing debate on the **decline in listed companies** by showing how firm dynamics and market structures condition the appeal of staying public, and in which circumstances delisting transactions are more likely to create value for both controlling shareholders and minority investors.

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