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Abstract

This thesis investigates the relationship between the rise of private equity and the decline in the number of listed firms in Europe, with a particular focus on the period from 2005 to 2023. Through an analysis of the interactions between public and private equity markets, the study explores the reasons behind companies' growing preference for staying private or delisting from stock exchanges. The research includes a review of existing literature and considers various aspects such as regulatory constraints, the changing role of institutional investors, and the evolution of private equity activity and it is supported by a multivariate linear regression model. The findings suggest that private equity both complements and competes with public markets, therefore influencing firms' decisions to go public or remain private.

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Introduction

All through the different stages of the business cycle, firms have essentially two channels through which they can raise capital, either as **equity** or **debt**, to support their growth and strategic initiatives. The former refers to the ownership interest in a company, represented by shares of stock. Whoever owns equity in a company is a shareholder/investor that has a claim on a portion of the company's assets and earnings. Equity holders are entitled to vote on important company matters and may receive dividends if the company distributes profits. The latter refers to money borrowed by a company or individual in the form of loans, bonds, or other financial instruments that must be repaid over time with interests. Equity investors bear more risk compared to debt holders because they have a residual claim on assets in case of liquidation, meaning they are paid after debt holders, but have the potential for higher returns through dividends and capital gains.

The process of raising capital, either through the sale of shares in a company or through the acquisition of debt, involves evaluating both avenues carefully as each has its own set of pros and cons. Equity financing, while providing flexibility and avoiding the burden of **debt repayment**, often comes at the cost of diluting ownership and control to shareholders. By selling shares, original owners may lose some control over the company, as shareholders may influence business decisions, while by issuing new shares, existing shareholders' ownership stake shrinks unless they subscribe to the capital increase.

On the other hand, debt financing offers the advantage of tax-deductible interest payments and allows companies to maintain **ownership control**. However, interest payments can strain cash flows, particularly during economic downturns or periods of market volatility, and excessive debt can also lead to financial distress, increased interest expenses, and constraints on future borrowing capacity. Changes in interest rates from central banks could negatively affect a company's financial performance because the interest rate on variable-rate debt is tied to a benchmark rate, and as these benchmark rates change, so do the interest payments. Instead, shareholders' returns are tied to the company's performance, usually through dividends and capital appreciation.

As clearly capital is not obtained without costs, whether expressed as an interest rate, a dividend payout ratio or a combination of both, it is important to remember that the capital structure also influences the overall firm value. The Modigliani-Miller theorem, although with simplified assumptions, highlights the importance of capital structure in this respect. When considering

taxes, the theorem implies that firms can increase their value by using more debt, up to the point where the tax benefits of additional debt are offset by the increased costs of potential financial distress. Therefore, maintaining an optimal mix of equity and debt ensures that firms can capitalize on the benefits of each while mitigating the drawbacks associated with excessive reliance on either source of capital or optimizing the firm value.

As companies encounter these challenges, they often explore various avenues to raise funds for their growth and expansion. When it comes to equity, entrepreneurs have to find ways to make the equity attractive to convince investors to become shareholders. Most importantly, they have to organize the firm so that shareholders will receive a return on their investment. The most that investors will be willing to pay for shares is the present value of the payments they expect to receive back from the firm over time. If investors believe that these payments will be low, they will pay little for the shares and the entrepreneur will receive little funding. This dynamic is a fundamental aspect of equity markets, which are among the most vibrant and valuable globally. These markets form intricate ecosystems encompassing diverse stakeholders, such as investors, corporations, intermediaries, and regulators.

Within the private side of the equity capital market, there are different players, each of them interested in companies with different characteristics. Angel investors, comprising wealthy individuals, provide crucial early-stage funding to startups in exchange for equity or convertible debt. Their involvement often extends beyond financial support, offering mentorship and networking opportunities. Crowdfunding platforms democratize investment by allowing individuals to contribute small amounts of capital in exchange for equity or rewards, facilitating early-stage funding for innovative projects and startups. Venture capital firms specialize in financing high-growth startups, injecting capital in return for equity and strategic guidance to scale operations rapidly. Private equity firms focus on investing in established private companies or restructuring public firms, aiming to enhance operational efficiency and drive growth before exiting through sale or IPO. Regardless of the type of private investor, they cannot freely sell their shares due to the illiquid nature of private market securities. The fact that there are not a lot of transactions means there is no market consensus price, which makes valuation a challenging exercise. This often requires sophisticated financial modeling and negotiations to estimate a company's worth accurately.

Instead, the public equity market allows companies to access a wider pool of investors, who can dispose of their stake at any time, with prices adjusting given the available information.

This liquidity is a key advantage for publicly traded companies, as it enhances their ability to raise capital quickly and efficiently through secondary offerings or stock issuance. Broad public ownership offered managers a reasonably priced source of more or less permanent equity capital that could buffer the company against adversity in a way debt could not. Moreover, transparency and regulatory oversight in public markets provide investors with confidence in the integrity of financial disclosures and corporate governance practices.

While both private and public equity markets play critical roles in capital formation, economic growth, and investment diversification, secondary public markets, where investors buy and sell securities they already own, often receive more attention as opposed to buying them directly from the issuing entity. For instance, the U.S. equity market, which is the largest in the world, saw an average daily volume of 11.8 billion shares[1]. This indicates that a substantial portion of trading activity occurs in the US, which alone accounts for about 39.1% of the worldwide market capitalization[1], approximately $120.4 trillion. Liquid markets such as the aforementioned facilitate efficient price discovery, ensuring that security prices reflect the supply and demand dynamics among investors, making these markets a crucial component of the global financial landscape.

There is a mutually reinforcing relationship between capital markets and a country's prosperity, as they contribute to funding the economy, helping people save more, and driving the transition to net zero. Public equity markets are often viewed as leading indicators of the broader economy because stock prices tend to rise in anticipation of economic growth and fall during economic downturns. Investors make decisions based on current and expected conditions.

The development of the equity public market is a topic of wide discussion among scholars especially in recent years, as more and more companies do not go public or even decide to delist their shares. According to Laurens Swinkels, a finance professor at Erasmus School of Economics and previously a senior researcher at NBIM, the straightforward reality is that "companies are increasingly reluctant to go public." If we look at the US, which has by far the highest market capitalization, the number of public companies only once exceeded 8,000 in 1996, but by 2023 that count dropped to 3,700 – a plunge of more than 50%, CNN Business reported[2]. In the EU, while equity indexes are at a record high, beneath the surface they are in crisis, with sinking trading volumes, too few initial public offerings and some of its biggest

[1] SIFMA Market Structure
[2] LA Business Journal Research Report

companies prefer the appeal of the US. Analysis conducted by economics consultancy OxeraConsulting LPP shows that the number of listings in the EU-28 declined by 12%, from 7,392in 2010 to 6,538 in 2018, while GDP grew by 24% over the same period[3]. Even in the UK, the three-century-old bourse is confronting a prolonged drought in listings[4]. It is not that fewer companies are operating, but rather that more and more companies are choosing to stay private by avoiding or delaying public stock offerings.

Indeed, Swinkels suggests that **the stock market's role in reflecting the broader global economy has diminished compared to the past, but why should it be the case?**

This may depend on **regulatory constraints** which evolved and became more demanding as a result of the financial crisis and other scandals. Limitations on company owners' ability to retain control when going public through shares with multiple voting rights might be a deterrent, prompting many companies to postpone listings, allowing for greater retention of control by the founders and original stakeholders. Also, the **lack of available company research** and insufficient liquidity discourage investors from investing in some listed securities. Securities issued by small or lesser-known companies, especially in the fragmented EU markets, often suffer from lower liquidity and higher illiquidity premiums[5]. This may be a direct result of investor perception, particularly among institutional investors who do not find these securities attractive. Additionally, institutional investors may be concerned about reputational risk when investing in companies listed on multilateral trading facilities, including SME growth markets, due to the absence of minimum corporate governance requirements for issuers in these venues. Access to EU public equity markets is further constrained by other factors such as **the more favourable tax treatment of debt over equity** and SMEs' lack of knowledge about capital markets.

Doidge, Karolyi, and Stulz (2017) argue that understanding the listing gap requires examining both new listings and delisting. Even if the rate of new listings had remained at the historical average, the U.S. would still experience a listing gap. This is primarily because, since 1996, delisting has increased at a higher rate than in the past, largely due to an unusually high level of **merger activity among public companies.** Generally, when two public companies merge, the combined entity often operates as a single public company and this consolidation reduces

[3] European Commission Newsroom Public Listings

[4] Financial Times – The club of City executives plotting a revival of UK' capital markets

[5] Euronext Equity: Liquidity Analysis

the overall number of listed companies. Also, large corporations have increasingly opted to buy their would-be competitors before they go public, a trend taking place in the US as well as in Europe. This means that many companies that may have gone public are instead shelved.

The role of the public market has also changed because **investors** themselves **have changed.** Institutional funds, which now account for over 40% of total stock ownership[6], previously operated like large public investors. They maintained diversification by employing numerous investment managers, each handling a range of highly liquid public securities. However, in recent years, **their investment approach has shifted towards more illiquid investments and private equity pools**. This shift in investment strategy reduces the necessity of broad public markets for these institutions and so does for corporations.

In the past, companies often went public to access large amounts of capital needed for expansion but today, there is a robust ecosystem of venture capital, private equity, and other private funding sources that enlarged in its scope. Previously, the US and UK were the sole fully developed markets in private equity transactions and continue to be among the most active markets for PE funds, however, over the past decade, the rest of Europe has experienced significant development and is now considered sufficiently mature and comparable to the UK (PwC, 2017; Bain & Company, 2018**). Where going public used to be a primary option for middle-market businesses, private equity now provides many of these same benefits.** This trend cannot be understated when explaining why companies choose not to go public or opt to delist.

In the current context where EU regulators, as well as various governments, are discussing significant reforms in capital markets, among which the creation of novel Capital Markets Union, **this thesis aims to investigate the simultaneous rise of private equity and decline in the number of listed firms and understanding the current equity financing preferences between private and public markets**. By **qualitatively** describing the interactions among companies and both public and private equity markets, we want to **understand the underlying reasons and implications of a certain equity financing preference**. Providing **quantitative** support to the analysis**, we seek to identify a negative correlation between private equity activity and the listing gap,** as the larger availability of private sources overcomes the benefits of being publicly traded, especially during turnaround phases.

[6] OECD 2023 – Institutional Ownership

Much of the literature on why fewer firms go public or are listed focuses on the idea that, for a variety of reasons, being listed is either costlier or less beneficial for smaller firms after the listing peak in 1996 than before (Weild and Kim, 2009, Djama et al., 2014, Gao et al., 2013). On the other hand, the first academic research on companies that voluntary retire their shares from the stock markets with the so-called Public-To-Private (PTP) transactions was released even before, in the 1980s, covering mainly US markets. Among the main strands in the literature, the most common is the motivation for PTP deals as a particular type of takeover. Jensen (1986) suggested that going private deals was driven by the need to return free cash to the shareholders. Empirical studies produced mixed results, both supporting (e.g., Lehn and Poulsen, 1989) and denying (e.g., Kieschnick, 1998; Halpernet al., 1999) such a hypothesis. Further studies enlarged the research of rationales to delist a company to undervaluation, fiscal advantages, and, more recently, restructuring, and corporate governance variables. Bharath and Dittmar (2006) confirmed the role of information burden and illiquidity as rationales for PTP deals.

Existing literature concerning private equity treats extensively how PE funds have historically outperformed public market indices after accounting for fees, however, when adjusting for risk leverage, and illiquidity, the persistence of this outperformance is less clear. The opaque nature of the asset class complicates performance measurement[7]. Other topics include value creation, and governance of the target companies, but we can only refer marginally to these when trying to study their impact on the number of publicly listed firms. Indeed, few economists have explored the relationship between private equity investments and the frequency of IPOs and delisting and there is no consensus in their conclusions. While some PE- backed firms successfully transition to public markets, the overall influence of PE can also lead to fewer IPOs due to the attractiveness of staying private under PE ownership (Ewens & Farre-Mensa, 2020), for Lattanziano, Megginson and Sanati (2023), PE activity does not increase the listing gap and even marginally reduces it. These studies were based primarily in the US and UK, while fewer studies have illuminated the field in a European context. The exact direction of this relationship remains unclear.

We aim to contribute to the existing literature by developing a linear regression model to predict the listing gap, similar to the approach of Lattanzio, Megginson, and Sanati, but focusing specifically on the investing and divesting activities of private equity. This thesis focuses on

[7] CFA Institute – The Economics of Private Equity

European markets, covering the period from 2005 to 2023, allowing for a detailed examination of regional characteristics. We combine the UK with the rest of Europe instead of treating them separately, as has been done in earlier literature.

In the first chapter, entry and departure from the stock exchange will be introduced in general terms. The topics of listing and voluntarily delisting, their processes, and the rationale behind the decision to undertake these transactions will be explored.

In the second chapter, we will dive into private equity (business model so to understand its fundamental principles, strategies, and operations. This will help us comprehend its impact on the broader economic landscape as discussed in the third chapter, where we analyze the topic of how private equity firms' activity has influenced, both directly and indirectly, the stock market over the years. The hypotheses discussed will be tested in our empirical analysis, which compares the net change of listed firms in Europe with the aggregate business operations of private equity in the region.

Finally, we provide the main findings, the limits of the analysis, and suggestions for further research.

Factors Influencing Listings and Delistings

How do firms become public entities?

For firms at a growing or mature stage, an **Initial Public Offering (IPO)** is often seen as a milestone to reach, as it enables them to raise substantial amounts of equity capital by getting access to a broad pool of investors thanks to the issuance of shares to the public for the first time. While IPO candidates vary broadly in terms of sector, size, and financial profile, they need to feature performance and growth attributes that public investors would find compelling. Preparing for a listing offers an important chance to clearly outline the company's strategy to investors, customers, and employees, and the collected funds can be allocated over different avenues such as technology advancement, research initiatives, new product development, infrastructure construction, market expansion, and acquisitions.

Prior to an IPO, the executive team needs to assess its readiness for such an operation, a preparation which is essential to a successful listing. For an assessment of a company's IPO prospects and market conditions, the company and its shareholders usually turn to investment banks. Starting with the banking syndicate, the company engages in informal discussions where the timeline, deal structure, and initial intrinsic valuation are presented by the corporate finance teams. A realistic timetable should consider business development, cash consumption, and market windows. After this, the structure of the syndicate and the terms of the transaction are clearly defined in engagement letters. The company may expand its IPO working group with external advisors, including a communications agency, legal advisors, and capital markets accountants.

Once started, the entire process from the decision to go public to the listing of shares on a stock exchange can take anywhere from six months to over a year because it entails meticulously reviewing and verifying all aspects of the company's operations, financial records, and legal standing to ensure accuracy and transparency to all market participants. This comprehensive due diligence feeds into the drafting of the key regulatory and marketing documents, most notably the prospectus or registration and roadshow materials. The registration statement completion timeline largely depends on the amount and nature of the comments received from the market authority.

Within the EU law, which oversees the proper function of public securities markets, the Prospectus legislation (Regulation (EU) 2017/1129), first adopted in 2003 and last revised in 2016, sets out the information to be disclosed in the listing prospectus, which is made available to investors when a company plans to issue shares or securities. It also creates a passport mechanism enabling the prospectus approved by the competent authority in one member state to be valid for public offers and admission to trading of securities in the entire EU. Entities issuing shares on public markets also have to comply with EU market abuse rules[8].

Only after its approval, the company can launch the offering and proceed with the Marketing and Roadshow stage. This is where the IPO gets marketed directly to investors the underwriters collect their non-binding indications of interest. This process is known as "book building". Investors submit their bids specifying the number of shares they are willing to purchase and the price they are willing to pay. The underwriters compile these bids into an order book, which provides a clear picture of demand at various price levels. Registered orders do not entail an obligation to purchase, but only an intention; they are however useful for the parties to get an idea of the success of the offer. Usually, most orders are transformed into purchases unless unexpected and unforeseeable events occur (e.g. the outbreak of war in Ukraine).

The final IPO price is determined based on demand at various points within a specified price range. Since demand typically decreases as the price increases within this range, the company must balance the amount of capital raised, its expected valuation, and the momentum it aims to generate. If demand is insufficient, at least 75% of the base share offering must be subscribed. If this threshold is not met, the offering is considered unsuccessful and will be cancelled. There are other, less common methods to determine the IPO price. For example, before the placement period, advisors and management may decide to adjust both the IPO price and the number of outstanding shares. The overall demand at this set price will determine the final amount raised, with a firm upper limit. Alternatively, a minimum price might be established before the placement. In such cases, the book-building process functions like an auction. If all goes well, pricing and allocation take place within one to three weeks from launch and the company's shares begin trading on a public stock exchange the morning after pricing.

While IPOs are a popular choice for business owners, they are not the only option for going public. In a **direct listing**, the company lists outstanding shares directly onto a stock exchange

[8] Invest Europe - Key Policy Area IPOs

without underwriters, thereby forgoing the traditional IPO roadshow and book-building process. This means that a company does not raise any new capital in a direct listing, which may limit the number and types of companies for whom it is relevant. Existing shareholders, such as founders, employees, and early-stage investors, are free to sell their shares on the stock exchange selected by the company (but are not obligated to do so). Similar to a traditional IPO, a direct listing requires the company to abide by all stock exchange requirements. This alternative route typically costs less and is quicker than the traditional IPO process. However, a direct listing does not guarantee the sale of a specific number of shares or ensure that the shares will meet market demand. Consequently, share prices may be highly volatile, and companies often do not raise new capital from the transaction. This method is therefore suitable for companies that do not need to increase capital.

Another route to a stock market listing is through a **reverse takeover,** where a private company acquires a public company, merges with it, and then offers its shares to the public. **Special Purpose Acquisition Companies (SPACs)** have become an increasingly popular method for private companies to go public. A SPAC is a company with no commercial operations that is formed strictly to raise capital through an IPO for the purpose of acquiring or merging with an existing company. The collected proceeds are held in a trust while the SPAC's sponsors seek a suitable target company, a choice subject to shareholder approval. This method provides speed and certainty, often concluding more quickly than traditional IPOs and avoiding some market volatility risks.

Understanding Listing Decision

The determinants of IPO decisions can be inferred not only from firms' ex ante characteristics but also from the ex-post consequences of such a decision (Pagano et al., 1998) and the finance literature outlines both the advantages and challenges of going public. First of all, when undertaking the process, timing is a crucial matter. The number of IPO offerings over a given period is strongly correlated to the performance of the overall stock market. The better the market, the more plentiful the IPO pipeline. Similarly, in a down market, the IPO spigot slows to a trickle or may shut off entirely. Even a highly compelling candidate would most likely choose to wait rather than launch into an unfavorable market and risk an unsuccessful deal. Always regarding timing, in theory, nothing prevents younger and smaller firms from going public, but they have lower visibility and short track records. Nowadays, solid numbers are no longer required to go public, and the IPO is increasingly used by expanding start-ups; these have often not even made a profit yet, but given the expectations of future growth are still very

attractive to the market. For this reason, the size of the company is a significant factor when studying the listing timeframe, and although the IPO is also used by start-up founders as an exit strategy, larger companies demonstrate a higher likelihood of going public (1998, Pagano, Pannetta, Zingales). Indeed, in highly developed capital markets such as the United States, only certain major corporations remain private entities. Conversely, in countries like Germany and Italy, publicly traded companies are less common, with many privately held firms surpassing the typical size of their publicly traded counterparts. Additionally, IPOs typically feature firms that have experienced accelerated growth and greater profitability before their public offering (Pagano, Panetta, and Zingales, 1998), as high profitability may be interpreted by investors as an indicator of a firm's quality. The profitability of a firm is often contingent upon the industry it operates in, which explains why IPOs tend to cluster within particular sectors. In recent years, Initial public offering activity has been heavily influenced by the rise of 'new economy' companies, with technology and financials dominating the listing activity on the leading exchanges.

No matter how or when a company decides to get listed, the main objectives of going public are to **strengthen its capital base, provide liquidity, make acquisitions easier, diversify ownership, and increase prestige**. Going into details, various theories pointed out that issuing public equity over increasing debt can positively affect the cost of capital, especially for capital-intensive and high-risk firms, that face the burden of higher interest rates. For instance, Diamond (1991) and Holmstrom and Tirole (1993) note that raising external equity allows companies to secure low-cost direct financing without relying on financial intermediaries like banks or venture capitalists. As already mentioned in the introduction, listing on a major exchange creates liquidity in the stock and makes share trading cheaper than informally searching for a counterpart (Booth and Chua, 1996; Bolton and Von Thadden, 1998). However, as the liquidity of a company's shares is a function of its trade volume, only companies that exceed a certain size may benefit from such liquidity gains. This creates another reason to predict that larger firms are more likely to attempt an IPO. Then, in light of the external growth strategy of the issuing company, going public can facilitate acquisitions by providing publicly traded shares that can be used as currency for purchasing other companies.

Zingales (1995) and Mello and Parsons (2000) contended that an IPO enables insiders to liquidate their holdings, while Ang and Brau (2003) show that insiders often sell shares during the IPO to realize personal financial gains. However, for Pagano (1998), when an independent company conducts an IPO, the initial owners typically divest only 6 per cent of their holdings

at that time, with an additional 1.3 per cent divested over the following three years, thereby maintaining a substantial majority stake. Last but not least, being listed on a public exchange enhances a company's reputation and can lead to better business opportunities and rally employees around a shared project thanks to stock option plans (Chemmanur, Thomas J., and Paolo Fulghieri, 1999).

There are also several disadvantages associated with being listed, starting with the opportunity costs that arise with the well-known issue of underpricing. Indeed, the prices selected for the IPO, as confirmed by numerous empirical evidence, are often underpriced. This means that whoever is going to buy the newly issued shares expects their price to rise the day after, which generates increased demand. The company issuing the shares then gives up some of the profit by selling the shares at a lower price but increasing the probability of success of the issue. The discount on the shares during the IPO is not always the same but mostly depends on market conditions, and it is generally around 10-15% of the fair value. Usually, volatile markets are characterized by more discounts to encourage investors, instead stable or growing markets have generally lower discounts.

Moreover, after companies get listed on a regulated market within the EU, they must comply with several key regulations and directives to ensure transparency, market integrity, and investor protection. Here are the primary ones:

- **The Transparency Directive** ensures that publicly traded companies in the EU are open and honest about their financial situation. Companies must publish annual and half-yearly reports detailing their financial performance and any significant changes. They must also disclose when shareholders' holdings reach certain levels, ensuring that the ownership structure is clear. This transparency helps investors make informed decisions and promotes trust in the market.
- **The Market Abuse Regulation (MAR)** is all about keeping the financial markets honest and fair. It prohibits insider trading (using confidential information for trading) and market manipulation (distorting market prices). Companies must disclose any inside information that could affect their stock price promptly and must keep lists of individuals with access to such information. MAR gives regulators strong powers to monitor, investigate, and penalize any dishonest behavior, ensuring a level playing field for all investors.
- **Corporate governance codes** set out best practices for how listed companies should be run, promoting transparency and accountability. Companies must include a statement in

their annual reports on how they comply with these codes or explain why they don't ("comply or explain"). These codes cover board structure, shareholder rights, internal controls, and executive pay, ensuring that companies operate in a way that protects the interests of all stakeholders.

- **The Corporate Sustainability Reporting Directive (CSRD)** significantly expands upon the previous Non-Financial Reporting Directive (NFRD). It requires a broader range of companies to provide detailed reports on their environmental, social, and governance (ESG) impacts. The CSRD mandates that companies disclose information about their sustainability risks and opportunities, their impact on the environment, human rights, and social standards. This comprehensive reporting aims to make corporate sustainability efforts more transparent and comparable, thereby enabling investors and other stakeholders to make more informed decisions. By integrating sustainability into corporate reporting, the CSRD helps promote responsible business practices and aligns with the EU's broader sustainability goals, such as the Green Deal and the Paris Agreement.

There is a significant cost and effort involved in meeting such regulatory requirements, as they imply stringent reporting and disclosure obligations, which can be both time-consuming and expensive. Key costs involve paying the listing fee to the stock exchange, handling the administrative burden of necessary filings, and managing expenses related to required disclosures. There are also regulatory fees and the costs of keeping public shareholders informed. For instance, the initial compliance for an IPO typically costs around $2.5 million, and ongoing annual compliance costs are approximately $1.5 million[9]. Then, initial listing fees can range from $150,000 to $295,000, with additional annual fees depending on the number of shares listed[10]. Regular audits are essential to ensure that financial statements meet regulatory standards, but fees alone can range from $500,000 to over $1 million annually, depending on the company's size and complexity. Legal fees for drafting and filing necessary documents, ensuring compliance with securities laws, and handling any legal issues that arise from being a public entity can also be substantial.

Going public often necessitates hiring additional staff, especially in the finance and legal departments, to manage increased regulatory and reporting demands. Companies might also need to upgrade their IT infrastructure to support the robust internal controls required under

[9] IPOHub - The costs of going public
[10] Nasdaq Rule 5910(a) (Entry Fee)

SOX. PwC estimates that staffing and infrastructure upgrades related to an IPO can cost over $1 million annually (IPOHub) (GovInfo). Ultimately, some theories suggest that the need to disclose crucial information about technological innovations and marketing plans during the IPO process might discourage companies from going public (Campbell, 1979; Yosha, 1995; Maksimovic and Pichler, 2001). Therefore, if going public means revealing proprietary information, firms with high R&D intensity are less likely to pursue an IPO.

In addition to regulatory burdens, public companies have to deal increased expectations from shareholders and analysts. This scrutiny can create pressure on management to prioritize short-term performance to meet earnings expectations, sometimes at the expense of long-term strategic goals. Because the public market for the company's shares provides an unquestionable valuation of the company's daily, results from quarterly earnings reports, industry developments, macroeconomic trends, and investor sentiment are embedded in the company's stock price and market capitalization, leading to a sometimes-unpredictable valuation environment.

Why do some public companies step away from public markets?

Given the economic conditions experienced globally over the last several years, the costs related to being a public company and the ever-increasing regulatory requirements applicable to public companies, many small and mid-size public companies, as well as foreign private issuers, are considering ways to eliminate the costs and regulatory burdens of being a public company through the deregistration process. More precisely, delisting refers to the removal of a company's shares from a stock exchange, it entails a formal process and typically involves a buyout of shares at a predetermined price. The size of this phenomenon is worth of attention, as since 1995, more than 9,000 firms have been delisted only from U.S. stock markets, with some choosing to step away voluntarily, while almost half of these were forced on by the exchange platforms and markets that had courted their listings. Therefore, in order to clear out the nature of this transaction, a distinction must be made between voluntary and involuntary delisting since the operation can either be decided by the management or caused by external factors.

Involuntary delisting happens when companies cannot comply with certain standards, including regulation violations like financial fraud and not filing reports on time. At a broad level, Article 32 of MiFID II outlines the conditions under which financial instruments can be suspended or removed from trading on regulated markets, multilateral trading facilities (MTFs),

and organised trading facilities (OTFs) inside the European Union. These conditions include instances of market manipulation, insider dealing, or when the issuer fails to meet regulatory requirements set by National Competent Authorities, which might vary across EU countries.

Noncompliance also involves failure to meet standards like pre-tax earnings, revenues, total assets, and cash flows (Harris & Panchapaegesan 2008; Macey et al. 2008). If companies are unable to meet their financial obligations, they may file for bankruptcy protection, leading to the cessation of trading in their securities and eventual delisting from stock exchanges. Both the former and the latter lead to severe penalties and may be forced to delist because of their actions, with far-reaching consequences for their reputation and long-term viability.

Trading standards such as market capitalization and stock price also play a significant role in maintaining listing eligibility. A declining stock price or market capitalization may signal underlying issues within the company or broader economic challenges that could impact its ability to sustain operations. Falling short of these benchmarks may trigger involuntary delisting, as it indicates potential financial instability or inadequate business performance. While some companies manage to boost their stock prices through these extraordinary measures, the fact that this strategy is rarely used indicates that the costs are just too high for most. For these companies, involuntary delisting becomes inevitable.

Additionally, when trading volumes are irregular and driven by bursts of information, it becomes expensive for exchanges to list companies, and market makers may find it hard to profit. Since exchanges make their money from trading fees, it is important that trading activities do not result in losses for them.

When a company falls under one or more of the circumstances described previously, it will receive a warning from the exchange where it is listed. The warning usually comes with a deadline, which gives the company some time for adjustments and if non-compliance remains by the deadline, the exchange will delist the company's stock. Delisting rules help maintain the trust and prestige of being listed on a particular exchange, therefore, by removing companies that do not comply with their standards, exchanges ensure that all listed firms meet their requirements and guarantee investors the integrity of the companies on the exchange. For this reason, the company is normally a passive participant in the cancellation because it is in a condition in which it is unable to take suitable action to avoid a withdrawal order issued by the competent authority.

Conversely, for **voluntary delisting,** the company essentially needs to buy back a certain percentage of shares from the total outstanding. This threshold is decided by the exchange. To buy these shares, a bidding process occurs. A fair price is negotiated and announced to the public, and the company pays up within a specified deadline to see its delisting through. To convince investors, the company will usually have to pay them a premium to the current share. It generally follows the conclusion of public takeover bids, a request for voluntary exclusion presented by the listed company in compliance with the relevant legislation, or buybacks that reduce the free float below the required minimum, commonly the 25% for securities traded that do not constitute the controlling interest. In the case of a pure going private transaction, the issuer usually becomes an unlisted company while still maintaining its independent legal status. However, the company may lose its independent legal status due to a merger and continue to operate as a public company.

Regulatory bodies in each EU country, such as CONSOB in Italy, CSSF in Luxembourg, and AMF in France, play a crucial role in overseeing delisting processes. They ensure that the interests of minority shareholders are protected and that the delisting is conducted transparently and fairly. All EU countries must have measures to protect minority shareholders during delisting as MiFID II strengthens investor protection by requiring firms to provide clear and comprehensive information about financial products, including the risks associated with them. This is particularly relevant during the delisting process, where investors need to understand the implications of the mandatory takeover bids, offering fair prices for shares, and allowing shareholders to exercise withdrawal rights if they disagree with the delisting.

In many jurisdictions like France, a simplified takeover bid allows the bidder to squeeze out minority shareholders, leading to delisting. As an extraordinary event that modifies company bylaws, shareholder approval is a common requirement for delisting. In Denmark, a delisting decision must be made at a general meeting with at least 90% of votes cast and represented capital. Similarly, in Austria, a supermajority of 75% is required for delisting from the regulated market segment. Delisting often involves public takeover offers and squeeze-outs to ensure that remaining shareholders can exit at a fair price. In Germany, delisting is permissible only if a public offer is made to all remaining shareholders.

Delisting processes involve regulatory approvals and detailed disclosures to ensure transparency. In Luxembourg, the intention to delist must be fully disclosed in any takeover bid document and discussed with the Luxembourg Stock Exchange in advance. CONSOB (the

Italian Securities and Exchange Commission) will not oppose the delisting of an Italian company listed on an Italian financial market organized by Borsa Italiana S.p.A., provided that adequate protection is ensured for the investors and security holders of the company going private. (this regulatory overview is sourced from Baker McKenzie)

In some cases, like when companies are delisted from major U.S. stock exchanges like the NYSE or NASDAQ, they often move to trading on the over-the-counter (OTC) market, commonly known as "pink sheets", where trades happen via a broker-dealer network instead of on a centralized exchange. When companies are delisted from one market but continue to trade in another, the transaction is called "going dark" or "deregistration" and implies that a company voluntarily delisting from a public exchange without buying out its shareholders. While the company remains technically public and its shares can still be traded OTC or in other listing venues, with shareholders retaining ownership, the liquidity and market visibility of the shares decrease substantially.

Within the OTC market, there are two main segments: the client market and the interdealer market. In the client market, financial intermediaries, known as dealers, trade directly with companies and institutions. In the interdealer market, these dealers conduct financial transactions among themselves. Compared to regulated markets, OTC markets have some distinct characteristics. Unlike traditional exchanges, OTC markets do not have a central physical venue where all transactions occur. Trading is decentralized and often conducted electronically or over the phone. Information in OTC markets is not disseminated through an official stock exchange. Instead, data about trades and prices is shared directly between parties or through third-party platforms. There is no public and transparent order book in OTC markets. This means that buy and sell orders are not visible to all market participants, which can lead to less price transparency. Each transaction can be customized to meet the specific needs and agreements of the parties involved, providing greater flexibility but also increasing complexity. Issuers of securities in the OTC market are not subject to the same stringent disclosure requirements as those in regulated markets. This can result in less publicly available information about the securities and their issuers, potentially increasing the risk for investors. For all these reasons, OTC stocks often have less liquidity, meaning there are fewer buyers and sellers, which can lead to higher volatility and wider bid-ask spreads because they are considered riskier investments due to lower regulatory oversight and transparency.

In the EU, despite the concept of "going dark" not being as commonly referred to as in the U.S., OTC Real Liquidity trades represented approximately 16% of all European equities' turnover[11]. OTC markets, such as the Börse Berlin or the EuroTLX in Italy, are becoming increasingly popular, as European traders are moving away from traditional exchanges towards alternative execution mechanisms due to liquidity concerns[12].

These markets offer a platform for trading securities that are not listed on major exchanges, serving as an accessible option for companies that either do not meet or choose not to maintain the stringent requirements of larger exchanges. By participating in these markets, companies can reduce their reporting obligations, making it a practical and less burdensome alternative for smaller or financially constrained businesses.

To conclude, we can say that a successful going private transaction primarily requires (i) the promoter equity shareholding to touch at least 90% of the aggregate paid-up equity share capital, and (ii) acceptance of the price discovered through the Reserve Book Build Process (RBB) by the promoters who launched the delisting offer. In either a going private or going dark transaction, obtaining a fairness opinion from an independent advisor is considered best practice, because it is seen as a shield against shareholder dissension. The main purpose of a fairness opinion is to determine whether the terms of a deal are fair to the shareholders – particularly minority shareholders. In both a going private and a going dark transaction, the success of the delisting proposal is heavily dependent on gathering sufficient public shareholder interest in the proposal, and the price at which the highest number of shares are tendered by public shareholders, which can make delisting a very expensive affair.

Understanding Delisting Decision

For the scope of our analysis, we will not address involuntary delisting, as it is not a choice but rather an obligation imposed by the exchange or regulator. Therefore, whenever we mention delisting, we will refer exclusively to voluntary transactions, without considering whether the companies continue trading their shares over the counter. It is important to understand that going dark and going private are distinct events with different determinants and economic consequences, however, the choice is partially motivated by the same reasons that drive

[11] AFME – The nature and scale of OTC equity markets
[12] Global Trading – European Equity trading is shifting to alternative mechanisms and liquidity concerns

delisting, and here we won't make a distinction. Later in Chapter 3, going private transactions will be further analysed in the circumstance where the acquiror is a financial one. If the decision to go public is a trade-off between the costs and benefits of listing, the delisting decision is also likely to be taken when the costs of listing exceed the benefits. When conducting this analysis, it is important to reconsider why the company went public initially and whether those reasons still apply. For example, if the company uses its public status to trade its stock for acquisitions, raise capital, or enhance its reputation, then deciding to delist might not be the best move. To understand the motives for the decision to go private, much research has been made about the differences between voluntarily delisted companies and companies that maintain the quotation. Companies in the process of going private exhibit distinct characteristics that set them apart from their publicly traded counterparts.

Dahiya and Klapper (2007) found that **lower profitability** is often associated with firms that choose to delist, as these firms may struggle to meet the financial and regulatory demands of public listing. Aslan and Kumar (2010) supported this by showing that firms with declining profitability often consider delisting to avoid the high costs associated with being publicly traded. Michelsen and Klein (2011) also highlighted that companies with lower profitability might opt for delisting to restructure and improve their financial health without the pressure of public scrutiny. Kashefi Pour and Lasfer (2013) similarly indicated that less profitable firms tend to delist to reduce the compliance and administrative costs, which are burdensome when profits are already low. Kieschnick Jr. (1998) highlights that **smaller firms** often lack the resources to bear the regulatory costs and compliance burdens associated with being publicly traded, prompting them to delist. Similarly, Gleason et al. (2007) find that smaller firms are more likely to delist because the benefits of public listing do not justify the costs for them. Michelsen & Klein (2011) also note that smaller firms may opt to delist as a strategic move to cut costs and focus on restructuring without the pressure of public scrutiny. The operational burdens associated with maintaining public company status, including compliance costs and annual listing fees, can hinder operational efficiency and divert substantial resources away from core business functions. The ability to turn around strict national exchange standards sometimes allows for greater flexibility in directing resources toward strategic priorities. As we saw previously, on-going annual public company costs are estimated at $1 to $3 million on average and many companies also hire an investor relations executive or outsource this function to a professional IR firm.

The relationship between **lower growth prospects** and voluntary delisting is explored in studies by Lehn & Poulsen (1989), Marosi & Massoud (2007), and Kashefi Pour & Lasfer (2013). These studies generally indicate that firms with lower growth prospects are more likely to delist voluntarily as they no longer see the benefits of public listing justifying the costs. Michelsen & Klein (2011) and Belkhir et al. (2013) offer contrasting views on the significance of growth prospects, indicating that these factors may vary widely depending on the specific context and conditions of each firm.

Regarding free cash flow, Lehn & Poulsen (1989), Lee et al. (2010), Michelsen & Klein (2011), and Belkhir et al. (2013) find that firms with a **greater amount of free cash flow** are more inclined to delist. This is often because these firms can finance their operations without needing public equity markets, making the regulatory burdens of public listing unnecessary. However, other studies such as Eddey et al. (1996), Kieschnick Jr. (1998), and Weir et al. (2005b) provide opposing findings, suggesting that the level of free cash flow does not significantly influence the decision to delist.

The study by Kashefi Pour and Lasfer (2013) indicates that firms with **relatively high leverage** are more likely to delist voluntarily. Their research shows that such companies often come to the market to rebalance their leverage rather than to finance growth opportunities. Throughout their public tenure, these firms maintain high levels of debt and insider ownership, which limits their ability to raise equity capital. This financial structure makes the regulatory and operational costs of remaining public less justifiable, prompting them to opt for delisting.

Kieschnick Jr. (1998) discusses the **tax-shield effect**, where companies might leverage future tax deductions related to the delisting transaction to reduce their taxable income. This potential benefit can influence the decision to delist voluntarily, as it provides a financial advantage. However, Belkhir et al. (2013) find no significant relationship between delisting and the tax-shield effect, suggesting that other factors might be more influential in the decision-making process for these companies.

The **presence of non-optimal governance structures** is highlighted in studies by Weir et al. (2005b), Charitou et al. (2007), and Belkhir et al. (2013) as a factor influencing voluntary delisting. These studies suggest that firms with governance issues, such as poor management practices or lack of effective oversight, may choose to delist in order to restructure and address these internal inefficiencies away from the public eye. This move allows them to potentially improve their governance without the pressure and scrutiny of public market regulations.

Thomsen and Vinten's research show that companies are more likely to delist voluntarily when there are **strong protections for minority investors**, as measured by the minority investor protection index (La Porta, 1998), which reflects the quality of corporate governance. In other words, better corporate governance and investor protections lead to more frequent voluntary delistings. On the flip side, this also means there are fewer cases of companies going bankrupt or being liquidated, which reduces the number of involuntary delistings. Studies by Weir et al. (2005b), Weir & Wright (2006), Charitou et al. (2007), and Marosi & Massoud (2007) indicate that **higher board ownership** is associated with a greater likelihood of voluntary delisting. When board members hold a significant portion of the company's shares, they might prefer to delist to gain more control and reduce the costs and scrutiny associated with public markets. This increased ownership aligns the board's interests closely with the company's long-term strategy, often leading them to favour a private setting.

The **market undervaluation** of a firm is frequently cited as a factor driving voluntary delisting, as noted in studies by Weir et al. (2005b), Weir & Wright (2006), Charitou et al. (2007), Lee et al. (2010), Michelsen & Klein (2011), and Belkhir et al. (2013). When a firm's stock price does not reflect its true value, management may choose to delist to protect shareholder value, restructure without public market pressures, and possibly relist later at a more favorable valuation. This strategy can help address and correct perceived market inefficiencies.

Nevertheless, the decision for a company to renounce its status as a publicly traded company is a multifaceted one and amidst these apparent benefits, a careful evaluation of potential downsides is crucial. Foremost among these concerns is the spectre of reduced liquidity and the subsequent risk of a decrease in share price. Additionally, the process of deregistration is not without its challenges. Companies have to deal with a labyrinth of regulatory requirements and potential legal hurdles, including the threat of stockholder litigation and the risk of reputational damage.

The movement of companies in and out of public equity markets can be likened to "sliding doors," as firms frequently transition between public and private statuses. These transitions often reflect the evolving strategies and circumstances of the companies involved. When the benefits of being public no longer outweigh the costs and regulatory burdens, these firms may choose to delist. Later, if conditions change or new opportunities arise, they might decide to re-enter the public markets. This dynamic demonstrates the fluid nature of public equity markets,

where the doors remain open for companies to enter or exit as their circumstances and strategic objectives evolve.

In summary, firms often choose to delist voluntarily due to several strategic and financial factors. At its core, lower profitability and the high costs of maintaining public status can make delisting an attractive option. Smaller firms, in particular, may find the regulatory and compliance burdens too heavy compared to the benefits of being publicly traded. Companies facing declining growth prospects or high leverage may also opt to delist to better manage their finances without public scrutiny. Additionally, firms with ample free cash flow may not need the public equity markets and can avoid the associated regulatory demands. Issues with governance and market undervaluation can further motivate a firm to go private, allowing management to restructure and align the company's strategy without the pressures of public market expectations. On the other hand, the erosion of liquidity may impair the company's ability to raise capital or utilize equity as a tool for acquisitions and compensation, thus limiting strategic options for growth and expansion.

The Role of Private Equity Players

Aside from the stock market, the other prominent source of equity financing for companies lies in private equity firms, entities that invest in corporations by purchasing an equity stake from the company and later selling off their interests to achieve financial gains. By acquiring another firm generally at a significant premium over its current market price, and then making improvements in its performance sufficient to justify the purchase premium, the managers of the buying company prove they are better at managing and improving businesses than the managers of the company they bought and any other companies that might have considered buying it. This brings us to the concept of market of corporate control introduced by finance professors Michael Jensen and Richard Ruback during the initial wave of debt-financed hostile takeovers and leveraged buyouts in the U.S in the early 1980s. They defined it as "the market in which alternative management teams compete for the right to manage corporate resources." Since that time, the private equity market has expanded dramatically, leading to increased competition between corporate (or "strategic") buyers and "financial" buyers for acquisitions.

Nowadays the private equity industry has become a major player in the economy, moving from USD 600 billion in 2000 to USD 4.4 trillion 20 years later, and it is anticipated it will exceed USD 9 trillion by 2025. In the United States, the number of private equity-backed firms has surpassed 8,000 (from approximately 4,000 in 2006), which is nearly double the number of publicly traded firms (Bloomberg Businessweek, 2019, 2020). Indeed, a study that covered 20 industries in 26 major nations finds that in a given year and country, 4% of the average industry (as measured by sales) is acquired by private equity, which in turn holds these investments for a median period of more than five years (Bernstein, Lerner, Sorensen, & Stromberg, 2017). These statistics translate into an extensive amount of deal activity.

The European private equity landscape has also evolved remarkably over the past few decades, becoming a vital part of the region's financial ecosystem. As regulatory frameworks across Europe have been harmonizing and maturing, they represent a stable foundation for the growth of private equity investments. European PE firms now engage in a wide array of sectors, from technology and healthcare to manufacturing and retail, reflecting the continent's diverse economic structure.

This chapter investigates the business model of a private equity firms and how they provide value to their investors.

Understanding the Business model

The pace of investments in PE has continuously grown across the globe, so by examining the underlying structure of PE firms as well as their strategies and mechanisms, we can understand their role in driving corporate restructuring, fostering innovation, and generating financial returns.

First of all, although fund managers in Europe are subject to the requirements of the AIFM Directive, the legal form of private equity funds is far from standardized. Usually, the General Partners (GPs) have unlimited liability for the investment whilst the Limited Partners (LPs) who are liable only for the amount of capital they have provided and do not play an active role in the management of the investments.

The legal structures relating to private equity investment funds vary from country to country but there are two main types: funds with a limited lifespan, in general ten years, and funds with an unlimited lifespan. The former is the most common, based on a partnership agreement between the institutional investors and the investment fund management team. The most national forms used are the Anglo-Saxon Limited Partnership, the FCPR (Fonds Commun de Placement à Risques) in France and other similar forms such as the SICAR (Luxembourg), the Private PRICAF (Belgium) or the Italian Fondo Chiuso.

After securing approval from the relevant authorities, private equity managers create investment funds that gather capital from investors. Asset management firms of this kind often manage several funds, each a legal entity with distinct managers. Typically, the former is a separate entity owned by the sponsors that manages all their funds, centralizing the management of fund families and concentrating the enterprise value in a single entity. Every fund needs to define an **investment strategy**, i.e. the plan that guides the funds' decisions on where, how, and when to invest. The AIFM directive does not provide a positive definition of private equity objectives, instead, the description of the investment strategy is left to the fund manager's discretion when reporting to the regulator.

In order to set up a fund, private equity managers invite institutional investors like pension funds, insurance, sovereign wealth funds, and high-net-worth individuals with specialized knowledge or substantial assets to invest in a fund for a fixed term, typically around ten years, according to a specific investment strategy, which may be based on factors such as the size of the target companies, their sector, development stage, and/or geographic location. Some shareholders might come from the public sector too, and their capital comes mainly or totally,

directly or indirectly, from public bodies. During the fundraising stage, which typically lasts for six months to one year, it is essential to remain competitive on fees. This period of dialogue with potential shareholders is crucial, as some operational variables of the fund, such as fee the structure, can significantly influence their decision to invest.

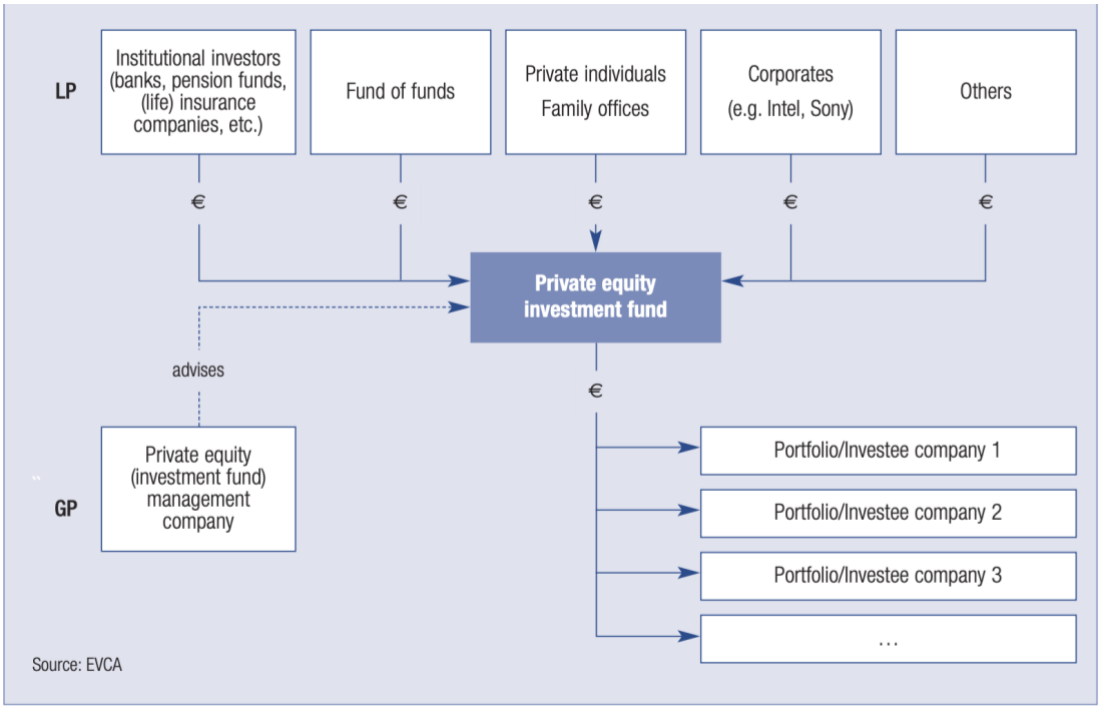

Figure 1 The private equity business model

Private equity, like many other private market strategies, takes an active management approach. This means that when performance is strong, investors might find themselves paying higher fees than they would with passive strategies found in mutual funds. In the case of mutual funds, investors are charged an annual fee based on the total asset value, regardless of how the investment performs. On the other hand, private equity fees are linked to the fund's performance: if the fund does not meet its target returns, investors pay lower fees, but when it does well, they end up paying higher fees. This dynamic can make investing in private equity quite different from investing in mutual funds. The pricing of private equity fund management services is distinctively tailored to the industry. In particular, in the Anglo-Saxon model, fees are charged by the fund management company and the GPs based on the rights and obligations associated with their class of fund units. These fees are collected not only from the Limited Partners (LPs) but also, where applicable (notably for Leveraged Buyout funds), from the target companies, for instance, for monitoring services. They generally comprise both fixed and variable components:

The management fees constitute the bulk of fixed income, collected throughout the life of the fund, and are often determined by a fixed rate of 2% per annum. They are usually based on committed capital during the investment period (e.g., the first five years) and then on the Net Asset Value (NAV) or amounts invested during the divestment period (e.g., the following five years). Over a 10-year lifespan, these costs can represent more than 20% of the capital employed. However, there are variations, such as degressive rates that may decline after the investment period (e.g., by 25 basis points after five years) and changes in the base from committed capital to net capital invested after the original investment period. A study by Metrick and Yasuda (2010) documented median fixed fees of 12% for PE funds and 17.75% for venture capital funds, with low dispersion around the median. In practice, at least in Europe, attendance fees received from target investment companies are typically deducted from the management fees of the relevant funds.

The carried interest remunerates positive fund performances and constitutes most of the variable fees. It generally involves an investment by the management teams in the fund, aligning their interests with those of the investors. The level of carried interest depends on several criteria: the calculation base (e.g., the cumulative disposal value of the fund's investments minus the committed capital), the applied rate (20% is standard), the minimum performance level (hurdle rate) required to collect these fees, the potential spreading of fee collection over time according to a fixed schedule.

Carried interest is typically debited only after the LPs have recouped all committed capital and reached the hurdle rate, as per a contractual schedule (waterfall) that specifies the order of priority of distributions among fund managers and LPs, with the expected investment outperformance threshold around 8%. Contractual provisions may allow for early fee collection, such as in some US venture capital funds, and may include clawback provisions in case of subsequent underperformance of the fund.

When an PE fund buys or sells shares of a target company, it may invoice **transaction fees** for the execution service rendered, typically ranging from 1% to 2% of the transaction value, covering underwriting and arrangement fees. These costs are often borne solely by the LPs but can also be shared with the GPs as per a pre-established breakdown (e.g., 50/50).

Then**, monitoring fees** can be charged to portfolio companies (typically 1% to 5% of their EBITDA annually), these fees remunerate the fund's management of the companies and indirectly affect the LPs by reducing the fund's investment performance.

Fees directly impact the net returns for investors, as they can significantly affect the overall investment outcome. Begenau and Siriwardane (2022) noted that while US venture capital funds are in strong demand with less pricing fluctuation than PE funds, substantial differences in fees charged to US public pension funds indicate that fee levels heavily depend on investors' bargaining power, giving sponsors significant discretion in pricing.

Once the private equity fund has concluded its fundraising, it has secured the capital commonly referred to as "dry powder" to make investments in potential target companies. During this stage, also called **deal sourcing**, funds examine a wide range of potentially suitable companies for their investment strategies, evaluating criteria such as financial performance, business model, growth potential, and the ability to generate long-term value. Sponsors and/or managers typically invest alongside the fund's investors.

The **investee companies** can either be mature companies or younger ones (usually then focusing on more specific innovation). All sectors of our day-to-day life are covered: from health to all types of industrial companies, from tech to agriculture, and from food and energy to communication and transportation. If focusing on the early moments of a business's life cycle, private equity firms might engage in seed-stage financing or venture capital investments, and capital is mainly required for research and development of the product and to train personnel, especially in technology sectors such as electronics, IT, life sciences, or biotechnology. Recent observations support that private equity firms have shown a tendency to overweight innovative sectors such as technology and healthcare/biotech.

The risk of failure for these companies is at the highest due to uncertainties associated with market acceptance and PE investors need to be stringent in their choice of projects, therefore, they actively take part in the targets' operations, providing not just capital but also expertise, guidance, and access to networks to help these young companies to grow. Fewer funds remain purely generalist, meaning they lack sector or business-type specialization. The majority of private equity funds have opted to specialize in specific industrial sectors, services, and companies at particular stages of development, of a certain size, or within a specific geographical area (regional, national, or otherwise indicated).

When the target is a business beyond the startup phase, either it approaches or has reached the breakeven point, the expectation of PE firms toward their investment changes. While growth remains a key objective, PE firms place greater emphasis on achieving sustainable growth that is balanced and scalable. They aim to expand the business in a way that maximizes long-term

value without sacrificing profitability or stability. At this stage, PE firms would rather prioritize improving the target company's financial performance, with a focus on profitability and positive cash flows. They may work with management to optimize cost structures, enhance revenue streams, and increase operational efficiency to drive bottom-line results. More mature companies may encounter other risks like scaling operations, competition, market saturation, or economic downturns. In this thesis, we will refer not to seed financing nor to venture capitalists.

PE investors may provide **growth finance** in exchange for a minority stake in the company, whilst **buyouts** involve a change in company ownership through the PE investor taking a majority stake and managerial control. Private equity firms are well-known for their skill in pulling off **leveraged buyouts (LBOs)**, where they buy companies using a mix of their own money and a lot of borrowed funds. Leveraged buyouts are a specific type of buyout where acquisitions are primarily funded through borrowing, often using the target company's assets as collateral for the loans, and entail complex financial engineering for purposes of tax, legal and regulatory optimization. This strategy allows the PE firm to gain control with a relatively small equity investment. The goal is to improve the company's performance and value, using the increased cash flow to repay the debt, ultimately aiming for a profitable exit through a sale or public offering. The fund's gross return is based on the fund manager's ability to influence the management of the target companies and on the investments' exposure to leverage, and while these transactions can offer high returns, they also carry substantial risks due to the high leverage involved. There are also private equity firms specializing in **distressed investments** which actively seek out companies facing financial hardship. These situations may include bankruptcy, insolvency, or severe financial difficulties. The goal of this strategy is to acquire these troubled entities at a significant discount, restructure or turn them around, and ultimately sell them at a profit.

The size of the PE investment is linked to the company's stage of development and debt market terms. Private equity investors often take a substantial share in very young companies because they supply capital that is very difficult to raise from traditional sources (such as banks) and because they are heavily involved in setting up the operation. Very young companies require great assistance because the head of the company has to divide his time between product development and more general management. Here, the support of private equity investors is very important. However, the amounts invested are smaller than in development or subsequent stages.

During buyouts, private equity investors are also often majority stakeholders in the companies. However, they can be minority stakeholders during the development stage if the company is already active and is looking for capital to "complete" its development. But regardless of the size of the initial stake, agreements often allow for equity to be returned to the investee company managers or entrepreneurs when they have achieved certain objectives. In this way, the private equity investor can move from being a majority stakeholder to holding a minority stake.

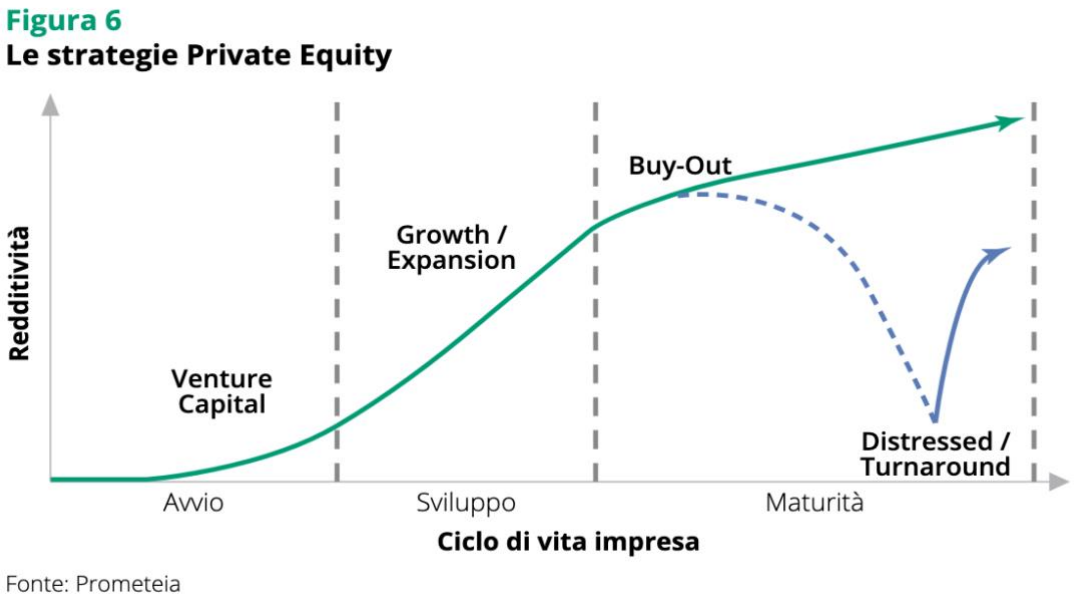

Figure 2 Private Equity Strategies along company lifecycle

Finally, at the end of the investment horizon or upon the fulfillment of certain targets, PE firms need to cash out the realized value created during the holding period of a portfolio company. This phase not only marks the culmination of the investment lifecycle but also serves as a critical determinant of the overall success and profitability of a private equity investment.

Exiting portfolio company investments is one of the most critical choices faced by private equity funds, yet little is known about the timing of exit decisions or the choice of the exit route. Various exit strategies are available to fund managers including a trade sale, which is the sale of the company to another PE firm or a secondary buyout for a medium or large portfolio company. Another way to exit is an initial public offering. A more recent exit strategy is for the portfolio company to pay a preferred dividend to the PE fund in order to repay the initial invested amount. This strategy is also known as a dividend recapitalization, which is sometimes financed with additional debt. Previous research has tended to focus on the IPO as an exit route (Lerner, 1994, Murray, 1994, Barry et al., 1990, Giot and Schwienbacher, 2007). However,

IPOs are relatively uncommon, with the vast majority of private equity exits being trade or secondary sales.

Upon exiting an investment, the recovered amount is typically redistributed to the capital providers rather than reinvested. Institutional investors are the first to receive their share of the profit as compensation for committing their capital over the investment period. Any surplus profit above the so-called hurdle rate, i.e. the minimum rate of return that an investment must achieve to be considered acceptable, is divided between the fund managers and the other investors. After a period of ten years, which can sometimes be extended to twelve years, all investments within the portfolio must be divested, and the investment fund must be liquidated.

Value Drivers and Returns

According to the literature, the performance of private equity funds is driven by financial gains from three main sources. First of all, **valuation effects from operational management improvements** are associated with both organic and external growth, such as restructuring the production base (through asset disposals, etc.) or mergers and acquisitions. Gains in operational performance are also due to reduced agency costs, primarily achieved through the disciplinary effects of governance, which include: aligning incentives of general partners (carried interest), portfolio managers (co-investors), and managers of target companies, management and oversight by sponsors due to their ownership stakes in target companies, specific managerial skills of managers (Kaplan S., M. Klebanov, M. Sorensen, 2012), creditors' oversight of firms, combined with high levels of debt.

Secondly, market valuation effects reflect changes in overall or sector-specific economic conditions and potential frictions and imbalances between supply and demand for financing. Guo S., E. Hotchkiss, and W. Song (2011) highlighted the significance of market/industry valuation relative to operational management. There are growing concerns that the increase in LBO valuation multiples in recent years might indicate excessive yield-seeking behavior by institutional investors competing for private equity access. They are potentially driving up prices due to their competition to access these investments in the hope of achieving higher returns, possibly leading to inflated valuations.

Lastly, private equity is renowned for its use of **leverage**. Since debt is generally less expensive than equity, Leverage at an optimal debt ratio level can maximizes a firm's value while considering default risks. Additionally, the interest paid on debt is tax-deductible, providing a

tax shield that can boost the cash available for paying down debt or distributing to equity investors. Performance gains from leverage are linked to the risks it entails.

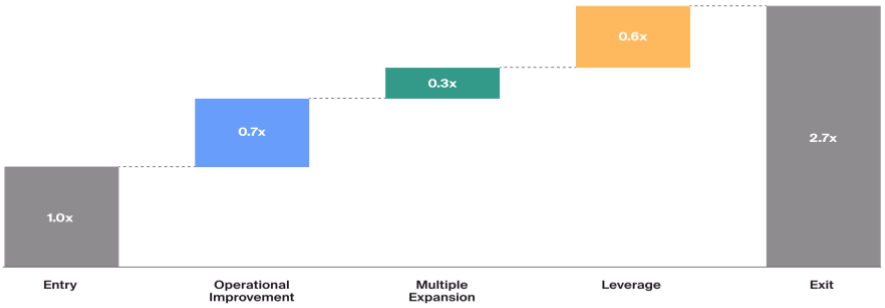

Figure 3 Value bridge approach offers a high-level view of how equity investments in portfolio companies have accreted value. Source: Cais Group[13]

Guo S., E. Hotchkiss, and W. Song (2011) found that 22.9% of returns from leveraged buyouts (LBOs) were due to changes in operating performance, 17.7% were attributed to changes in industry valuation multiples, and 33.8% resulted from tax benefits associated with increased leverage. On the other hand, according to Bain (2022) and CEPRES Market Intelligence, multiple expansion has been the dominant contributor to private equity buyout returns over the past decade, surpassing revenue growth and margin improvements as sources of value creation. This trend has intensified over the last five years. From 2010 to 2015, multiple expansion accounted for 48% of value creation in the average deal, but this figure rose to 56% from 2016 to 2021.

The proportion of returns coming from these sources can vary significantly from one target company to another. At the portfolio level, private equity firms use a combination of financial and operational performance indicators to assess their ability to generate value.

The Internal Rate of Return (IRR) is crucial as it reflects the annualised rate of return over a specified period, factoring in the timing and magnitude of cash flows. According to Preqin, IRR is a widely used measure in private equity, with many fund managers targeting IRRs between 20% and 30% for venture capital investments, depending on the investment stage.

[13] https://www.caisgroup.com/articles/evolving-drivers-of-private-equity-value-creation

The **Multiple on Invested Capital (MOIC)** provides insights into the total value returned relative to the amount invested, calculated by dividing total distributions by invested capital. While IRR focuses on time-weighted returns, MOIC provides a simple measure of absolute return, which is crucial for evaluating the fund's overall profitability. In private equity, MOICs of 2x to 3x are often considered successful, though this varies by fund type and market conditions.

Distributions to Paid-In Capital (DPI) measures the cash returned to investors against their contributions, while **Residual Value to Paid-In Capital (RVPI)** assesses the current value of remaining investments relative to the invested amount. DPI is particularly important for investors looking to assess the liquidity and realized returns from private equity investments and, according to Cambridge Associates, top-performing funds often achieve DPIs of 1.5x or greater over their lifetimes. As funds mature, RVPI tends to decrease as DPI increases, reflecting the transition from unrealized to realized returns. High RVPI values may suggest strong future performance, although they depend on the accuracy of valuations.

Total Value to Paid-In Capital (TVPI) combines both DPI and RVPI for a comprehensive picture of returns. TVPI is often used as a key metric for benchmarking fund performance against peers, with values above 2x indicating strong performance in many cases.

Public Market Equivalent (PME) is another useful metric that allows for performance comparison against public market benchmarks while **benchmarking** against industry standards or peer groups helps assess a fund's relative performance. Nevertheless, the fund's strategy might be inherently riskier than the public benchmark, meaning it may not have truly outperformed on a risk-adjusted basis. Additionally, its relative performance could be due to luck, making it an unreliable indicator of the manager's skill.

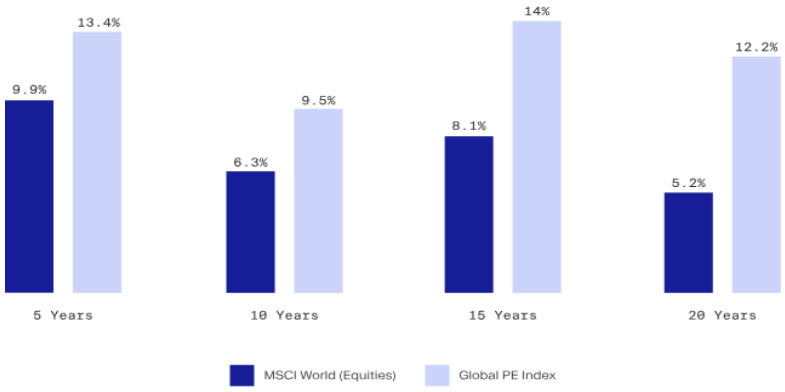

Figure 4 Annualized Returns vs Traditional Equities Source: Moonfare

Finally, **Cash-on-Cash Return** evaluates cash distributions in relation to the invested cash, **Net Asset Value (NAV)** gives a snapshot of the fund's current worth by subtracting liabilities from total assets, and the **J-Curve Effect** illustrates the tendency of returns to initially decline before increasing over time, often due to upfront costs and investment timing.

If these metrics equip investors with a well-rounded understanding of private equity fund performance, summarizing cash inflows and outflows at the portfolio level, it still remains difficult to benchmark against other asset classes. To properly compare investments in private equity funds versus public companies, other factors come into play.

Several studies proved that with PE there is the potential for higher returns compared to public counterparts, as target companies are undervalued or underperforming, and PE firms intervene to improve their value before exit. For instance, CAIA Association (2024) finds that private equity produced a meaningful 4.8% annualized excess return over public equity. They tested for any diminution of excess return over time and find no evidence of private equity and public stock return convergence, but it remains that there is no unanimous consent in the academic literature. After accounting for fees, studies like the one by Phalippou and Gottschalg (2009) found that the net returns of PE funds often lag behind those of public equities, especially in the long term. Metrick and Yasuda (2010) also highlighted that while PE funds might excel in specific periods or market conditions, their long-term performance does not consistently surpass that of public markets when fees are considered. According to Ilmanen, Chandra, and McQuinn (2020), the returns of private equity are often smoothed, which understates the true economic risk due to the lack of mark-to-market for illiquid assets.

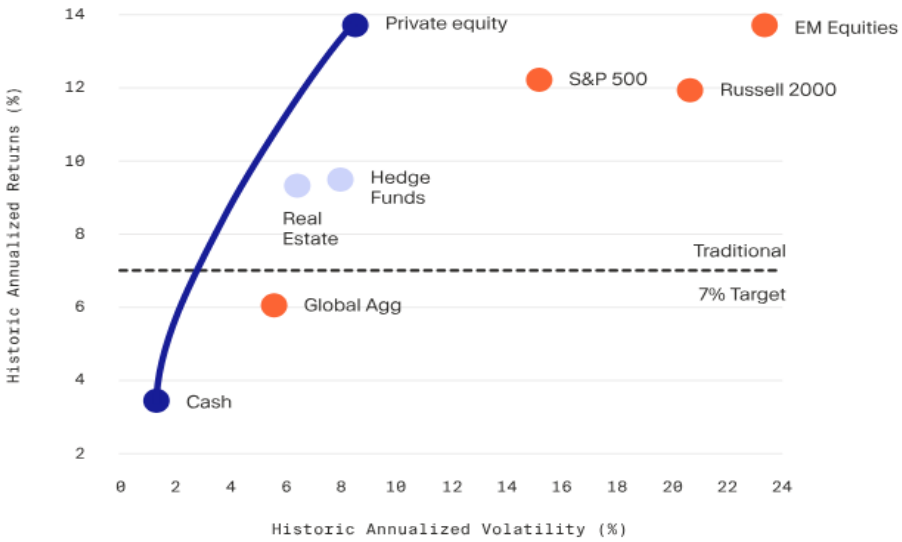

Figure 5 Historical Risk Return trade off of different asset classes. Source: Moonfare

Over the past few years, return expectations for nearly all asset classes—especially bonds—have declined, as reflected in our current, lower capital market assumptions. Consequently, constructing portfolios that achieve satisfactory returns has become a challenge for most asset allocators, particularly those managing long-term liabilities, such as pension funds. Despite the contrarian opinions on the returns, the popularity of private equity as an asset class has continued to grow over time. Once considered a niche allocation, it is now increasingly seen by investors as a means to boost returns and tap into opportunities unavailable in public markets and all the distinctive qualities described above have gained importance in today's investment landscape.[14]

Despite the rising popularity, PE currently faces exceptional challenges given the uncertain state of the global economy, with increased transaction expenses associated with high interest rates, and heightened regulatory scrutiny and contrary valuation effects. They feel the pressure to invest capital amid economic and geopolitical instability, as at the moment the industry is sitting on an unprecedented $3.9 trillion in unspent capital, the largest share of it ($1.2 trillion) in buyout funds (Bain Global PE Report 2024), a clear signal that fewer deals have been executed, indicating that GPs are more restrained and selective with their investments. The slowdown in dealmaking has also increased the average age of that buyout capital; around 26% of it is four-plus years old and aching to be deployed.

In the following chapter, we will explore how this expected, almost mandatory increase in PE activity could influence public stock markets.

[14] UBS Insights Global Chief Investment Office: how to allocate private equity in a multi asset class portfolio

The Interaction of public and private equity markets

Given the search for high returns and the evolving financing needs of the economy, institutional investors have significantly increased their allocations to private equity funds, driven by the promotion of new products and alternative structures by major sponsors. According to CEM Benchmarking, the average allocation to private markets among these investors rose from 12.5% to 18.5% between 2012 and 2020. This increase is seen across a diverse range of institutional investors, including public and private pension funds as well as insurance companies. Large pools of capital such as pension funds and endowments do not necessarily require the liquidity provided by the public market because, unlike individual investors, these large funds can forecast their cash requirements well ahead, considering factors like employee demographics, life expectancy trends, and healthcare projections. As a result, Asset Under Management (AuM) of Private Equity firms in Europe, i.e. the total market value of all the financial assets held by PE firms in Europe, has kept increasing in the last 14 years. AUM is often used as a measure of the size and success of an investment management firm, as well as a factor in determining management fees and investment performance. The value of AUM can fluctuate over time due to factors like inflows and outflows of investor capital, changes in the market value of the assets, and investment performance. From 2018 to 2022, private equity AuM in Europe, according to Invest Europe, totaled €553 billion, demonstrating the sector's crucial role in financing businesses across the continent. This significant flow of capital underscores private equity as a major driver of growth, innovation, and corporate expansion in Europe.

Of this total, €206 billion was directly committed by institutional investors, particularly pension funds and insurance companies. For these players, having a larger portion of global investments locked in private markets could potentially make public markets more vulnerable. As demonstrated in the spring of 2020, in the event of another significant market disruption, public markets might experience greater selling pressure since a larger part of portfolios is tied up in less liquid private assets.[15]

This risk is enhanced by the fact that at the same time PE rose, the number of listed companies worldwide has levelled off. Since 2010, the listed equity market has not grown beyond what

[15] Financial Times - Private markets are a hot topic for 2022

can be explained by movements in share prices, while most historical stock market growth was driven by issuances (Kuvshinov and Zimmermann, 2021).

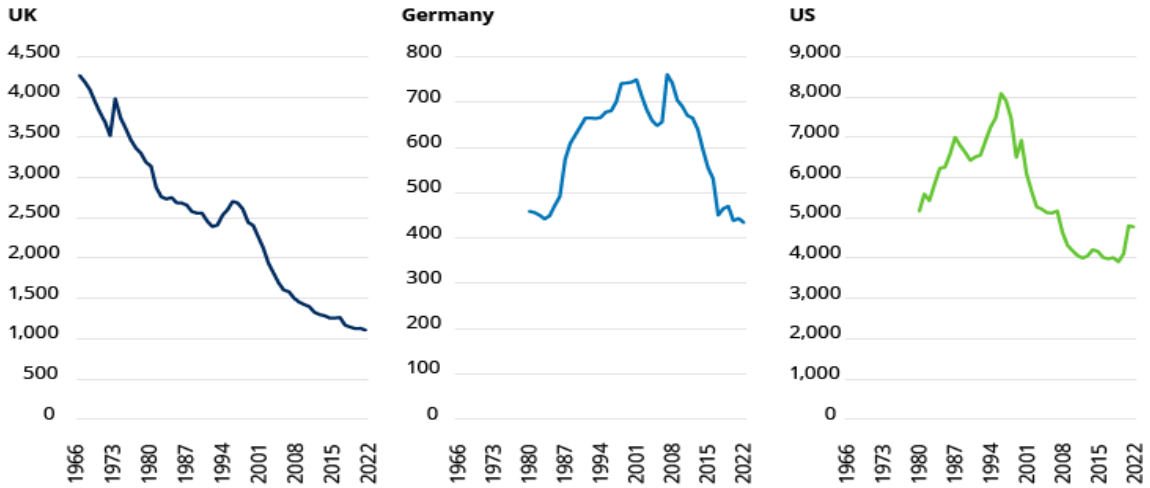

Figure 6 From left to right, the number of public companies in the UK, in Germany and in the US Source: Schroders

We believe that the thread originating from the decline in the number of listed firms, driven both by the lower number of IPOs and the higher number of delisting, is linked to the growing allocation in private equity, suggesting that investors see this asset class as offering better net returns than publicly traded stocks.

Coming at supporting our thesis, a recent PwC survey[16] highlighted that 70% of respondents from major corporations feel that the traditional public listing is becoming a less important source of funding. The most attractive private funding option, selected by 55% of respondents, is private equity. Notwithstanding that finding, 70% agree that most successful companies would still choose to go public at some point in their life cycle.

The key concerns deterring issuers from listing on emerging market stock exchanges include a lack of liquidity (33%) and currency volatility (29%). Additionally, an uncertain regulatory environment and corporate governance regime also play significant roles, cited by 25% of respondents. These factors underscore why liquidity remains a crucial consideration for companies deciding when and where to list, also explaining why private markets are seen as substitutes but also complementary to public markets.

[16] PWC Capital markets in 2030: the future of equity capital markets

Also, Ewens & Farre-Mensa (2020) argues that private equity can reduce the number of IPOs, suggesting that PE-backed firms may find staying private more attractive due to the benefits of PE ownership, such as access to capital, operational support, and strategic guidance. These advantages can make the option of remaining private under PE ownership more appealing compared to going public, thereby leading to fewer companies pursuing IPOs. The study relies on a comprehensive dataset of private firms and their funding activities, more precisely on companies that received venture capital funding, including their financing rounds, valuations, and whether they eventually went public or remained private. They used descriptive statistics to illustrate the trends in IPOs over time. This includes analyzing the length of time companies stay private before going public, the amounts of capital raised in private markets, and the employment and revenue sizes of companies that remain private. Then, to quantify the effect of the deregulation, the authors conduct an econometric analysis that models the likelihood of a company going public based on its characteristics, the amount of private capital available, and the regulatory environment.

Contrary to this approach, Lattanziano, Megginson, & Sanati (2023) used a different methodology, referring to a dataset that includes detailed information on private equity transactions, the companies involved, and their eventual outcomes (whether they go public, stay private, or are acquired). They used sources such as S&P Capital IQ and other financial databases to gather this data. The core of their analysis was a series of regression models that estimate the impact of private equity on the likelihood of a company going public. These models took into account various firm-level characteristics (such as size, industry, and profitability) as well as broader market conditions.

They found that PE activity does not contribute to the decline in public listings. In fact, the authors argued that PE activity may slightly reduce the listing gap, implying that PE involvement does not deter firms from going public and might even support the public listing process, although the effect is marginal. Their research showed that private equity might actually help companies prepare better for an IPO by providing the necessary support and resources. They stated that PE firms can make their portfolio companies strong candidates for going public, rather than discouraging them from doing so.

Their statement contrasts with the view presented by the PwC survey and Ewens and Farre-Mensa. While the earlier papers suggest that the rise of private equity has made staying private more attractive, the latter study argues that private equity can have a positive influence on the number of IPOs. In other words, it seems that the decline in IPOs isn't simply because private

equity is keeping companies private, but because the landscape of how companies grow and fund themselves has fundamentally changed.

To demonstrate our point, we will explore how private equity activity influenced the net change in listings, considering factors such as investment levels, strategic buyouts, and the overall market environment at national level. Understanding this relationship will allow us to clarify the role of private equity in shaping future market dynamics, investor confidence, and the long-term sustainability of new entrants in the market.

Strategic IPO and PE Market Exits

According to a PwC UK publication, there is a solid pipeline of companies waiting to go public at a global level. There is renewed optimism for a recovery in the European IPO market later this year, driven by the growth in equity indices, reduced volatility, and a more stable macroeconomic environment. However, this optimism may be tempered by ongoing geopolitical uncertainties. Additionally, with major elections in 2024 for a large portion of the global population, the opportunities for IPOs are expected to be limited.

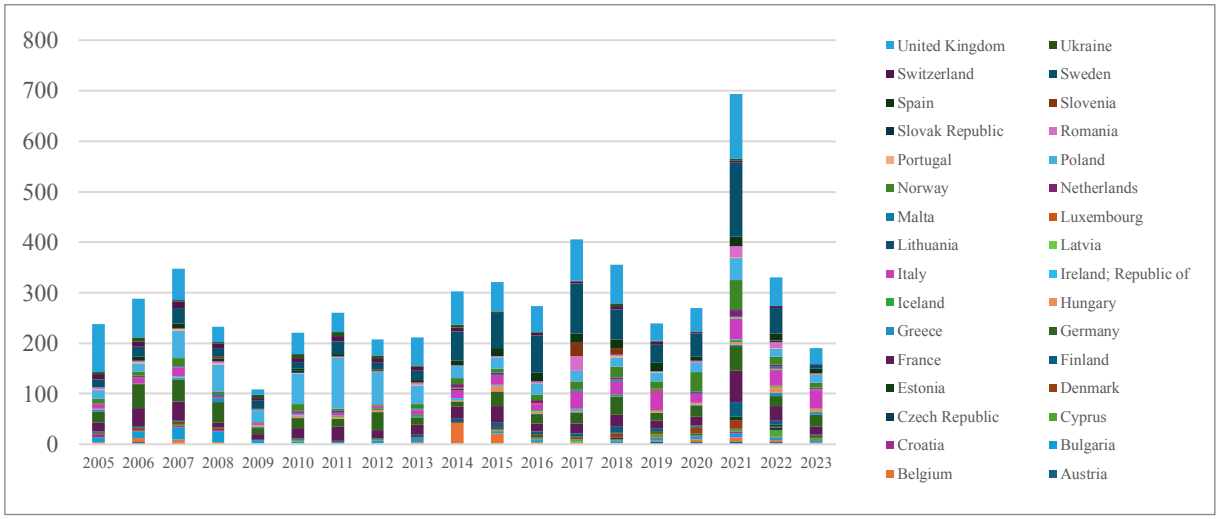

Figure 7 n. IPOs Europe

Looking at the historical trend, we can see how the annual number of Initial Public Offerings (IPOs) across various European countries and Ukraine from 2005 to 2023 evolved.

The total number of IPOs fluctuates year by year. Notably, there was a sharp decline in IPOs around 2009 and 2011, reflecting the global financial crisis's impact. An increase in IPO activity is observed from 2017, peaking dramatically in 2021, due to relaxation of anti-pandemic measures and the progressive rebound of the EU economy. Following the 2021 peak, the

number of IPOs dropped significantly in 2022 and continued to decline through 2023 because of the geopolitical uncertainty caused by the Russian Ukraine conflict and the subsequent inflationary wave that brought to the rise of interests rates.

Various other countries contributed to the total IPO counts, though many had smaller numbers (represented by thinner segments in the bars). United Kingdom (represented by the light blue segments) consistently leads in the number of IPOs across most years. The UK had a particularly high number of IPOs in 2014, 2017, 2018, and especially in 2020, where the total IPOs for the year exceeded 700, largely driven by the UK's contribution. Switzerland (in dark brown) and France (in dark green) also show significant numbers of IPOs, contributing meaningfully to the totals in several years, though they trail behind the UK.

In terms of collected proceeds, as of early December 2023, European IPOs garnered only USD 9.2 billion, contrasting starkly with the USD 20.3 billion raised in the US. This represents a 35 percent decline for Europe compared to 2022, while the US witnessed a staggering 157 percent increase. Additionally, prominent European companies like Birkenstock, Oatly, and On Running are opting for US stock exchanges, exacerbating the situation. (PwC UK)

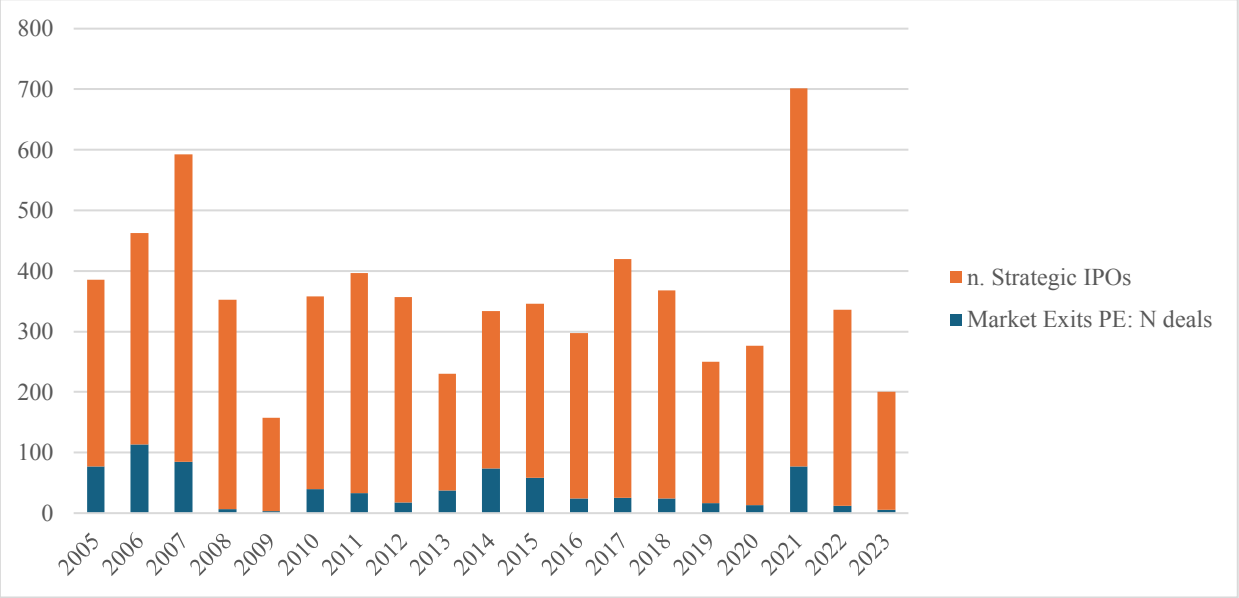

Figure 8 n. strategic IPOs vs PE-backed

We saw how the decision to go public is often driven by the desire to create a more liquid market for the company's shares, enabling insiders to diversify their wealth. This liquidity event is particularly valuable for insiders like professional investors, who might otherwise face difficulties in selling large blocks of stock without an IPO. However, when companies are PE-

backed, they may prefer to exit investments through trade sales or secondary buyouts rather than IPOs, contributing to the decline in public listings (I. Filatotchev 2012)

In a study by Kaplan and Strömberg (2009), which examined 17,171 leveraged buyouts (LBOs) globally from 1975 to 2007, the researchers found that sales to strategic buyers were the most common exit strategy, accounting for 38% of cases. Sales to other private equity firms represented 24% of exits, while IPOs accounted for 14% of cases over the entire period. Additionally, the number of exits via IPOs significantly declined over the duration of the study.

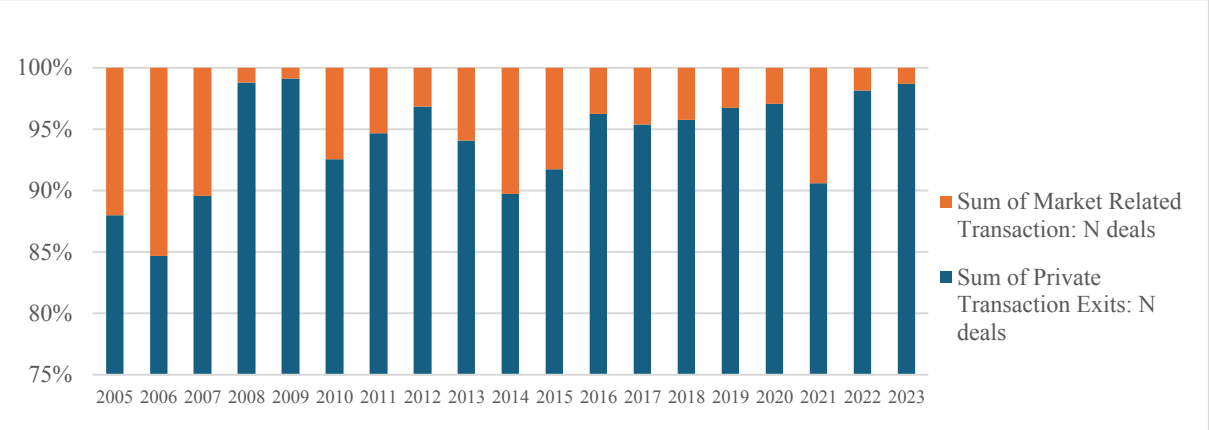

Figure 9 PE Exits strategy count in Europe

Throughout the period, private transaction exits, where PE firms sell their investments to other private investors, which include sales to other private equity firms, private sales to strategic buyers, or management buyouts, consistently formed the vast majority of PE exits. This trend suggests that private sales or transfers were more common or preferred for PE exits in Europe.

The proportion compared to market-related transactions remained relatively stable over the years, with minor fluctuations. Typically, private transaction exits account for about 85% to 90% of the total exits, with market-related exits making up the remaining 10% to 15%. In the first half of 2024, private equity sponsors significantly contributed to the European market's recovery, with more than half of the top 10 IPOs being PE-backed.

We can see that the direct impact of private equity firms on listings is minimal compared to the decline in the number of listed companies in European markets, which reinforces our belief that increased private equity activity does not positively affect the listing gap.

Strategic and Financial Buyers in Going Private Transactions

According to KPMG US, years marked by significant market selloffs display an increased count of take-private transactions. We can see the same dynamic occurring across Europe in the later years (2018-2023).

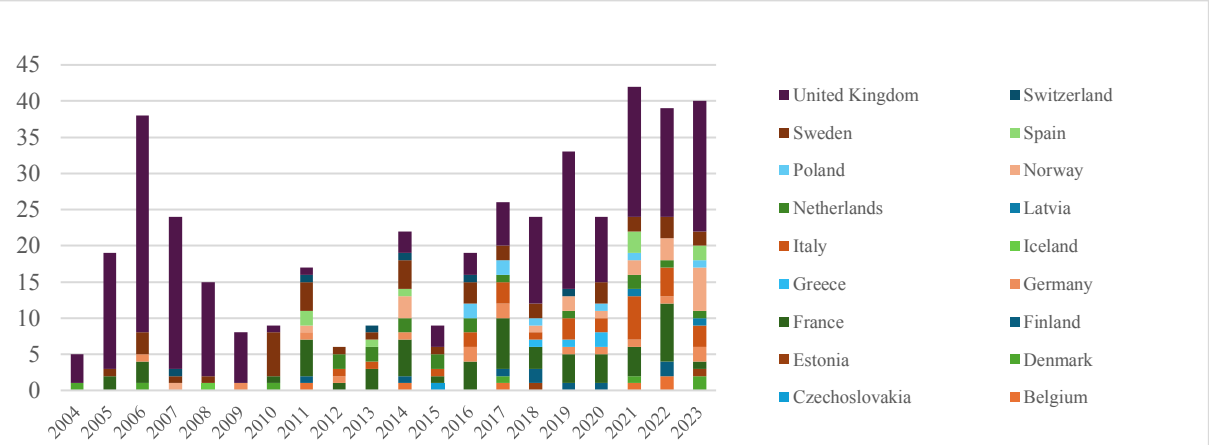

Figure 5 European M&A activity that led to delisting by Geography (n. deals). Source: Refinitiv

While the United Kingdom (represented in purple) consistently showed the highest delisting activity across the years and was the protagonist of the first delisting wave of the area, peaking in 2005, 2007, 2020, and 2021, with over 35 deals in these years, now the same phenomenon seems impacting homogeneously countries of continental Europe. Germany (orange), France (blue), and Sweden, contributed particularly in 2018, 2021, and 2023, but also Italy (light brown), Spain (green), Netherlands (light blue), and Switzerland (dark green), showed an increasing trend in delistings, particularly post-2016.

This trend of increasing delistings aligns with the broader dynamics in the private equity landscape, where firms actively seek out undervalued public companies as potential acquisition targets during market downturns.

Although private equity firms are commonly associated with investments in private companies, the reality is that private equity firms actively scout for potential targets whether they are publicly listed companies or private enterprises. During periods of market downturns, many publicly listed companies may become undervalued, presenting attractive investment opportunities. The lower stock prices may make it more affordable for these companies to acquire, at least for a certain period, making them potential targets for takeover bids. This is especially relevant for companies for which being publicly listed no longer provides advantages, as they may consider delisting from the stock exchange. In this scenario, these

companies may actively approach potential buyers, including private equity firms, to explore the possibility of delisting and transitioning to private ownership.

Historically, the public market constituted a fraction of their business focus. However, motivated to deploy their substantial reserves effectively, PEs are increasingly turning their attention to public market targets, with the volume of take-private transactions continuing to rise.

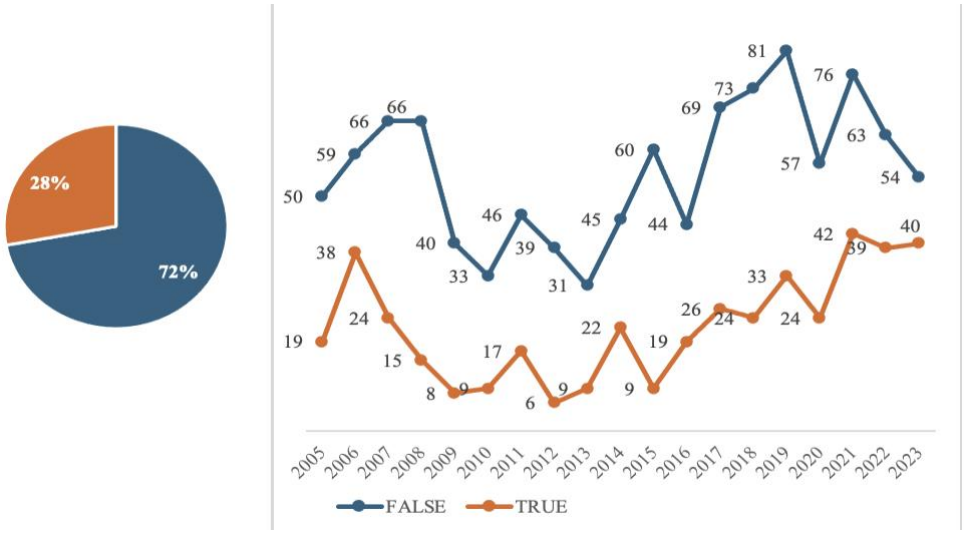

Figure 6 European M&A activity that led to delisting (n deals). TRUE means the acquiror was a PE fund, FALSE if it was a strategic buyer. Source: Refinitiv

The graph and pie chart above provide an overview of European M&A activity that led to delistings from 2005 to 2023, distinguishing between acquisitions made by private equity funds and strategic buyers. The data indicates a dominant role of strategic buyers in delisting activities throughout the period (72% of the total), though the involvement of PE funds has shown a significant increase, especially in the last decade.

From 2005 to 2010, there was a general decline in the number of delistings by strategic buyers, with a sharp drop from 66 in 2007 to 33 in 2010. The number of delistings by PE funds remained relatively low and stable in the early years, peaking at 24 in 2006 and dipping to a low of 6 in 2010. Post-2010, there was an increase in delistings by both strategic buyers and PE funds, with notable peaks for strategic buyers in 2015 (81 deals) and 2017 (76 deals).

PE fund activity also shows an upward trend from 2013 onwards, peaking at 42 deals in 2020. This peak was favored by the drop in the stock market and consequently lower valuation metrics caused by the COVID crisis. In recent years (2021-2023), both types of acquirors show a

convergence, with the numbers of delistings by strategic buyers decreasing to 54 in 2023, while delistings by PE funds maintain a steadier rate around 40 deals.

We can also see that the direct impact of private equity on delistings is relatively greater than its impact on public market exits. However, when we consider the overall decline in the number of listed firms in European markets, the direct influence of delistings alone is insufficient to account for the listing gap observed over the past decades.

The listing gap

The net change in listings is a vital dependent variable in this study, reflecting the overall shift in the number of entities within a specific market or exchange over a defined period. It is calculated as follows:

$$Listing\ gap = n.\ newly\ listed - n.\ delisted$$

A positive net change could indicate that more companies are entering the market than exiting, which may signal a healthy environment fostered by private equity investments that facilitate growth and expansion. In contrast, a negative net change would suggest a contraction in the market, where delistings exceed new listings, potentially may be driven by factors such as the private equity activity but also market saturation, economic downturns, or challenges faced by portfolio companies.

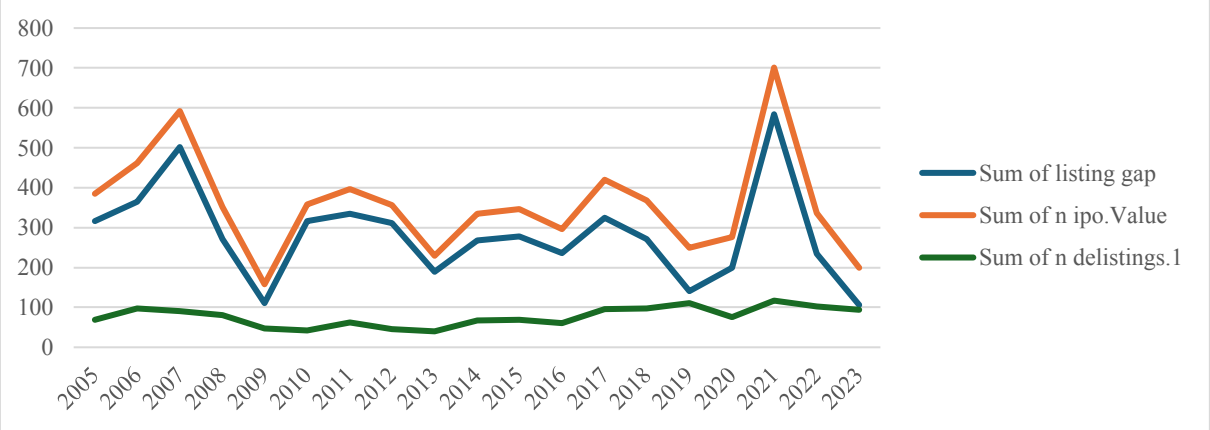

Figure 10 Historical of the IPO trend, delistings and their resulting listing gap. Source

The graph highlights the dynamic nature of IPO activity, while delisting activity follows a different rhythm. The listing gap and IPO value generally move in tandem, meaning that the main driver of the listing gap is the number of newly listed companies. With both peaking in 2007 and 2021, they signaled periods of robust market activity, while the sharp decline in these

metrics after their 2021 peak, combined with a rise in delistings, suggests a challenging environment for maintaining or growing the number of listed companies in recent years.

Methodology and data source

The dataset constructed for the empirical analysis consists of 4 overall dimensions, all sources from Refinitiv Workspace[17]. The analysis is based on **638 observations**, providing a solid sample size for estimating the model parameters. For every country and year considered, we collected the number of IPO, the M&A deals associated with delistings, as well as transaction data related to private equity investments that captures key metrics such as the number of deals, equity invested, and rank value. In addition to investment data, detailed information on exit activities has been collected, offering insights into the number of exit deals, total rank value, average rank value, median rank value, and the average time before exit per country.

The research focuses on European markets, covering the period from 2005 to 2023. This setup provides a sufficient event window of 18 years, encompassing the financial crisis, COVID-19 thus capturing both market upswings and downturns. The decision to start the period in January 2005 primarily originates from data availability. The quality and breadth of available data on the variables incorporated before 2005 are insufficient. This approach ensures higher quality in our data sample and predominantly includes observations from years that have not been extensively studied in prior research. Given the substantial volume of data, aggregation from daily to annual figures proved to be the most practical method for analysis. This approach not only simplifies data management but also enhances the clarity of observed trends.

Below is a table summarizing all the variables considered in this analysis, along with their definitions:

Variable	***Description***
Year	The calendar year during which the observations are recorded.
Country	The specific country in which the IPOs, delistings, and investments are taking place.
n IPO	The total value of newly listed companies within the year and country.

[17] Refinitiv is a leading global provider of financial market data and infrastructure, widely used by professionals in finance, investment, and trading.

n delistings	The total number of companies that were delisted through a M&A transaction from the market within the year and country.[18]
listing gap	The difference between the number of newly listed companies and the number of delistings, indicating market growth or contraction.
Investments.Number of Deals	The total number of investment deals made by private equity firms during the specified period.
Investments.Number of Companies	The total number of unique companies that received investments from private equity during the specified period.
Investments.Number of Firms	The total number of private equity firms that participated in investments during the specified period.
Investments.Equity Total	The total equity invested by private equity firms in the specified period, reflecting the scale of investment activity.
Investments.Rank Value	A measure of the relative value of investments made by private equity firms, potentially indicating the size and significance of these investments.
Private Transaction Exits: Sum of Rank Value Inc./Proceeds	The total proceeds generated from exits of private transactions, measured by the rank value, indicating the financial success of these exits.
Private Transaction Exits: Average of Time to Exits (Years)	The average duration (in years) from the initial investment to exit for private transactions, reflecting the investment horizon of private equity firms.
Private Transaction Exits: N deals	The total number of private transaction exits recorded during the specified period.
Private Transaction Exits: Average of Rank Value Inc./Proceeds	The average proceeds per exit from private transactions, measured by the rank value, providing insight into the financial performance of these exits.

[18] As we understood from chapter 1, most firms are delisted after an M&A transaction because target companies are often merged with the acquirer and may even disappear as a legal entity. Delisting after an M&A transaction is a voluntary decision made by the new controlling firm. (Hubert de la Bruslerie1 Jérôme Caby, 2023)

Private Transaction Exits: Median of Rank Value Inc./Proceeds	The median proceeds from private transaction exits, offering a measure of central tendency in the value of exits.
Market Related Transaction: Sum of Rank Value Inc./Proceeds	The total proceeds from market-related transactions, measured by rank value, indicating the overall financial impact of these transactions.
Market Related Transaction: Average of Time to Exits (Years)	The average duration (in years) from initial investment to exit for market-related transactions.
Market Related Transaction: N deals	The total number of market-related transaction exits recorded during the specified period.
Market Related Transaction: Average of Rank Value Inc./Proceeds	The average proceeds per exit from market-related transactions, indicating the financial success of these exits.
Market Related Transaction: Median of Rank Value Inc./Proceeds	The median proceeds from market-related transaction exits, providing insights into the distribution of exit values.

Table 1 Variables description

Regression Model

Before jumping to the regression model, a few other adjustments were needed. As the coefficients represent the effect of a one-unit change in the independent variable on the dependent variable, if the variables are on different scales (e.g., one variable measured in thousands and another in percentages), the coefficients will be difficult to compare directly. Therefore, we standardized our data and converted all variables to a common scale (typically mean = 0 and standard deviation = 1), making it easier to compare the magnitude and importance of different predictors.

Once the data was standardized, we split the dataset into a training set and a test set. The training set was used to build the model, allowing it to learn the relationships between the independent variables and the listing gap. The test set, on the other hand, was reserved for evaluating the model's performance on unseen data. This approach ensures that the model's effectiveness is not simply a result of overfitting to the training data but that it generalizes well to new data, giving us a more accurate measure of its predictive power.

The next crucial step was selecting the variables to include in the regression model. We selected the variables related to investment activity, disinvestment, market exits, and private exits based on their expected impact on the listing gap. We included variables that we hypothesized would have a negative impact on the listing gap, such as those linked to ongoing investment activity. Conversely, we expected that variables associated with market exits would have a positive impact, reflecting a reduction in the number of listed firms. Additionally, we anticipated that private exit variables would negatively influence the listing gap, as these often represent firms leaving the public markets without an offsetting increase in new listings. Including all variables makes it easier to explore potential interaction effects, where the impact of one variable on the dependent variable depends on the level of another variable. It allows to test existing theories or hypotheses more rigorously. If certain variables are hypothesized to be important but turn out to be insignificant in the presence of others, this can lead to new insights or a rethinking of our hypothesis.

Therefore, our running model is:

$$
\begin{aligned}
\text{Listing Gap} = \beta_0 &+ \beta_1 \cdot \text{Investments.Number of Deals (x1)} \\
&+ \beta_2 \cdot \text{Investments.Number of Companies (x2)} \\
&+ \beta_3 \cdot \text{Investments.Rank Value (x3)} \\
&+ \beta_4 \cdot \text{Private Transaction Exits: Sum of Rank Value Inc./Proceeds (x4)} \\
&+ \beta_5 \cdot \text{Private Transaction Exits: Avg. of Time to Exits (Years) (x5)} \\
&+ \beta_6 \cdot \text{Private Transaction Exits: N deals (x6)} \\
&+ \beta_7 \cdot \text{Private Transaction Exits: Avg. of Rank Value Inc./Proceeds (x7)} \\
&+ \beta_8 \cdot \text{Private Transaction Exits: Median of Rank Value Inc./Proceeds (x8)} \\
&+ \beta_9 \cdot \text{Market Related Transaction: Sum of Rank Value Inc./Proceeds (x9)} \\
&+ \beta_{10} \cdot \text{Market Related Transaction: Avg. of Time to Exits (Years) (x10)} \\
&+ \beta_{11} \cdot \text{Market Related Transaction: N deals (x11)} \\
&+ \beta_{12} \cdot \text{Market Related Transaction: Avg. of Rank Value Inc./Proceeds (x12)} \\
&+ \beta_{13} \cdot \text{Market Related Transaction: Median of Rank Value Inc./Proceeds (x13)} \\
&+ \sum_{j=14}^{n_1} \beta_j \cdot \text{Year\_j} \\
&+ \sum_{k=1}^{n_2} \gamma_k \cdot \text{Country\_k} \\
&+ \epsilon
\end{aligned}
$$

Variable	**Coefficient**	**Std. Error**	**t-value**	**P>**	**t**
const	**4.8652**	**0.325**	**14964**	**0.000**	**4.227 - 5.504**
Investments.Number of Deals (x1)	-0.2412	1851	-0.130	0.896	-3.877 - 3.395

Investments.Number of Companies (x2)	2.4906	1954	1275	0.203	-1.347 - 6.328
Investments.Rank Value (x3)	**-3.3185**	**0.662**	**-5015**	**0.000**	**-4.618 - -2.019**
Private Transaction Exits: Sum of Rank Value Inc./Proceeds (x4)	**30.3725**	**8457**	**3592**	**0.000**	**13.762 - 46.983**
Private Transaction Exits: Avg. of Time to Exits (Years) (x5)	**0.8686**	**0.352**	**2464**	**0.014**	**0.176 - 1.561**
Private Transaction Exits: N deals (x6)	0.4340	1557	0.279	0.781	-2.624 - 3.491
Private Transaction Exits: Avg. of Rank Value Inc./Proceeds (x7)	**-31.1282**	**8447**	**-3685**	**0.000**	**-47.719 - -14.537**
Private Transaction Exits: Median of Rank Value Inc./Proceeds (x8)	-0.0007	0.342	-0.002	0.998	-0.673 - 0.671
Market Related Transaction: Sum of Rank Value Inc./Proceeds (x9)	0.3234	0.534	0.606	0.545	-0.725 - 1.372
Market Related Transaction: Avg. of Time to Exits (Years) (x10)	-0.5180	0.374	-1385	0.167	-1.253 - 0.217
Market Related Transaction: N deals (x11)	**4.6848**	**0.558**	**8397**	**0.000**	**3.589 - 5.781**
Market Related Transaction: Avg. of Rank Value Inc./Proceeds (x12)	0.8920	0.710	1256	0.210	-0.503 - 2.287
Market Related Transaction: Median of Rank Value Inc./Proceeds (x13)	**-1.4658**	**0.646**	**-2268**	**0.024**	**-2.735 - -0.197**

Table 2 OLS model coefficients (See dummy variables in the appendix)

As the variables are standardized, those with the highest absolute value coefficients are indeed the most impactful in the model. These variables have the strongest influence on the dependent variable, regardless of whether that influence is positive or negative.

"Private Transaction Exits Sum of Rank Value Inc./Proceeds" (x4) turned out to be highly significant and with a positive coefficient (30.37), the highest positive one. It indicates that as the total value of private transaction exits increases, there is a corresponding positive impact on the Listing Gap. During market upturns, when valuations are higher, PE firms tend to exit more deals, which leads to higher total proceeds. Driven by favorable market conditions, this increase in activity can be generally seen in IPO streamline too, reducing the gap between listings and delistings.

Despite this, "Private Transaction Exits Avg. of Rank Value Inc./Proceeds (x7)", with a Negative Coefficient (-31), here suggests that as the average proceeds from private transaction exits increase, there is a negative impact on the Listing Gap. In other words, when PE firms achieve higher average valuations per exit, it may indicate that fewer firms are being listed. This could be because, in a booming market, PE firms might prioritize maximizing returns through strategic exits rather than taking companies public, as the private market can offer more lucrative exit opportunities. Consequently, the higher average proceeds from these exits could correlate with a reduction in the number of firms entering public markets.

In periods of market upturns, both deal activity and IPOs tend to become more profitable due to higher valuations. However, when PE firms achieve higher average returns from private exits, they may choose to exit fewer firms publicly, opting instead to capitalize on high valuations in private transactions. This dynamic results in a higher sum of proceeds positively influencing the listing gap but a higher average exit value negatively affecting the number of firms being listed, as lucrative private exits become more appealing than IPOs.

Then, the negative and significant coefficient of **Investments.Rank Value (x3)** (-3.3185, $p < 0.001$) gives crucial insight into the evolving dynamics between private equity investments and public markets. This finding supports the view that as private equity firms provide substantial capital into the European economy, offering a viable alternative to public markets for companies seeking financing. We got a clear match between the access to significant capital through private channels and less pressure or incentive to go public.

However, the relationship is not entirely straightforward. While higher investment rank values are associated with a decrease in the Listing Gap, the coefficient for **Market Related Exits of PE Firms: Number of Deals (x11)** (4.6848, $p < 0.001$) has an even stronger positive impact. This indicates that an increase in the number of market-related exit deals is associated with an increase in the Listing Gap variable, suggesting that robust market activity could also be driving more GPs to exit through the public markets. This dual effect implies that while private equity investments may reduce the need for companies to go public, a high level of market exits by PE firms may simultaneously be contributing to a widening gap between listings and delistings.

Although we also expected Investments.Number of Deals (x1) to be a valuable input for our analysis, the coefficient is negative (-0.2412) and not statistically significant ($p = 0.896$), suggesting that this variable does not contribute meaningfully to predicting the Listing Gap.

Most country coefficients are not statistically significant, indicating a lack of influence on the Listing Gap when controlling for other factors. However, the country coefficients could still provide useful insights depending on contexts. The coefficients for years (especially for Year_2021) indicate significant changes over time, highlighting temporal trends in the data.

Finally, now that we analysed the coefficients and their significance, the last step to have a complete picture over our regression model is to look at its accuracy. To fully assess the reliability and predictive power of our model, it's essential to examine how well it performs in capturing the nuances of the data. R^2 score comes in our help, allowing us to show how much of the changes in the Listing Gap can be predicted or explained by the independent variables (like the different types of investments and exits) we included in our model. An R^2 value close to 1 means that the model explains a large portion of the variation in the data, indicating a good fit. Overall, the model turned out to be quite accurate in the training dataset.

Statistic	**Value**
Training RMSE	77.280
Testing RMSE	138.529
Training R^2	0.6061
Testing R^2	0.2834
Model	OLS
Dependent Variable	Listing Gap
No. of Observations	638
F-statistic	12.08

Prob (F-statistic)	6.49e-76
Log-Likelihood	-2209.9
AIC	4566.0
BIC	4891.0
Df Residuals	565
Df Model	72
Covariance Type	Non-robust

Table 3 OLS model Statistics

The Training R^2 came to be 0.6061, indicating that approximately 60.61% of the variance in the Listing Gap could be explained by the independent variables in the training dataset. This suggests a moderate fit. The Testing R^2 was 0.2834, meaning only about 28.34% of the variance in the Listing Gap could be explained by the model when applied to the testing dataset. Unfortunately, this drop in R^2 suggests that the model doesn't perform well on new, unseen data, indicating that its predictive reliability may be limited and could potentially lead to misleading conclusions when applied to future scenarios.

Conclusions

At the end of the day, the decision as to whether a company should go public or stay private is entirely down to the company itself. What has changed in recent years is the stage at which companies seek to list, being financed for longer by private markets. As the growth of private capital continues, its influence on the level and timing of public company listings will also increase across the globe, according to the cycles of fundraising and exits.

In a sense, just as sliding doors open and close, public markets could be accessed at companies' convenience. They choose when to enter or exit based on their strategic objectives, market conditions, and financial health, evaluating their circumstances and determine if the timing is right for an IPO or if remaining private is more beneficial. For instance, during a market downturn, a company may decide to postpone its IPO, while in a thriving market, it may choose to go public to capitalize on favorable conditions. Similarly, if a company is publicly listed but faces challenges, it might explore options to go private, allowing for more operational freedom and reducing the pressure of public scrutiny, to access once again the stock market when time matures.

The sliding doors metaphor reflects the strategic nature of decisions regarding public and private market participation. Companies may weigh the benefits of access to capital through public markets against the regulatory burdens and market volatility associated with being publicly traded. While publicly listed firms benefit from a lower cost of capital, allowing them to focus more on commercialization and profitability, they are generally less suited for pursuing long-term, high-risk investments. In contrast, privately held firms are better positioned to undertake innovative projects but face a higher cost of capital, which can constrain their growth. By providing funding without the scrutiny and regulatory demands associated with public markets, private equity firms also enable companies to maintain greater control over their operations and growth trajectory. Moreover, private equity offers flexibility in terms of timelines and exit strategies, which can be appealing to entrepreneurs and management teams.

With such levels of dry powder available to financial investors, investment activity from private equity firms is expected to rise in the latter half of 2024, but the complexities of the listing gap will likely persist. Given the results of our model, the interplay between the investment activity and the average exit proceeds will continue to shape the dynamics of public market participation, discouraging companies from getting listed on European stock exchange, while the improvements of macro indicators will probably foster this process. Companies that succeed in public markets might also influence private equity firms to invest in similar ventures thanks to the valuation effect, creating a cyclical relationship between the two.

The synergy between public and private equity markets extends beyond simple financial interaction. Innovation within private equity markets significantly bolsters the commercialization efforts of public firms. Thanks to their capital and strategic guidance, private equity firms help public companies develop and scale new products and services more effectively. At the same time, the constant demand for innovation from public firms fuels entrepreneurial activity in private equity markets. As public companies strive to maintain their competitive edge, they are in need for fresh technologies and business models, encouraging private equity firms to seek out and invest in promising startups. This exchange fosters a continuous flow of innovation, driving growth and advancement across both public and private sectors.

Furthermore, public markets can help mitigate the inherent limitations in the private equity business model, reinforcing the metaphor of the sliding doors. In fact, PE firms cannot fund every company. Due to its financing model, private equity funds need to ensure higher profits compared to other types of investments available to institutional investors, compensating for

the extended period the capital remains tied up. The private nature of the capital and the necessity of being involved with the financed companies over the medium- and long-term dictate that only the most dynamic companies or those with the greatest growth potential are selected.

We saw that other factors also contribute to the reluctance of companies to go public, such as regulatory burdens, market volatility, and liquidity, but regardless of what a business decides is right for them, it is important to note that now, more than ever, both financing options are perfectly viable for companies that are so inclined.

Appendix

Variable	**Coefficient**	**Std. Error**	**t-value**	**P>**	**t**
Year_2006 (x14)	-0.2299	0.461	-0.499	0.618	-1.135 - 0.676
Year_2007 (x15)	0.2964	0.446	0.664	0.507	-0.580 - 1.172
Year_2008 (x16)	0.2642	0.447	0.591	0.555	-0.613 - 1.142
Year_2009 (x17)	-0.1718	0.460	-0.373	0.709	-1.076 - 0.732
Year_2010 (x18)	0.2361	0.467	0.506	0.613	-0.681 - 1.153
Year_2011 (x19)	-0.0580	0.444	-0.131	0.896	-0.931 - 0.815
Year_2012 (x20)	0.2977	0.465	0.641	0.522	-0.615 - 1.210
Year_2013 (x21)	0.3974	0.451	0.881	0.379	-0.489 - 1.283
Year_2014 (x22)	0.4389	0.459	0.956	0.339	-0.463 - 1.340
Year_2015 (x23)	0.5442	0.451	1207	0.228	-0.342 - 1.430
Year_2016 (x24)	0.6284	0.452	1392	0.165	-0.258 - 1.515
Year_2017 (x25)	0.9011	0.460	1960	0.050	-0.002 - 1.804
Year_2018 (x26)	**0.9570**	**0.458**	**2092**	**0.037**	**0.058 - 1.856**
Year_2019 (x27)	0.2822	0.451	0.626	0.532	-0.604 - 1.168
Year_2020 (x28)	0.5841	0.475	1231	0.219	-0.348 - 1.516
Year_2021 (x29)	**1.8571**	**0.452**	**4112**	**0.000**	**0.970 - 2.744**
Year_2022 (x30)	0.9095	0.467	1949	0.052	-0.007 - 1.826
Year_2023 (x31)	-0.4328	0.440	-0.983	0.326	-1.297 - 0.432
Country_Austria (x32)	0.0747	0.423	0.177	0.860	-0.757 - 0.906
Country_Belarus (x33)	0.0163	0.461	0.035	0.972	-0.890 - 0.923
Country_Belgium (x34)	0.1540	0.450	0.342	0.732	-0.729 - 1.037
Country_Bulgaria (x35)	0.6438	0.486	1325	0.186	-0.311 - 1.598
Country_Croatia (x36)	-0.1910	0.481	-0.397	0.692	-1.137 - 0.755
Country_Cyprus (x37)	0.5197	0.528	0.984	0.325	-0.517 - 1.557

Country_Czechia (x38)	0.5428	0.465	1167	0.244	-0.370 - 1.456
Country_Denmark (x39)	**1.1984**	**0.456**	**2628**	**0.009**	**0.302 - 2.095**
Country_Estonia (x40)	-0.1482	0.463	-0.320	0.749	-1.057 - 0.760
Country_Finland (x41)	0.2988	0.456	0.655	0.513	-0.598 - 1.196
Country_France (x42)	0.3643	0.425	0.857	0.392	-0.470 - 1.199
Country_Germany (x43)	0.4784	0.414	1155	0.249	-0.335 - 1.292
Country_Greece (x44)	0.1348	0.483	0.279	0.780	-0.813 - 1.083
Country_Hungary (x45)	-0.0388	0.461	-0.084	0.933	-0.945 - 0.868
Country_Iceland (x46)	0.0421	0.513	0.082	0.935	-0.966 - 1.051
Country_Ireland (x47)	0.1546	0.463	0.334	0.739	-0.755 - 1.064
Country_Italy (x48)	0.1143	0.429	0.266	0.790	-0.728 - 0.957
Country_Latvia (x49)	0.1489	0.481	0.310	0.757	-0.797 - 1.095
Country_Lithuania (x50)	-0.1870	0.477	-0.392	0.695	-1.123 - 0.749
Country_Luxembourg (x51)	0.1392	0.518	0.269	0.788	-0.880 - 1.158
Country_Malta (x52)	0.0311	0.509	0.061	0.951	-0.968 - 1.030
Country_Netherlands (x53)	0.0856	0.417	0.205	0.837	-0.733 - 0.904
Country_Norway (x54)	0.2882	0.429	0.672	0.502	-0.558 - 1.135
Country_Poland (x55)	-0.0734	0.452	-0.162	0.871	-0.961 - 0.814
Country_Portugal (x56)	0.3910	0.453	0.863	0.388	-0.499 - 1.281
Country_Romania (x57)	0.4968	0.468	1062	0.289	-0.422 - 1.415
Country_Slovakia (x58)	0.3616	0.478	0.757	0.449	-0.578 - 1.301

Country_Slovenia (x59)	0.1838	0.464	0.396	0.692	-0.728 - 1.096
Country_Spain (x60)	0.2330	0.419	0.556	0.579	-0.590 - 1.056
Country_Sweden (x61)	0.4261	0.419	1017	0.310	-0.397 - 1.250
Country_Switzerland (x62)	0.1757	0.418	0.420	0.674	-0.645 - 0.996
Country_United Kingdom (x63)	0.4493	0.410	1095	0.274	-0.355 - 1.254

Table 4 Dummy Variables of the regression model

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