# Sell Or Die: What happens to firms after they withdraw from the IPO?

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**Abstract**

What happens to companies that file for an IPO, but withdraw and do not list? This question is investigated by examining a sample of common stock IPOs for the main IPO markets in Europe over the 2001–2015 period. We analyse regulatory, economic, and market conditions as well as offer, firm, and corporate governance characteristics at the time of the IPO filing. Better corporate governance decreases the probability of a negative post-IPO withdrawal outcome. We find that PE and VC-backed companies that withdraw from the IPO are more likely to have a superior alternative such as M&A or a second time IPO listing. In a survival analysis we show that the majority of companies experience a positive outcome *shortly* after a withdrawn IPO filing. The evidence is consistent with the view that an IPO is one of several alternatives in which private equity and venture capital pursue a dual-track strategy.

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## 1. Introduction

Arguably, the decision to go public, to launch an initial public offering (IPO), is one of the most important decisions in a company's life cycle. Not all companies that file for an IPO do list. The issuer always reserves an option to change course at any time and withdraw the IPO before its completion (Busaba, 2006). In Europe, on average 12% of filed IPOs are withdrawn compared to 30% in the USA (Helbing, 2019). As Boeh and Dunbar (2013) note, an IPO withdrawal is not necessarily a negative event: if the issuer has a superior option for cashing out or otherwise attaining the objectives, withdrawing can be a positive outcome and, having withdrawn, a company can reissue. Research, however, shows that an IPO withdrawal reduces the probability and issue price of a second time IPO; indeed Dunbar (1998), Dunbar and Foerster (2008) as well as Lian and Wang (2012) demonstrate that issuers withdrawing their IPO are unlikely to reissue. Withdrawn IPO companies might be perceived as riskier and face the 'lemon' problem (Akerlof, 1970). This paper focuses on the afterlife of firms that decide to go public, but withdraw from this process. We study withdrawn IPO filings in an attempt to initiate the creation of a taxonomy of IPOs and IPO withdrawals. Completed IPOs tell us only part of the story (Busaba et al., 2015). From 2001 to 2015, Investment opportunities of an accumulated $151 bn (Europe) and $152 bn (USA) were foregone as a consequence of IPO withdrawals. Despite its frequency and importance, surprisingly, we do not know much about the afterlife of a withdrawn IPO company. What happens to the company that withdraws from the IPO? And how long does it take? Can we infer the post-IPO withdrawal outcome at the IPO filing already? In other words: sell or die?

To date, all research (Dunbar and Foerster, 2008, Lian and Wang, 2009, 2012) on this extent has been conducted on US data with a specific post-withdrawal outcome at hand, drawing an empirical conclusion for a globalised world based on a single institutional framework. This pan-European

study is another important step to derive conclusions on a taxonomy of IPOs and to address the social phenomenon of IPO withdrawal. This paper aims to advance research in three areas.

First, we consider a broader range of post-IPO withdrawal outcomes and apply same to a unique European database. We make use of detailed hand-collected prospectus data from 334 withdrawn European IPOs over the 2001–2015 period as well as a wide range of market characteristics. We find that most withdrawn IPO companies simply remain private (37%), followed by a high portion of companies engaged in merger and acquisition (M&A) post-IPO withdrawal (33%). A smaller fraction of withdrawn IPO companies, predominantly at the Alternative Investment Market (AIM), becomes inactive (22%); whereas second time IPOs are marginal (7%). We argue that companies may use the IPO as a marketing mechanisms pursuing different routes such as M&A; and remain private, if results are not satisfying.

Second, we identify determinants and, for the first time, introduce the analysis of timing of post-IPO withdrawal outcomes to uncover whether an IPO withdrawal is a positive or negative event. Better corporate governance decreases the probability of IPO withdrawal, likewise of a negative post-IPO withdrawal outcome. Withdrawn IPO companies that die are younger and have smaller offerings, dominated by the occurrences at the exchange-regulated AIM. We identify that companies exhibit a positive post-IPO withdrawal outcome (M&A or trading) *shortly* after a withdrawn IPO filing while the rate of death is constant.

Third, we explore the special role of private equity and venture capital. We find that PE and VC-backed companies that withdraw from the IPO are more likely to have a superior alternative such as M&A or a second time IPO listing. In brief, the evidence is consistent with the view that an IPO is one of several alternatives in which especially private equity and venture capital pursue a dual-track strategy. It appears that already at the IPO filing, we can infer about the potential post-IPO withdrawal outcome. Our

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results do not support the hypotheses that IPOs are withdrawn when timing is unfavourable or because they are 'bad' companies.

The remainder of the paper is structured as follows: Section 2 introduces the testable hypotheses. Section 3 describes the factors influencing the post-IPO withdrawal outcomes and timing. Section 4 outlines the method and dataset. The empirical evidence is presented in Section 5 and tested for robustness in Section 6. Section 7 concludes this paper with a brief summary and a discussion on the implications of this research.

## 2. Hypotheses on post-IPO withdrawal outcomes

An IPO withdrawal is universally defined as an event when a company files for an IPO but does not follow through. Having filed for an IPO the company can *actively* cancel the IPO filing or *passively* not list in due time after filing for one (Helbing, 2019). This paper focuses on the afterlife of firms that decided to go public, but withdraw from this process. Dunbar (2011) and Boeh and Dunbar (2013) evaluate the afterlife of withdrawn firms in the USA, surfacing different post-withdrawal outcomes as shown in Figure 1. They argue that companies withdraw from IPO either because they are 'bad' IPO candidates and get rejected by the market or they are 'good' IPO companies and intentionally withdraw from the IPO. In a subsequent analysis, Boeh and Dunbar (2016) focus on the dual-track of a private placement for IPO companies as they assume that most IPOs are motivated by capital requirements only. Companies consequently withdraw from the IPO once the private placement becomes beneficial. Lian and Wang (2009) and Lian and Wang (2012) apply the Akerlof 'lemon' problem to withdrawn IPO that return to the IPO market. Assuming capital requirements only, they argue that withdrawn IPO companies, being perceived riskier, face a valuation penalty. In that sense, companies can withdraw from the IPO in favour of a superior *financial* alternative. Lian and Wang (2009) define merger and acquisition activities as such a superior alternative to an IPO.

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Apart from non-financial motivations for an IPO, many firm and prospectus specific information or the timing of these events have not been considered in previous research. Compared to the USA, there are established differences in regulatory and financial market particularities. Generally, IPO companies in Europe are more diverse and comparatively older than in the USA (Ritter, 2003, Ritter et al., 2013), with only marginal numbers of foreign listings. The IPO market in Europe can be defined as a series of domestic markets with low competition, yet a high degree of financial harmonisation and alignment between the different exchanges (Vismara et al., 2012).[2] To examine the post-IPO withdrawal outcomes, we draw from three closely intertwined theoretical threads in explaining initial public offerings: agency based, life cycle and market timing theories.

**Insert Figure 1 about here**

Assuming asymmetric information, potential investors value the IPO company based on a subjective probability of expectation of future success derived from a network of strong and weak positive and negative signals represented by firm and non-firm characteristics (Owen-Smith et al., 2015). Companies predominantly blame unfavourable market conditions for the IPO withdrawal. In line with market timing ideas, we should consequently observe a large proportion of withdrawn companies to return to the market and file for a second time IPO. This implies that IPOs are withdrawn when the equilibrium offer price is below a certain issuer's fundamental value threshold (Chemmanur and Fulghieri, 1999). The option like nature of an IPO withdrawal is introduced (Busaba, 2006). A company might remain private, whereby the prospective IPO company is not dependent on going public, if the costs of being public exceed the benefits thereof (Loughran and Ritter, 1995).

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[2]We direct the interested reader on the EU and EEA financial harmonisation characteristics to Helbing et al. (2019).

Another prevailing claim calls into question the quality of the prospective IPO company. If we assume that only 'bad' candidates withdraw from the IPO, we should consequently observe a major proportion of 'inactive' companies post-withdrawal. We expect this outcome primarily for companies at the AIM, given the particular exchange regulated nature with lower listing standards and fewer requirements (Johan, 2010). At an initial public offering, the company's value and price need to be assessed for the first time. Due to the limited information nature of private companies, information asymmetries are identified during the price discovery process. The valuation of an IPO company is influenced by a variety of firm and non-firm specific characteristics (Allen and Faulhaber, 1989). In agency theory, we assume inherent conflicts for IPO companies between the management, representing the controlling party of the firm's resources, and the shareholders, owning the firm's resources (Jensen and Meckling, 1976). The implied adverse selection and moral hazard issues in an initial public offering can stop the fund-raising, if not properly addressed and mitigated (La Porta et al., 2006).

An initial public offering is a conclusive step in a company's life cycle, when a firm grows sufficiently large, a more dispersed ownership is required Chemmanur and Fulghieri (1999). The AIM in the UK provides small and young companies a platform to raise funds to finance growth to advance in the life cycle (Vismara et al., 2012). Zingales (1995) argues that by going public, insiders facilitate the acquisition of their company. Over the last decade it has become more common for companies to operate a dual-track approach (see Field and Karpoff (2002) or more recently Aktas et al. (2018)) whereby, concurrent with the IPO filing, trade sale opportunities are also sought. Such a dual-track strategy should be observed through a large proportion of merger and acquisitions post-withdrawal. Under the dual-track strategy we would especially observe a higher number of M&A activity for private equity and venture capital backed withdrawn IPO companies. Gill

and Walz (2016) argue that an IPO with VC backing can be interpreted as a delayed trade sale. The particular institutionalised investment framework of private equity companies pressures a timely and lucrative exit (Harris et al., 2014). Tykvova and Walz (2007) posit that venture capitalists and private equity firms have an information advantage over investors; and as a consequence, they are more likely to withdraw from the IPO for the benefit of a more favourable option (Cumming, 2008).

## 3. Factors Influencing the post-IPO withdrawal outcome

In Europe, in contrast to the USA, the 'event' of an IPO withdrawal is not formerly defined or mentioned in the European Union or country specific directives. This means that the event of an IPO withdrawal cannot be identified as to the exact date, henceforth any event window is very blurry (Helbing et al., 2019).[3] We can break the characteristics hypothesised to impact IPO withdrawal and post-IPO withdrawal outcomes into a number of sets representing market, offer, and firm characteristics, measured at the time of the IPO filing.

### 3.1. Market characteristics

Market characteristics can be broken into three subcategories. First, we consider the level of *regulatory environment* approximated by the country-specific measures of the Rule of Law, Regulatory Efficiency, and the Market Openness Index provided by the Heritage Foundation as well as a Common Law Jurisdiction dummy variable. Second, we use the change in the country's Gross Domestic Product ($\Delta$GDP), the monthly yield of ten-year government bonds, and the credit spread to represent *economic conditions* (Bergbrant et al., 2015). Third, we examine equity *market conditions* since a

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[3]We however point out the time lag in the USA between the factual IPO withdrawal and the official, documented SEC withdrawal which, in case of Digicel 2015, diverges by almost a year.

multiplicity of research on market timing suggests that companies go public given favourable market conditions, therefore exploiting investor sentiment (Lowry, 2003). The change in the main stock market index ($\Delta$INDEX), a hotness as well as a trading volume dummy (Chemmanur and He, 2011), a negative news dummy (Shi et al., 2016, Helbing et al., 2019) and the VIX (Busaba et al., 2015) are examined. La Porta et al. (1997) suggest that a higher level of political stability as well as legal framework can be considered as a favourable environment for investors. We therefore expect an increased likelihood of a positive post-IPO withdrawal outcome. Likewise, we expect to observe a larger proportion of 'inactive' when the market environment is unfavourable.

### 3.2. Firm characteristics

Firm characteristics can be categorised into three areas. First, the *offer characteristics* include the offer size and the intent to retire debt with the IPO proceeds. We differentiate the offer share structure and expect IPO companies with a higher proportion of primary shares to be in finance need, consequently end up 'inactive' and secondary shares to be merged or acquired. We include a VC and PE dummy as the VC sponsor potentially add value to portfolio firms through operational gearing (Cumming et al., 2016). Busaba et al. (2001) find that VC-backed companies were less likely to succeed in the IPO. Boeh and Southam (2011), Helbing et al. (2019) as well as Fan and Yamada (2019) find that venture capitalists are more inclined to withdraw an IPO. In contrast, Dunbar and Foerster (2008) identify venture capitalist certification as key for a successful return to the equity market. We expect the sponsors to pursue multiple exit strategies and in line should observe superior post-IPO withdrawal outcomes for backed companies. Finally, as Chemmanur and Fulghieri (1999) hypothesise, cost of information production is essential in the IPO process. IPO insiders need to trade-off the benefit from disclosing relevant information to potential investors to the costs of doing so. Drawing from this framework, we examine the intellectual

capital disclosure in the IPO prospectus (IC dummy) (Singh and van der Zahn, 2007) and expect companies that disclose information should be more likely to engage in M&A. Information production is highest at the time of the IPO (Hsieh et al., 2011) and companies might seize and materialise the opportunity to merge or acquire a withdrawn IPO company.

Second, the *firm characteristics* include the firm size and age as we expect that larger and older issuers reduce the uncertainty about the long-term success of the IPO issue through positive signalling (Brau and Fawcett, 2006, Engelen and van Essen, 2010). We also consider variables for leverage, the level of capital expenditure and net income (Lowry, 2003). We assume that larger, older and financially stable firms are less dependent on the IPO and simply stay private. In addition, we examine a high-tech dummy (Engelen and van Essen, 2010) and degree of multinationality.

Third, the decision to undertake an initial public offering boosts potential agency problems as the ownership is dispersed (Latham and Braun, 2010). Helbing et al. (2019) show that corporate governance measures are an important determinant of IPO withdrawal in Europe. To proxy these, the level of retained ownership by shareholders prior to the IPO, the lock-up period, the board size and independence, the proportion of female board members and a CEO duality dummy are included (Howton et al., 2001, Djerbi and Anis, 2015, Brav and Gompers, 2003, Bhagat and Bolton, 2008). We expect a higher degree of 'private' or 'inactive' post-IPO withdrawal outcome when corporate governance issues are observable at the time of the IPO filing.

## 4. Data and Methods

This paper examines all IPO filings in the UK, France, Germany, Italy, Spain and Scandinavia from January 2001 to December 2015. Our dataset covers 82% of the Western European IPO market. Following usual practice in IPO literature (Ritter, 1987), we examine all common stock IPOs and therefore exclude Real Estate Investment Trusts, American Depositary

Receipts, closed-end or mutual funds, special purpose entities and rights issuance. We retrieve the list of IPO filings from Bloomberg and validate the accuracy with the information provided by the respective stock exchange. The IPO prospectuses are downloaded from Bloomberg, Thomson Reuters, stock exchanges, company's websites or other public sources. We use publicly available sources for economic and market specific characteristics but manually collect the majority of variables for the offer, firm and corporate governance variables from the individual IPO prospectus given the lack of available information in Europe. When a company withdraws from the IPO, four possible post-IPO withdrawal outcomes are defined. First, a company can become inactive and die. This implies that the company post-IPO withdrawal has no active operations. The company might have also declared bankruptcy or is labelled as dormant in the country registrars. Second, the company can engage in merger and acquisition. Here, it is assumed that the IPO company is merged or acquired and not the purchaser. A withdrawn IPO company is classified as merged or acquired when a majority stake is purchased. Third, the company can file for a second time IPO, eventually list and trade. All companies that successfully list subsequent to the IPO withdrawal are categorised as 'trading'. Fourth, the withdrawn IPO company can remain private. A withdrawn IPO company is classified as private if none of the above occurred.[4] Information on important corporate events is searched for in information terminals such as Bloomberg, Thomson Reuters Eikon and CapitalIQ. The status of the company is revised in the country-specific company registrars. Firm, investor press releases and public news articles in the LexisNexis database are an additional source of information about post-IPO withdrawal outcome. Often multiple sources are used to

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[4]In their working paper, Boeh and Dunbar (2013) also identify a private placement option as a post-IPO withdrawal outcome. In consideration of the data environment in Europe, private placements cannot accurately be identified for the dataset and consequently would be listed as 'private'.

verify the specific outcome. This makes our dataset unique in its extent, detail and depth.

In the light of our data set, we follow the academic convention and employ a probit model to identify the determinants of post-IPO withdrawal outcomes. We apply a multinomial probit model, where the dependent variable is the event of 'choice' given a specific post-IPO withdrawal outcome. The multinomial probit model does not assume any inherent ordering on the choices (Imai and van Dyk, 2005). We assume a multivariate normal distribution on the latent variables:

$$W_i = X_i\beta + \epsilon_i, \quad \epsilon_i \sim N(0, \sum), for \quad i = 1, ..., n, \tag{1}$$

where $X_i$ is a *(p-1) x k* matrix of covariates, $\beta$ is *k x 1* vector of fixed coefficients, $e_i$ is *(p-1) x 1* vector of disturbances, and $\sum$ is a *(p-1) x (p-1)* positive definite matrix. The response variable, $Y_i$, is the index of the choice of individual $i$ among the alternatives in the choice set and is modelled in terms of this latent variable, $W_i$:

$$Y_i(W_i) = \begin{cases} 0 & if \quad max(W_i) < 0 \\ j & if \quad max(W_i) = W_{ij} > 0 \end{cases} \tag{2}$$

for *i = 1, ..., n*, and *j = 1, ..., p-1*, where $Y_i$ equal to 0 corresponds to a base category. If all $W_i$ are negative then $Y = 0$ and $Y$ equals the index of the biggest $W_i$ if it is positive (McCulloch et al., 2000). The base outcome takes the value of 1 if the IPO post-withdrawal stays private, if the post-IPO withdrawal company becomes inactive it takes the value of 2, if the company engages in merger and acquisition it takes the value of 3, and finally takes the value of 4 if the company subsequently lists. The multinomial probit model reveals the determinants that affect the outcome of the IPO withdrawal, however it does not incorporate the length of time of that particular outcome to happen. Also, the multinomial probit does not account for censoring of the data which occurs when there are post-IPO withdrawal companies that are not yet dead (inactive). The advantage

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of survival analysis is the connection of the outcome characteristics and the timing of a particular event. Since the distribution of the post-IPO withdrawal outcome is unknown and does not need to be specified, but the covariates influence the survival time in a particular way, the semi-parametric Cox proportional hazards model is applied (Kartsonaki, 2016):

$$h(t; x_1, ..., x_p) = h_0(t)e^{\beta_1 x_{i1} + ... + \beta_k x_{ik}} \tag{3}$$

where $h(t)_0$ is the hazard function and represents the instantaneous rate of change from survival to the defined event at time $t$, given survival until time $t$. The second component is the exponential of a linear function of $k$ fixed covariates, $x_{i1}...x_{ik}$ and their coefficients, $\beta_1, ..., \beta_k$, representing the effect of the covariates on the outcome; for each unit increase in $x_k$ and all other covariates held fixed, the hazard is multiplied by $e^{\beta k}$. The event of interest is defined when the post-IPO withdrawal outcome changes from survival (private) to (i) inactive, (ii) M&A, (iii) trading. In the proportional Cox hazard model, the unknown parameters $\beta$ can be estimated using the partial likelihood. It is assumed that the hazard ratio for any two post-IPO withdrawal companies is constant over time and that the log hazard functions of any two individuals should be strictly parallel. The baseline hazard functions represented by $h(t)_0$ cancel out:

$$Partial\ Likelihood\ (\beta) = \prod_{t_j:\ event\ at\ t_i} \frac{e^{x_{(t_i)}}}{\sum_{j:t_j \geq t_i} e^{\beta x_j}} \tag{4}$$

## 5. The afterlife of withdrawn IPO companies

Between 2001 and 2015 an absolute of 334 IPO withdrawals of 2,808 IPO filings are documented constituting a withdrawal rate of about 12%. Figure 2, shows the distribution of post-IPO withdrawal outcomes. Companies that withdraw from the IPO predominantly remain private (37%). A surprising result is that every third withdrawn IPO company (33%) ends up merged

or acquired. One in almost five companies that withdraw from the IPO is terminated (inactive, 22%), when excluding the AIM observations this is reduced to about 16%. Only a proportion as small as 7% of successful second time IPOs can be documented. Companies that remain private or become inactive face a negative post-IPO withdrawal outcome (59%). If a company is merged, acquired or trading subsequently, this can be considered a positive post-IPO withdrawal outcome (41%).

**Insert Figure 2 about here**

The majority of IPO filings in number and volume as well as IPO withdrawal are in the UK, followed by France and Germany (Figure 3). About 44% of observations are in the UK of which 28% account for AIM and 16% for the Official List (OL), not surprising in light of the large numbers of IPO filings. Considering the high IPO withdrawal rate of 24% in the first place, around 18% of IPO withdrawals are in Italy. Germany constitutes 13% of post-IPO withdrawal observations, followed by France (13%), Sweden (7%) and Spain (3%).

**Insert Figure 3 about here**

There is some degree of variation of post-IPO withdrawal outcomes for the different European countries as evidenced in Figure 4. The share of companies that withdraw and stay private ranges from as low as 24% in France to 50% in Spain and Denmark. Curiously, not the UK (6%) but Germany, Sweden and Denmark show the highest number of withdrawn IPO companies that try a second IPO and subsequently list (14%, 13% and 33%). The largest proportion of post-IPO withdrawal companies that engage in M&A are in Italy (53%) followed by France (47%). The UK exhibits the largest proportion of withdrawn IPO companies that die (36%), an overarching 63% of these observations are at the AIM, with the lowest

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proportion in Italy (5%) and Germany (12%).[5]

**Insert Figure 4 about here**

From a first examination of the distribution of post-IPO withdrawal outcomes, the following conclusions can be drawn. Against the common belief, an IPO withdrawal does not necessarily end in termination of the company. Withdrawn IPO companies predominantly remain private or engage in M&A. The large numbers of mergers and acquisitions indicate that the IPO may constitute one alternative over several and that the IPO filing may be used as a marketing mechanism. This informs us that the IPO is an option to the majority of IPO companies (Busaba, 2006). A possibility that the withdrawn IPO company does not pursue in the end.

*5.1. General findings*

A first descriptive analysis reveals some similarities and differences for our sample of the afterlife of IPO withdrawal companies in Table 2. The first conclusion we can draw from the descriptive analysis is that there is no pronounced difference in the regulatory, market or economic environment. The market volatility (VIX) is lower for withdrawn IPO companies that successfully try a second IPO (trading) which is in line with expectation. The trading volume is also higher for withdrawn IPO companies that have a positive post-IPO withdrawal outcome. Withdrawn companies that filed the IPO during hot markets are more likely to end up inactive, to face a negative post-IPO withdrawal outcome. In terms of firm specific factors, the different post-IPO outcomes exhibit significant differences. IPO companies that do not sell and die are younger and exhibit a smaller offer and firm size at the time of the IPO filing – this result seems to be dominantly

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[5]We provide additional tables and figures on the AIM in the Appendix. We also show that results remain robust when excluding the 92 AIM observations.

driven by the companies filing at the AIM.[6] We can conclude that positive post-IPO withdrawal outcomes such as M&A and trading more often exhibit involvement from risk capital providers such as private equity sponsors and venture capitalists. Interestingly, companies that engaged in M&A post-IPO withdrawal are less likely to disclose their intellectual capital or competitive advantage. Withdrawn IPO companies with the highest corporate governance characteristics are more likely to second time IPO and trade which is in line with expectation from agency based explanations.

**Insert Table 2 about here**

Given the small number of observations, the results of the multinomial probit regression are of indicative nature. In Table 3 the results are given with the base outcome as withdrawn IPO companies that remained private. We report the probit coefficient estimates for the respective post-IPO withdrawal outcome. There are similarities for the different post-IPO withdrawal outcomes. However, some differences exist between the positive (M&A, trading) and negative outcomes (private, inactive). Companies that do not sell and consequently die (*inactive*) manifest some differences in the market or economic conditions. The more unfavourable the debt *and* equity market condition get, the more likely the company is to be inactive post-IPO withdrawal. Withdrawn IPO companies that die experienced worse credit conditions. It seems as if they tried to exploit the wave like IPO issuance nature but failed to capture the opportunity. A higher corporate governance measurement of retained ownership at the time of the IPO filing significantly reduces the probability of this unfortunate post-IPO withdrawal outcome. If an IPO company wants to retire debt with the IPO proceeds it reduces the probability of that company to become inactive. We suspect that the low frequency of this event of private equity backed companies that predom-

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[6]See Espenlaub et al. (2012) for a discussion on the survival of IPO companies at the AIM.

inantly exhibit this characteristic influences this result. We note that this result disappears when excluding the AIM observations. A more detailed firm-level examination would provide great insights on the determinants of becoming inactive which is, however, beyond the scope of this paper. In contrast to our expectation and findings for the post-IPO withdrawal outcome of 'M&A' and 'trading', we observe that PE backing increases the probability of an withdrawn IPO company to die. We assume a 'write-off' for the private equity sponsors to be the last of the means of exiting.

**Insert Table 3 about here**

IPO companies that withdraw from the IPO but return later to the IPO market and subsequently list (*trading*) are more likely to be backed by private equity or venture capital sponsors. This provides evidence for the dual-track strategy of PE and VC sponsors. Better corporate governance metrics of a higher retained ownership, a larger board size and higher proportion of female board members seem to matter for a post-IPO withdrawal company to successfully list in a second time IPO. The importance of imminent agency conflicts between the potential investor and the IPO company becomes evident in line with expectation (La Porta et al., 2006). When economic conditions are favourable ($\Delta$ GDP) at the time of the first IPO filing, the post-IPO withdrawal company is more likely to return to the IPO market. However, other variables approximating the equity conditions do not show the same result. It is noted, that most economic impacts on the probability for this post-IPO withdrawal outcome are marginal. Companies that engage in *merger and acquisition* after the IPO withdrawal show similar determinants to listed post-IPO withdrawal companies. We find evidence that PE involvement increases the probability for this positive post-IPO withdrawal outcome by as much as 24%. The higher the change in the main market index at the time of the IPO filing, the higher the probability for this outcome. Information acquisition costs pose a main hurdle for any transaction (Allen and Faulhaber, 1989). At an IPO the company reveals a high

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degree of information (Sherman and Titman, 2002); we assume that the information production during an IPO filing significantly reduces the information acquisition costs. We consequently hypothesise that the purchaser seizes the opportunity of the IPO filing.

### 5.2. Post-IPO withdrawal outcomes in a survival analysis

From the survival analysis in Table 4 and Figures 5, 6, 7, we can exhibit similar results to the indicative multinomial probit regression. The hazard ratios reported in Table 4 represent the probability ratio that the company post-IPO withdrawal would experience a certain outcome such as inactive, M&A or trading, at a particular given point in time that is not close to 1. We can identify that companies that end up inactive are less likely to have intended to retire debt with the proceeds of the failed IPO (0.458). Likewise, companies that do not sell and consequently die are more likely to have a low retained ownership proportion (0.195) which indicates that agency costs play an important role in the post-IPO withdrawal outcome. It is not surprising that companies in common law jurisdiction (4.327), given the high frequency of this outcome at the AIM, or at worst credit conditions (1.429) are more likely to end up inactive. Figure 5 portrays the estimated probability of survival according to the time-to-event. In the first four years after an IPO filing, around 10% of companies are likely die. The rate seems to be constant after nearly 13 years with 50% being likely to not have survived.

**Insert Table 4 about here**

Within the first two years after an IPO filing, around 25% of IPO withdrawn companies are likely to be merged or acquired according to Figure 6. Overall, after 8 years around 38% are likely to be engaged in M&A; we can see a clear focus within the first 24 months of this post-IPO withdrawal outcome to happen shortly after an IPO filing. This is as expected when examining the hazard ratios in Table 4. Companies are twice likely to have had private equity backing at the time of the initial IPO filing (2.042).

This is further evidence for our conclusion that private equity investors pursue multiple-exit routes alongside the IPO. Given the institutionalised investment framework of private equity companies, they exit the investment shortly after the withdrawn IPO through a trade sale or secondary buyouts.

In terms of companies that withdraw, file for a second time IPO and list we can exhibit an almost binomial survival estimate in Figure 7. Either a company is likely to be traded within the first two years after a withdrawn IPO filing (5%) or only after 10 years (10%). The corporate governance role with the implied agency costs of a listed company become obvious in Table 4. Companies that end up listed after an IPO withdrawal are more likely to have a higher level of retained ownership (10.625) as well as larger numbers of board size (1.285) and female board members (41.606). More multinational companies (27.152) are likely to exhibit this positive outcome post-IPO withdrawal while volatility (0.889) and credit conditions (0.547) at the time of the IPO filing are more favourable.

**Insert Figures 5, 6, 7 about here**

*5.3. The role of private equity and venture capital*

Out of our 334 observations, 84 companies that withdraw the IPO are backed by private equity and 35 by venture capital. This means that almost every third withdrawn IPO company or approximately 36% of IPO withdrawals are backed by a risk capital provider. The aftermath of the PE and VC-backed IPO withdrawal companies is evaluated in Figure 8.

**Insert Figure 8 about here**

About 63% of private equity backed and 57% of venture capital backed companies engage in a presumably superior alternative; they are acquired, sold in a secondary buyout or listed. In contrast, only 29% of non-backed IPO withdrawal companies exhibit similar outcomes.

**Insert Figure 9 about here**

In Figure 9, the post-IPO withdrawal outcomes are further contrasted for PE, VC and non-backed companies. A trend can be identified that non-backed IPO companies withdrawing end up inactive more often (27%), in contrast to PE and VC-backed IPO companies (15%, 14%). Likewise, the post-IPO withdrawal outcome of M&A is more frequent with companies that are backed by PE or VC at the time of the IPO filing with 50% and 43%, respectively. Gompers et al. (2016) and Kaplan and Strömberg (2009) identify trade sales or secondary buyouts as the most frequent exit routes for private equity investors. Only 25% of non-backed companies are merged or acquired post-IPO withdrawal. A majority of 44% companies without backing remains private after, whereas this outcome is documented for 21% of PE-backed and 29% VC-backed withdrawn IPO companies. About 13% of PE and 14% of VC-backed companies eventually list after an IPO withdrawal compared to only 5% of non-backed IPO companies. There appears to be a difference on the post-IPO withdrawal outcomes for backed and non-backed companies. As a descriptive investigation, Table 5 reports the mean and standard deviation of the variables according to backed, which includes PE and VC, and non-backed IPO withdrawals.

**Insert Table 5 about here**

Non-backed withdrawn companies file the IPO in times of more favourable regulatory environment compared to backed companies. The indices of rule of law, regulatory efficiency and market openness are higher for IPO withdrawals that are not backed by either VC or PE. The offer structure exhibits significant differences between backed and non-backed IPO withdrawal companies. As expected, PE or VC-backed companies that withdraw from the IPO demonstrate a higher proportion of secondary shares compared to non-backed companies. Risk capital providers use the IPO to exit the investment (Jenkinson and Sousa, 2015). Likewise, the backed IPO companies want to retire debt more often than non-backed companies. Private equity use significant levels of leverage to buy the target company (Axelson et al., 2013)

and may use part of the proceeds to delever. Backed IPOs that withdraw from the IPO also engage a more reputable underwriter which suggests the close linkage of private equity or venture capital with investment banks (Boeh and Southam, 2011). More multinational and high-tech companies that withdraw from the IPO are backed by VC or PE. The results in Table 5 show that backed companies withdrawing from the IPO demonstrate better corporate governance characteristics. On average, backed IPO withdrawals have 7 board members with a higher proportion of independent as well as female board members. It is assumed that these findings are influenced primarily by the PE-backed companies. Private equity purchases a majority stake of the company with a considerable level of leverage. This reduces the imminent agency conflicts between owners and managers as interests are highly aligned through a strong compensation system. PE-backed companies exhibit superior corporate governance (Jensen, 1986, Acharya et al., 2013). In summary, PE and VC-backed companies are more likely to be merged or acquired and traded post-IPO withdrawal. This can be taken as evidence for the dual-track strategy of the PE or VC partner. The particular institutionalised investment framework of PE and VC companies pressure for a timely and lucrative exit.[7]

### 5.4. Comparison with existing findings

As established earlier in the paper, differences exist between the European and the American IPO markets (Ritter, 2003, Ritter et al., 2013). Interestingly, different empirical manifestations can be identified when examining the afterlife of withdrawn IPOs. While most results for the largest European equity markets show similarities to the US-based research, some of the findings are in contrast to Dunbar and Foerster (2008), Lian and Wang (2012) as well as Boeh and Dunbar (2013). This does not consequently lead to an overthrow of the findings for the US equity market, but it leads to

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[7]We provide additional qualitative information on the deal size in the Appendix.

the conclusion that, while a feature to European and US equity markets, the IPO phenomenon of withdrawal and its afterlife needs to be examined within an institutional setting.

Boeh and Dunbar (2013) examine 588 IPO withdrawals between 1999 to 2004 in the USA with the following distributions of post-IPO withdrawal outcomes: 11% are inactive, 42% merged or acquired, 36% stay private and 13% return to the market. In our European dataset from 2001 to 2015, about 22% become inactive whereas the proportion of companies that remain private is comparable. Moreover, the M&A activity is lower at 33% and only 8% return to the market. The variance in numbers can be most likely be explained by the difference in time and IPO setting. As established, the European IPO markets are less liquid and integrated compared to the USA. Boeh and Dunbar (2013) identify venture capital and the underwriter prestige as key characteristics for a positive post-IPO withdrawal outcome. Lian and Wang (2012) explore the valuation multiples of M&A before and after the company withdraws from the IPO. They find that the 'almost public' companies that withdraw from the IPO sell at a significant acquisition premium. Valuation multiples are not explored, however in this paper evidence crystallises for a dual-track strategy for private equity and venture capital investors. Dunbar and Foerster (2008) analyse the determinants of successful second time IPOs in the United States. They identify venture capital involvement as one of the key drivers which is consistent with our findings. There is however a degree of difference when it comes to the interpretation of the variable. Dunbar and Foerster (2008) assert venture capital backing a certification effect which increases the likelihood of a second time IPO. We firstly distinguish between PE and VC involvement and secondly argue for a dual-track strategy of VC and PE partners to exit their investments. Additionally, in consideration of the VC and PE environment in Europe (Groh et al., 2010), the certification hypothesis is queried.

Interestingly, the underwriters' prestige does not influence the post-IPO

withdrawal outcome in contrast to the US findings. Klein et al. (2016) argue that companies chose their underwriter not on reputation but by previous linkages. Therefore, the certification role of underwriters that is observed in the USA does not apply to Germany, Italy and the UK due to the specific universal operations of banks. A preexisting lending relationship with the underwriter bank may facilitate access to further credits.

## 6. Conclusion

In this paper, we analyse a unique data set of all withdrawn IPO filings from 2001 to 2015 in France, Germany, Italy, Scandinavia, Spain and the UK. We analyse regulatory, economic, and market conditions as well as offer, firm, and corporate governance characteristics at the time of the IPO filing to identify what happens to the company after an IPO withdrawal. The post-IPO withdrawal events are categorised into four possible categories: private, inactive, M&A and trading where the last two categories can be considered superior alternatives. Some interesting results emerge. The majority of companies remain private or engage in M&A, while only a marginal fraction returns to the market, the 'inactive' companies predominantly occur at the less regulated AIM. We identify a difference of post-IPO withdrawal outcomes for backed and non-backed companies. We find that PE and VC-backed companies are more likely to have a superior alternative such as a second time IPO or M&A. The particular institutionalised investment framework of PE and VC companies pressures a timely and lucrative exit. In a survival analysis setting we find further evidence for the determinants of the different outcomes. We identify that companies exhibit a positive post-IPO withdrawal outcome (M&A or trading) *shortly* after a withdrawn IPO filing while the rate of death is constant. Given the empirical evidence on post-IPO withdrawal outcomes in Europe, we conclude that IPOs are not withdrawn because timing is unfavourable or the IPO candidate is unfit, apart from the AIM companies. Rather, IPOs seem to be

part of dual-track strategy, whereby companies remain private, if it does not work out. In particular, PE and VC managers pursue multiple exit routes, considering trade or secondary sale opportunities. The IPO most likely is withdrawn in favour of a superior exit, a success dressed as a failure.

Apart from the empirical implications, the theoretical implications suggest that an IPO withdrawal is not per se a negative event. The IPO process in a globalised world is too complex to be generalised by single country studies, and that the role of VC and PE involvement, especially, cannot be captured through broad generalisation. It is claimed that information evaluation costs are significantly lowered for the withdrawn IPO company making it a target for merger and acquisition. To further uncover the deal terms of the M&A transactions would yield great insights into the question whether an IPO withdrawal is a negative or positive event after all. Likewise, an investigation of the particular role of the underwriter in the pursuit of alternative routes would be insightful.

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Table 1a: Data Description and Sources - Regulatory, Economic, and Market Environment

| Variable | Variable Name | Source | Definition |
|---|---|---|---|
| *Regulatory Environment* | | | |
| $x_1$ | Rule of Law | The Heritage Foundation | Provides annual data on how the rule of law and its enforcement is experienced by the general public including dimensions such as property rights and freedom from corruption. |
| $x_2$ | Regulatory Efficiency | The Heritage Foundation | Provides annual data on how the regulatory efficiency is experienced by the general public including quantitative measures such as labour, business and monetary freedom. |
| $x_3$ | Market Openness | The Heritage Foundation | Provides annual data on how the openness of the markets is experienced by the general public including dimensions such as trade, investment and financial freedom. |
| $x_4$ | Common Law Dummy | Prospectus | This dummy variable takes the value of 1 if the IPO is in a common law jurisdiction and 0 otherwise. |
| *Economic Environment* | | | |
| $x_5$ | 10 year Government Bond | Thomson Reuters Datastream | The basis points of the 10 year Government Bond yields are provided on a month end basis and approximate the cost of lending. |
| $x_6$ | Credit Spread | Thomson Reuters Datastream | The end of the month difference between the 10 year Government Bond and the 1 year Government Bond yields signals the credit conditions. |
| $x_7$ | $\Delta$GDP - change of the Gross Domestic Product | Bloomberg | An aggregate measure of quarterly production equal to the sum of the gross values added of all resident, institutional units engaged in production. It provides information on the economic performance of a country. |
| *Market Environment* | | | |
| $x_8$ | VIX - Chicago Board Options Exchange SPX Volatility Index | Bloomberg | This index represents a market estimate of the future volatility. Month end measures are considered. |
| $x_9$ | $\Delta$Index - change of the stock market index | Bloomberg & Thomson Reuters Datastream | The monthly change of the corresponding main stock market index between the filling date and the prior month, providing information on the equity market (bull or bear market). |
| $x_{10}$ | Hotness Dummy | Bloomberg | The rolling averages of the number of filings 180 days prior to the specific IPO filing date are computed.[*] If the company faces a higher competition than average, the dummy variable takes a value of 1 and 0 otherwise. This dummy is not complimentary to a coldness dummy. |
| $x_{11}$ | Trading Volume Dummy | Bloomberg | The rolling averages of the trading volume 180 days prior to the specific IPO filing date are computed.[*] If the company files for an IPO during intensive trading, the dummy variable takes a value of 1 and 0 otherwise. |
| $x_{12}$ | Negative News Dummy | LexisNexis (handpicked) | If the IPO company is mentioned in the same paragraph with specific negative terms given by the LexisNexis Negative News Search one year prior to the IPO or withdrawal, the dummy takes the value of 1 and 0 otherwise.[+] |

*: Indicates that the variable has been constructed back to 6 months prior to the IPO filing date.

+: Indicates that the variable has been constructed back to 12 months prior to the IPO filing date.

Table 1b: Data Description and Sources - Offer Characteristics

| Variable | Variable Name | Source | Definition |
|---|---|---|---|
| *Offer Characteristics* | | | |
| $x_{13}$ | Offer Size | Prospectus / Bloomberg | The natural logarithm of the company's offer size is computed. |
| $x_{14}$ | Primary Shares | Prospectus | The percentage of newly created shares being sold in the IPO. |
| $x_{15}$ | Secondary Shares | Prospectus | The percentage of existing shares being sold in the IPO. |
| $x_{16}$ | Greenshoe Option | Prospectus | The percentage of extra shares that the underwriter is granted to sell additionally in the IPO depending on the demand. |
| $x_{17}$ | Debt Retirement Dummy | Prospectus | This dummy variable takes the value of 1 if the IPO company intends to retire debt with the IPO proceeds and 0 otherwise. |
| $x_{18}$ | Private Equity Dummy | Prospectus | This dummy variable takes a value of 1 if the company mentions private equity involvement in the prospectus and 0 otherwise. |
| $x_{19}$ | Venture Capital Dummy | Prospectus | This dummy variable takes a value of 1 if the company mentions venture capital involvement in the prospectus and 0 otherwise. |
| $x_{20}$ | Intellectual Capital Dummy | Prospectus | This dummy variable takes a value of 1 if the company discloses the intellectual capital or its competitive advantage in the prospectus and 0 if the IC is not mentioned or disclosed. |
| $x_{21}$ | Underwriter | Prospectus / Bloomberg | The underwriter reputation is classified according to the European ranking of Migliorati and Vismara (2014) which ranges from 0 to the highest reputation of 1. In case of a consortium of underwriters, the average of the underwriter reputation is taken. |

*: Indicates that the variable has been constructed back to 6 months prior to the IPO filing date.

Table 1c: Data Description and Sources - Firm and Corporate Governance Characteristics

| Variable | Variable Name | Source | Definition |
|---|---|---|---|
| *Firm Characteristics* | | | |
| $x_{22}$ | Firm Size | Prospectus / Bloomberg | The natural logarithm of the company's total assets is computed. |
| $x_{23}$ | Age | Prospectus / Bloomberg | The natural logarithm of the company's age is computed. |
| $x_{24}$ | CapEx | Prospectus / Bloomberg | The position of capital expenditures is divided by the total assets of the IPO company. |
| $x_{25}$ | Return on Assets | Prospectus / Bloomberg | The position of net income is divided by the total assets of the IPO company. |
| $x_{26}$ | Leverage | Prospectus / Bloomberg | The position of total debt is divided by the total assets. |
| $x_{27}$ | High-Tech Dummy | Prospectus / Company Register | This dummy variable takes the value of 1 if the IPO company belongs to the high-tech industry and 0 otherwise. The categorisation of high-tech is based on the Eurostat definiton. |
| $x_{28}$ | Multinationality | Prospectus | The scale of Aggarwal et al. (2011) is taken to quantify the degree of multinationality which includes for instance the revenue created abroad or foreign assets. In case no country-level information can be gathered, the presence of subsidiaries are taken. The scale differentiates seven categories of multinationality where the highest level of MNAT is the cumulation of all classifications up to the value of 1. |
| *Corporate Governance Characteristics* | | | |
| $x_{29}$ | Retained Ownership | Prospectus | The proportion of ownership in shares hold by insiders post IPO (Djerbi and Anis, 2015). |
| $x_{30}$ | Lock-up | Prospectus | Number of days the pre-IPO owners agree not to sell their shares. |
| $x_{31}$ | Board Size | Prospectus | This variable accounts for the absolute number of board members. |
| $x_{32}$ | Board Independence | Prospectus | This variable accounts for the ratio of board members that have no link to the IPO company. |
| $x_{33}$ | Female Board Members | Prospectus | This variable accounts for the ratio of female board members. |
| $x_{34}$ | CEO Duality Dummy | Prospectus | This dummy variable takes the value of 1 if the roles of a CEO and chairman are combined and 0 otherwise. |

Table 2: Descriptives of post-IPO Withdrawal Outcomes

| Variable | Private Average | St. Deviation | Inactive Average | St. Deviation | M&A Average | St. Deviation | Trading Average | St. Deviation |
|---|---|---|---|---|---|---|---|---|
| *Regulatory Environment* | | | | | | | | |
| $x_1$ Rule of Law | 78.391 | 13.647 | 83.839 | 8.372 | 73.616 | 15.654 | 79.681 | 13.772 |
| $x_2$ Regulatory Efficiency | 78.199 | 5.427 | 81.098 | 5.258 | 76.974 | 6.062 | 78.423 | 6.716 |
| $x_3$ Market Openness | 79.184 | 7.617 | 80.431 | 7.330 | 76.416 | 7.637 | 79.149 | 6.630 |
| $x_4$ Common Law | 0.426 | 0.497 | 0.707 | 0.458 | 0.300 | 0.460 | 0.333 | 0.480 |
| *Economic Environment* | | | | | | | | |
| $x_5$ 10yr Government Bond | 3.766 | 1.231 | 4.183 | 0.999 | 3.823 | 1.215 | 3.486 | 1.165 |
| $x_6$ Credit Spread | 1.303 | 1.198 | 0.897 | 1.292 | 1.310 | 1.213 | 1.471 | 1.062 |
| $x_7$ $\Delta$GDP | 0.019 | 0.015 | 0.021 | 0.013 | 0.018 | 0.015 | 0.023 | 0.012 |
| *Market Environment* | | | | | | | | |
| $x_8$ VIX | 19.076 | 6.202 | 18.136 | 5.798 | 18.948 | 6.952 | 17.006 | 4.834 |
| $x_9$ $\Delta$INDEX | -0.014 | 0.047 | 0.006 | 0.024 | 0.001 | 0.041 | -0.006 | 0.041 |
| $x_{10}$ Market Hotness | 0.541 | 0.500 | 0.720 | 0.452 | 0.509 | 0.502 | 0.630 | 0.492 |
| $x_{11}$ Trading Volume | 0.451 | 0.500 | 0.453 | 0.501 | 0.527 | 0.502 | 0.519 | 0.509 |
| $x_{12}$ Negative News | 0.270 | 0.446 | 0.307 | 0.464 | 0.355 | 0.481 | 0.296 | 0.465 |
| *Offer Characteristics* | | | | | | | | |
| $x_{13}$ Offer Size (mn) | 706.516 | 4602.330 | 172.247 | 535.082 | 400.055 | 1001.409 | 945.804 | 2076.594 |
| $x_{14}$ Primary Shares | 0.793 | 0.326 | 0.843 | 0.325 | 0.643 | 0.359 | 0.824 | 0.255 |
| $x_{15}$ Secondary Shares | 0.207 | 0.326 | 0.157 | 0.325 | 0.349 | 0.354 | 0.176 | 0.255 |
| $x_{16}$ Greenshoe Option | 0.031 | 0.079 | 0.038 | 0.097 | 0.047 | 0.079 | 0.050 | 0.065 |
| $x_{17}$ Debt Retirement | 0.295 | 0.458 | 0.160 | 0.369 | 0.336 | 0.475 | 0.222 | 0.424 |
| $x_{18}$ Private Equity | 0.148 | 0.356 | 0.173 | 0.381 | 0.382 | 0.488 | 0.407 | 0.501 |
| $x_{19}$ Venture Capital | 0.082 | 0.275 | 0.067 | 0.251 | 0.136 | 0.345 | 0.185 | 0.396 |
| $x_{20}$ Intellectual Capital | 0.180 | 0.386 | 0.120 | 0.327 | 0.236 | 0.427 | 0.259 | 0.447 |
| $x_{21}$ Underwriter | 0.233 | 0.270 | 0.232 | 0.271 | 0.271 | 0.265 | 0.260 | 0.259 |
| *Firm Characteristics* | | | | | | | | |
| $x_{22}$ Firm Size (mn) | 9881.126 | 87903.788 | 6954.193 | 54961.762 | 2340.037 | 10325.378 | 8706.082 | 25228.229 |
| $x_{23}$ Age (years) | 22.762 | 32.336 | 15.480 | 31.030 | 24.482 | 35.839 | 26.315 | 38.835 |
| $x_{24}$ CapEx | 0.241 | 2.096 | 0.078 | 0.306 | 0.056 | 0.123 | 0.066 | 0.190 |
| $x_{25}$ Return on Assets | 1.687 | 22.844 | -0.164 | 0.826 | -0.051 | 0.550 | -0.136 | 0.336 |
| $x_{26}$ Debt | 7.090 | 66.271 | 0.852 | 2.069 | 0.714 | 0.418 | 0.618 | 0.451 |
| $x_{27}$ High-Tech | 0.205 | 0.405 | 0.133 | 0.342 | 0.255 | 0.438 | 0.296 | 0.465 |
| $x_{28}$ Multinationality | 0.290 | 0.182 | 0.249 | 0.174 | 0.329 | 0.194 | 0.449 | 0.265 |
| *Corporate Governance Characteristics* | | | | | | | | |
| $x_{29}$ Retained Ownership | 0.545 | 0.291 | 0.417 | 0.303 | 0.539 | 0.269 | 0.609 | 0.256 |
| $x_{30}$ Lock-Up (days) | 108.156 | 149.962 | 136.533 | 183.638 | 122.364 | 159.763 | 200.111 | 180.564 |
| $x_{31}$ Board Size | 5.811 | 3.840 | 4.640 | 3.645 | 6.000 | 3.421 | 9.074 | 5.045 |
| $x_{32}$ Board Independence | 0.156 | 0.229 | 0.079 | 0.171 | 0.158 | 0.221 | 0.261 | 0.261 |
| $x_{33}$ Female Board Members | 0.071 | 0.132 | 0.076 | 0.177 | 0.103 | 0.151 | 0.136 | 0.178 |
| $x_{34}$ CEO Duality | 0.115 | 0.320 | 0.227 | 0.421 | 0.136 | 0.345 | 0.037 | 0.192 |

Note: The database includes 334 withdrawn IPOs with the following post-IPO withdrawal outcomes: 122 are private, 75 are inactive, 110 engaged in M&A and 27 are trading. This table reports the means and standard deviations for 34 variables broken down by post-IPO withdrawal outcome. All variable definitions can be found in Table 1.

## Table 3: Determinants of post-IPO Withdrawal Outcomes

| Variable | Inactive | | M&A | | Trading | |
|---|---|---|---|---|---|---|
| | Coef. | Marginal Effect | Coef. | Marginal Effect | Coef. | Marginal Effect |
| *Regulatory Environment* | | | | | | |
| $x_1$ Rule of Law | 0.048** | 0.96% | -0.017 | -0.88% | -0.019 | 0.00% |
| $x_2$ Regulatory Efficiency | 0.000 | -0.21% | 0.026 | 0.75% | 0.047 | 0.00% |
| $x_3$ Market Openness | -0.081*** | -1.32% | -0.010 | 0.36% | -0.032 | 0.00% |
| $x_4$ Common Law | 1.343** | 23.71% | -0.072 | -12.90% | -0.214 | -0.03% |
| *Economic Environment* | | | | | | |
| $x_5$ 10yr Government Bond | 0.394** | 6.38% | 0.051 | -1.69% | -0.240 | -0.02% |
| $x_6$ Credit Spread | 0.180 | 4.15% | -0.131 | -5.28% | 0.152 | 0.01% |
| $x_7$ $\Delta$GDP | -12.836 | -191.21% | -3.769 | -7.61% | 37.351* | 2.36% |
| *Market Environment* | | | | | | |
| $x_8$ VIX | -0.003 | -0.37% | 0.040** | 1.20% | -0.092* | -0.01% |
| $x_9$ $\Delta$INDEX | 12.125*** | 121.37% | 10.886** | 220.59% | -9.778 | -0.94% |
| $x_{10}$ Market Hotness | 0.243 | 4.16% | 0.001 | -1.93% | 0.763 | 0.04% |
| $x_{11}$ Trading Volume | 0.003 | -1.18% | 0.152 | 4.40% | 0.507 | 0.03% |
| $x_{12}$ Negative News | 0.260 | 2.94% | 0.191 | 3.50% | -0.393 | -0.03% |
| *Offer Characteristics* | | | | | | |
| $x_{13}$ Offer Size | -0.031 | -1.12% | 0.072 | 2.35% | 0.362** | 0.02% |
| $x_{14}$ Primary Shares | 0.241 | 16.34% | -1.508 | -45.92% | -3.662 | -0.18% |
| $x_{15}$ Secondary Shares | 0.239 | 11.35% | -0.890 | -27.79% | -5.618** | -0.30% |
| $x_{16}$ Greenshoe Option | 1.175 | 9.76% | 1.305 | 28.68% | -1.199 | -0.11% |
| $x_{17}$ Debt Retirement | -0.794** | -12.94% | -0.089 | 3.79% | -0.741 | -0.03% |
| $x_{18}$ Private Equity | 0.754** | 4.58% | 1.042*** | 24.34% | 1.332*** | 0.04% |
| $x_{19}$ Venture Capital | -0.255 | -8.14% | 0.464 | 15.56% | 1.276* | 0.07% |
| $x_{20}$ Intellectual Capital | 0.414 | 3.44% | 0.456 | 9.97% | 0.982 | 0.04% |
| $x_{21}$ Underwriter | -0.043 | -0.53% | -0.027 | -0.46% | 0.552 | 0.03% |
| *Firm Characteristics* | | | | | | |
| $x_{22}$ Firm Size | -0.027 | -0.55% | 0.011 | 0.55% | -0.157* | -0.01% |
| $x_{23}$ Age | 0.086 | 2.28% | -0.097 | -3.53% | -0.430** | -0.02% |
| $x_{24}$ CapEx | -0.158 | -4.69% | 0.244 | 8.39% | 0.751 | 0.04% |
| $x_{25}$ Return on Assets | -0.116 | -3.44% | 0.179 | 6.16% | -0.011 | 0.00% |
| $x_{26}$ Debt | -0.070 | -0.54% | -0.081 | -1.81% | -0.577 | -0.03% |
| $x_{27}$ High-Tech | -0.119 | -3.99% | 0.241 | 8.00% | -0.170 | -0.01% |
| $x_{28}$ Multinationality | 0.532 | 2.67% | 0.803 | 19.11% | 3.013*** | 0.15% |
| *Corporate Governance Characteristics* | | | | | | |
| $x_{29}$ Retained Ownership | -1.282*** | -20.89% | -0.151 | 5.87% | 1.558* | 0.11% |
| $x_{30}$ Lock-Up | 0.001 | 0.01% | 0.000 | 0.01% | 0.002 | 0.00% |
| $x_{31}$ Board Size | 0.005 | 0.28% | -0.024 | -0.74% | 0.209*** | 0.01% |
| $x_{32}$ Board Independence | -1.257 | -17.33% | -0.536 | -5.54% | -0.300 | 0.01% |
| $x_{33}$ Female Board Members | 0.188 | -3.44% | 0.827 | 22.57% | 2.590* | 0.13% |
| $x_{34}$ CEO Duality | 0.483 | 8.23% | 0.014 | -3.44% | -1.669 | -0.10% |

Note: The dependent variable equals 1 (Inactive), 2 (M&A), or 3 (Trading) for post-IPO withdrawal outcomes and 4 otherwise (base outcome: Private). *, ** and *** denote significance at 10%, 5% and 1%, respectively. Average Marginal Effects are defined as follows: the probit employs normalisation that fixes the standard deviation of the error term to 1 where each coefficient represents the average marginal effect of a unit change on the probability that the dependent variable takes the value of either 1 (Inactive), 2 (M&A), or 3 (Trading) given that all other independent variables are constant (Aldrich and Nelson, 1984). The database includes 334 observations.

Table 4: Survival Analysis of post-IPO Withdrawal Outcomes

| Variable | Inactive Hazard Ratio | M&A Hazard Ratio | Trading Hazard Ratio |
|---|---|---|---|
| *Regulatory Environment* | | | |
| $x_1$ Rule of Law | 1.051** | 0.983* | 0.973 |
| $x_2$ Regulatory Efficiency | 0.999 | 0.964 | 1.059 |
| $x_3$ Market Openness | 0.942* | 1.000 | 1.034 |
| $x_4$ Common Law | 4.327** | 1.113 | 0.489 |
| *Economic Environment* | | | |
| $x_5$ 10yr Government Bond | 0.999 | 0.867 | 0.547** |
| $x_6$ Credit Spread | 1.429** | 0.910 | 1.502 |
| $x_7$ $\Delta$GDP | 0.000 | 0.510 | 6.96E+12 |
| *Market Environment* | | | |
| $x_8$ VIX | 0.973 | 1.0345** | 0.889* |
| $x_9$ $\Delta$INDEX | 1199676** | 278.031** | 0.000 |
| $x_{10}$ Market Hotness | 1.191 | 0.791 | 1.661 |
| $x_{11}$ Trading Volume | 0.721 | 1.134 | 1.396 |
| $x_{12}$ Negative News | 0.958 | 1.119 | 0.428 |
| *Offer Characteristics* | | | |
| $x_{13}$ Offer Size | 0.951 | 1.057 | 1.551** |
| $x_{14}$ Primary Shares | 1.10E+08*** | 0.192 | 5.99E+07*** |
| $x_{15}$ Secondary Shares | 6.08E+07 | 0.396 | 4.43E+06 |
| $x_{16}$ Greenshoe Option | 3.239 | 0.984 | 0.082 |
| $x_{17}$ Debt Retirement | 0.458* | 1.247 | 0.485 |
| $x_{18}$ Private Equity | 1.382 | 2.042*** | 2.506 |
| $x_{19}$ Venture Capital | 0.528 | 1.217 | 1.975 |
| $x_{20}$ Intellectual Capital | 1.117 | 1.295 | 2.112 |
| $x_{21}$ Underwriter | 1.049 | 1.046 | 3.832 |
| *Firm Characteristics* | | | |
| $x_{22}$ Firm Size | 0.973 | 1.000 | 0.844 |
| $x_{23}$ Age | 1.108 | 0.975 | 0.600** |
| $x_{24}$ CapEx | 0.710 | 0.846 | 3.209 |
| $x_{25}$ Return on Assets | 0.800 | 1.085 | 1.042 |
| $x_{26}$ Debt | 0.864 | 0.951 | 0.437 |
| $x_{27}$ High-Tech | 0.980 | 1.358 | 1.333 |
| $x_{28}$ Multinationality | 0.899 | 0.966 | 27.152*** |
| *Corporate Governance Characteristics* | | | |
| $x_{29}$ Retained Ownership | 0.195*** | 0.967 | 10.625** |
| $x_{30}$ Lock-Up | 1.000 | 1.000 | 1.002 |
| $x_{31}$ Board Size | 1.061 | 0.954 | 1.285*** |
| $x_{32}$ Board Independence | 0.251 | 1.284 | 1.031 |
| $x_{33}$ Female Board Members | 0.731 | 0.915 | 41.606* |
| $x_{34}$ CEO Duality | 1.641 | 0.922 | 0.361 |

Note: The survival analysis is run with three different endpoints: when the post-IPO withdrawal outcome changes from survival (private) to (i) inactive (75), (ii) MA (110), (iii) trading (27). The hazard ratio represents the hazard function to the baseline function where for one unit increase in the covariate $x$, the hazard is multiplied by $e^{\beta}$. *, ** and *** denote significance at 10%, 5% and 1%, respectively. For all regressions, the $H_0$ of proportional hazards assumption was failed to be rejected. The LR $\chi^2$ are 82.75, 64.77, 84.73, respectively. The data set includes 334 observations.

Table 5: Descriptive Statistics – non-backed versus backed IPO Withdrawals 2001–2015

| Variable | non-backed IPO withdrawals | | backed IPO withdrawals | | p-value successful vs. Withdrawn IPO |
|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | |
| *Regulatory Environment* | | | | | |
| $x_1$ Rule of Law | 79.76 | 13.09 | 75.16 | 14.83 | 0.0037 |
| $x_2$ Regulatory Efficiency | 79.17 | 5.79 | 77.16 | 5.87 | 0.0027 |
| $x_3$ Market Openness | 79.17 | 5.79 | 77.16 | 5.87 | 0.0048 |
| $x_4$ Common Law | 0.51 | 0.50 | 0.31 | 0.46 | 0.0003 |
| *Economic Environment* | | | | | |
| $x_5$ 10yr Government Bond | 3.95 | 1.08 | 3.69 | 1.35 | 0.0600 |
| $x_6$ Credit Spread | 1.16 | 1.30 | 1.36 | 1.07 | 0.1577 |
| $x_7$ $\Delta$GDP | 0.02 | 0.01 | 0.02 | 0.01 | 0.7140 |
| *Market Environment* | | | | | |
| $x_8$ VIX | 18.98 | 6.51 | 18.06 | 5.82 | 0.2027 |
| $x_9$ $\Delta$Index | 0.00 | 0.04 | 0.00 | 0.04 | 0.7422 |
| $x_{10}$ Market Hotness | 0.61 | 0.49 | 0.52 | 0.50 | 0.1257 |
| $x_{11}$ Trading Volume | 0.47 | 0.50 | 0.51 | 0.50 | 0.4099 |
| $x_{12}$ Negative News | 0.32 | 0.47 | 0.29 | 0.46 | 0.6066 |
| *Offer Characteristics* | | | | | |
| $x_{13}$ Offer Size (mn) | 597.75 | 3,583.00 | 332.86 | 636.32 | 0.4287 |
| $x_{14}$ Primary Shares | 0.80 | 0.33 | 0.67 | 0.35 | 0.0009 |
| $x_{15}$ Secondary Shares | 0.19 | 0.32 | 0.33 | 0.35 | 0.0006 |
| $x_{16}$ Greenshoe Option | 0.03 | 0.09 | 0.06 | 0.07 | 0.0073 |
| $x_{17}$ Debt Retirement | 0.23 | 0.42 | 0.35 | 0.48 | 0.0187 |
| $x_{18}$ Private Equity | n/a | | n/a | | |
| $x_{19}$ Venture Capital | n/a | | n/a | | |
| $x_{20}$ Intellectual Capital | 0.19 | 0.39 | 0.20 | 0.40 | 0.8661 |
| $x_{21}$ Underwriter | 0.21 | 0.26 | 0.31 | 0.28 | 0.0012 |
| *Firm Characteristics* | | | | | |
| $x_{22}$ Firm Size (mn) | 9,662.65 | 74,027.88 | 1,049.01 | 2,584.06 | 0.2095 |
| $x_{23}$ Age (years) | 20.92 | 34.45 | 23.95 | 32.74 | 0.4350 |
| $x_{24}$ CapEx | 0.17 | 1.58 | 0.06 | 0.14 | 0.4685 |
| $x_{25}$ Return on Assets | -0.26 | 2.23 | 2.06 | 23.12 | 0.1433 |
| $x_{26}$ Debt | 0.96 | 2.55 | 6.98 | 67.64 | 0.1910 |
| $x_{27}$ High-Tech | 0.14 | 0.35 | 0.34 | 0.48 | 0.0000 |
| $x_{28}$ Multinationality | 0.29 | 0.20 | 0.35 | 0.20 | 0.0073 |
| *Corporate Governance Characteristics* | | | | | |
| $x_{29}$ Retained Ownership | 0.53 | 0.30 | 0.50 | 0.27 | 0.3762 |
| $x_{30}$ Lock-up (days) | 125.12 | 170.22 | 129.47 | 154.89 | 0.8182 |
| $x_{31}$ Board Size | 5.55 | 4.01 | 6.47 | 3.68 | 0.0408 |
| $x_{32}$ Board Independence | 0.13 | 0.22 | 0.17 | 0.23 | 0.1441 |
| $x_{33}$ Female Board Members | 0.07 | 0.14 | 0.12 | 0.18 | 0.0153 |
| $x_{34}$ CEO Duality | 0.14 | 0.35 | 0.14 | 0.35 | 0.8788 |

Note: The database includes 334 IPO withdrawals, 217 observations of non-backed IPOs and 117 backed IPOs. This table reports the mean and standard deviation for 34 variables.

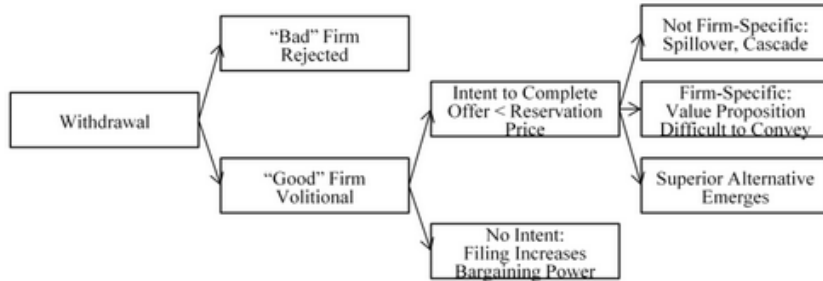Figure 1: Why Firms Withdraw from IPO's, Boeh and Dunbar (2013)
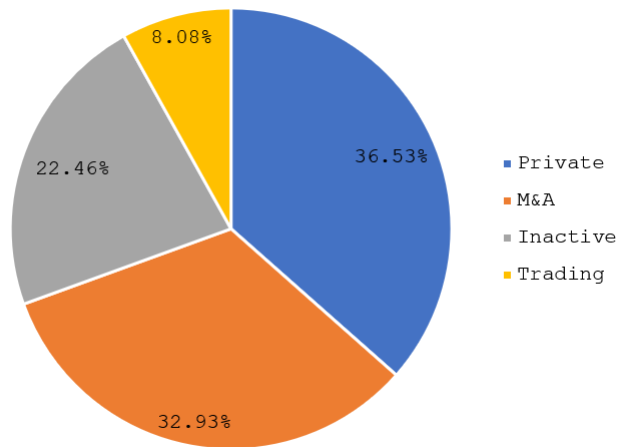


Figure 2: Post-IPO Withdrawal Outcomes
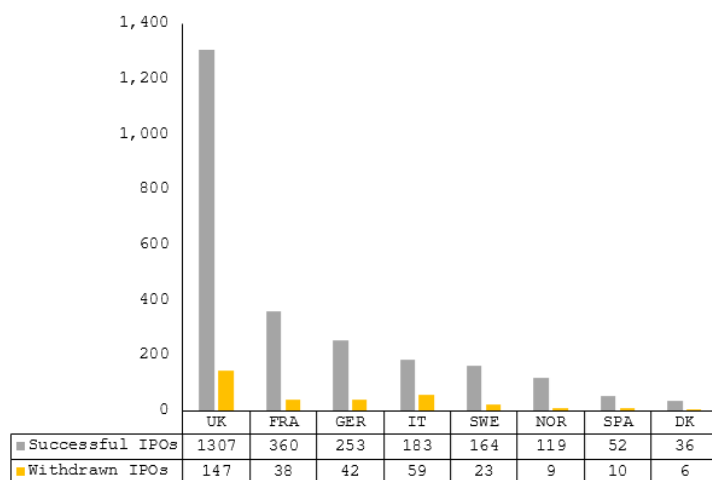
Figure 3: Number of IPO Withdrawal by Country

| | UK | FRA | GER | IT | SWE | NOR | SPA | DK |
|---|---|---|---|---|---|---|---|---|
| Successful IPOs | 1307 | 360 | 253 | 183 | 164 | 119 | 52 | 36 |
| Withdrawn IPOs | 147 | 38 | 42 | 59 | 23 | 9 | 10 | 6 |

Figure 4: Post-IPO Withdrawal Outcome by Country

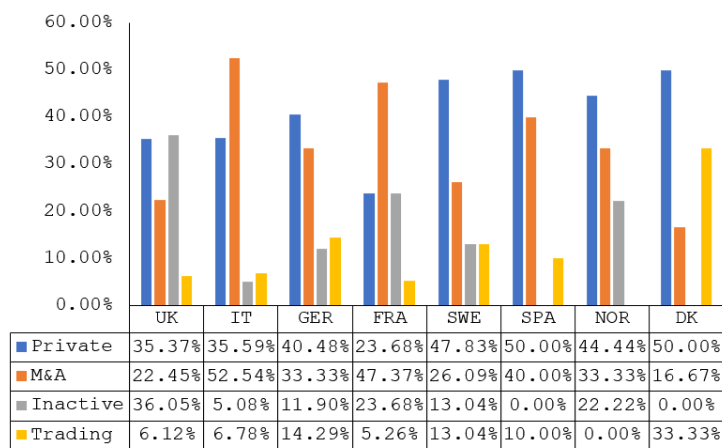| | UK | IT | GER | FRA | SWE | SPA | NOR | DK |
|---|---|---|---|---|---|---|---|---|
| Private | 35.37% | 35.59% | 40.48% | 23.68% | 47.83% | 50.00% | 44.44% | 50.00% |
| M&A | 22.45% | 52.54% | 33.33% | 47.37% | 26.09% | 40.00% | 33.33% | 16.67% |
| Inactive | 36.05% | 5.08% | 11.90% | 23.68% | 13.04% | 0.00% | 22.22% | 0.00% |
| Trading | 6.12% | 6.78% | 14.29% | 5.26% | 13.04% | 10.00% | 0.00% | 33.33% |

Figure 5: Survival estimate of post-IPO withdrawal outcome (i) inactive
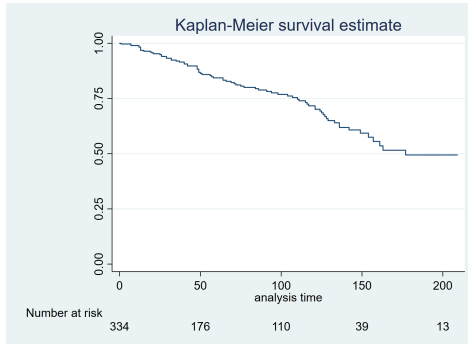


Figure 6: Survival estimate of post-IPO withdrawal outcome (ii) M&A
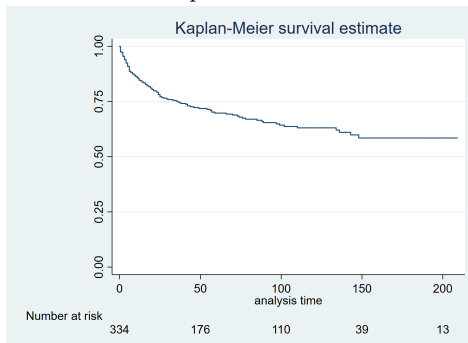


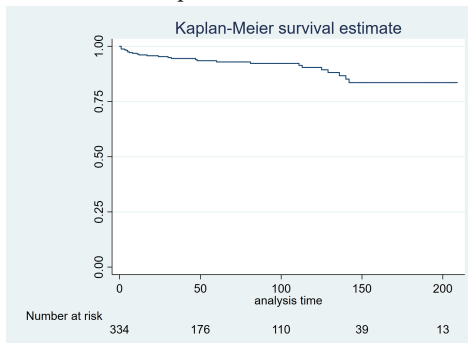Figure 7: Survival estimate of post-IPO withdrawal outcome (iii) trading

Figure 8: Superior post-IPO withdrawal outcomes for PE, VC and non-backed IPO withdrawals
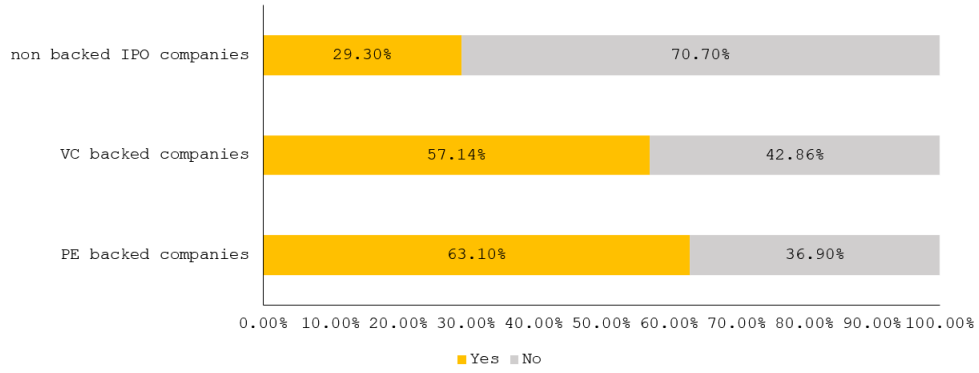


Figure 9: Distribution of post-IPO withdrawal outcomes according to PE and VC involvement



| | non-backed companies | PE backed companies | VC backed companies |
|---|---|---|---|
| Inactive | 26.51% | 15.48% | 14.29% |
| M&A | 24.65% | 50.00% | 42.86% |
| Private | 43.72% | 21.43% | 28.57% |
| Trading | 5.12% | 13.10% | 14.29% |

41
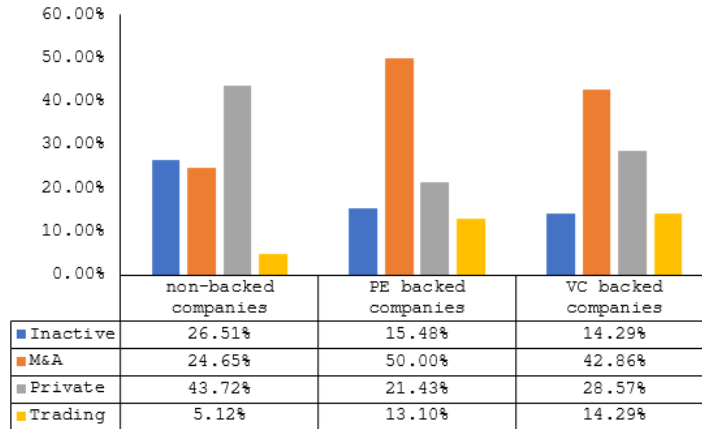
**Appendix**

**A.1. Additional information on the AIM**

Table A.1: Distribution of different post-IPO withdrawal outcomes for the Official List and the Alternative Investment Market over the 2001–2015 period

| Outcome | UK - OL | % | UK - AIM | % | Total |
|---------|---------|-------|----------|-------|-------|
| Private | 23 | 44.23 | 29 | 55.77 | 52 |
| Inactive | 16 | 30.19 | 37 | 69.81 | 53 |
| M&A | 12 | 36.36 | 21 | 63.64 | 33 |
| Trading | 4 | 44.44 | 5 | 55.56 | 9 |
| Total | 55 | 37.41 | 92 | 62.59 | 147 |

Note: The database includes 147 IPO withdrawals in the UK of which 55 are at the Official List and 92 at the exchange-regulated AIM.

Table A.2: Determinants of post-IPO Withdrawal Outcomes excluding AIM

| Variable | Inactive | | M&A | | Trading | |
|---|---|---|---|---|---|---|
| | Coef. | Marginal Effect | Coef. | Marginal Effect | Coef. | Marginal Effect |
| *Regulatory Environment* | | | | | | |
| $x_1$ Rule of Law | 0.046* | 0.71% | -0.021 | -0.64% | -0.027 | -0.16% |
| $x_2$ Regulatory Efficiency | 0.036 | 0.24% | 0.028 | 0.23% | 0.062 | 0.31% |
| $x_3$ Market Openness | -0.124*** | -1.46% | -0.013 | 0.49% | -0.031 | -0.06% |
| $x_4$ Common Law | 1.639** | 23.00% | -0.451 | -19.27% | 0.044 | 0.26% |
| *Economic Environment* | | | | | | |
| $x_5$ 10yr Government Bond | 0.092 | 1.17% | 0.068 | 2.36% | -0.423 | -3.26% |
| $x_6$ Credit Spread | 0.439** | 6.13% | -0.170 | -7.32% | 0.343 | 2.54% |
| $x_7$ $\Delta$GDP | -15.061 | -204.49% | -3.993 | -138.49% | 41.564* | 316.46% |
| *Market Environment* | | | | | | |
| $x_8$ VIX | 0.032 | 0.34% | 0.038 | 1.21% | -0.166*** | -1.31% |
| $x_9$ $\Delta$Index | 7.930 | 55.31% | 10.375*** | 234.42% | -14.636* | -142.46% |
| $x_{10}$ Market Hotness | 0.704 | 8.05% | -0.014 | -7.16% | 0.929 | 5.88% |
| $x_{11}$ Trading Volume | 0.363 | 2.01% | 0.323 | 2.58% | 0.824 | 4.39% |
| $x_{12}$ Negative News | -0.107 | -1.69% | 0.069 | 2.27% | -0.043 | -0.43% |
| *Offer Characteristics* | | | | | | |
| $x_{13}$ Offer Size | -0.062 | -2.49% | 0.223** | 3.67% | 0.519** | 2.97% |
| $x_{14}$ Primary Shares | 1.642 | 32.08% | -1.454 | -29.40% | -3.803 | -23.39% |
| $x_{15}$ Secondary Shares | 2.101 | 36.74% | -0.892 | -12.34% | -6.014** | -41.03% |
| $x_{16}$ Greenshoe Option | 1.207 | 7.79% | 1.594 | 34.12% | -1.633 | -17.58% |
| $x_{17}$ Debt Retirement | -1.634*** | -18.15% | -0.203 | 8.76% | -1.332* | -7.16% |
| $x_{18}$ Private Equity | 0.762 | 2.04% | 1.124*** | 16.31% | 1.426** | 5.67% |
| $x_{19}$ Venture Capital | -0.223 | -6.35% | 0.360 | 3.79% | 1.717** | 11.03% |
| $x_{20}$ Intellectual Capital | 0.458 | 1.11% | 0.635 | 7.72% | 1.225 | 6.11% |
| $x_{21}$ Underwriter | -0.030 | 0.23% | -0.225 | -7.07% | 0.693 | 5.58% |
| *Firm Characteristics* | | | | | | |
| $x_{22}$ Firm Size | -0.001 | 0.79% | -0.079 | -0.50% | -0.394*** | -2.50% |
| $x_{23}$ Age | -0.044 | 0.10% | -0.053 | 0.31% | -0.390* | -2.51% |
| $x_{24}$ CapEx | 0.282 | 1.57% | 0.074 | -5.39% | 1.715 | 11.48% |
| $x_{25}$ Return on Assets | -0.218 | -4.07% | 0.074 | -0.40% | 1.022* | 7.09% |
| $x_{26}$ Debt | -0.505 | -5.83% | -0.033 | 3.19% | -0.352* | -1.89% |
| $x_{27}$ High-Tech | -0.121 | -3.40% | 0.321 | 7.48% | 0.112 | -0.13% |
| $x_{28}$ Multinationality | 1.097 | 5.38% | 0.962 | 4.67% | 3.360*** | 19.38% |
| *Corporate Governance Characteristics* | | | | | | |
| $x_{29}$ Retained Ownership | -2.163*** | -26.46% | -0.388 | -1.96% | 1.648 | 14.71% |
| $x_{30}$ Lock-up (days) | 0.002 | 0.01% | 0.001 | 0.02% | 0.002 | 0.01% |
| $x_{31}$ Board Size | 0.004 | -0.07% | -0.020 | -1.31% | 0.263*** | 1.90% |
| $x_{32}$ Board Independence | -1.570 | -14.56% | -0.918 | -11.66% | -0.046 | 4.04% |
| $x_{33}$ Female Board Members | -0.489 | -13.65% | 0.771 | 8.51% | 3.576** | 22.94% |
| $x_{34}$ CEO Duality | -0.028 | 1.29% | 0.006 | 6.16% | -1.838 | -12.82% |

Note: The dependent variable equals 1 (Inactive), 2 (M&A), or 3 (Trading) for post-IPO withdrawal outcomes and 4 otherwise (base outcome: Private). *, ** and *** denote significance at 10%, 5% and 1%, respectively. Average Marginal Effects are defined as follows: the probit employs normalisation that fixes the standard deviation of the error term to 1 where each coefficient represents the average marginal effect of a unit change on the probability that the dependent variable takes the value of either 1 (Inactive), 2 (M&A), or 3 (Trading) given that all other independent variables are constant (Aldrich and Nelson, 1984). The database includes 242 observations and excludes the 92 AIM observations. The results of this sub-sample do not show meaningful differences to the results of the entire sample.

Figure A.1: Distribution of post-IPO withdrawal outcomes without the AIM
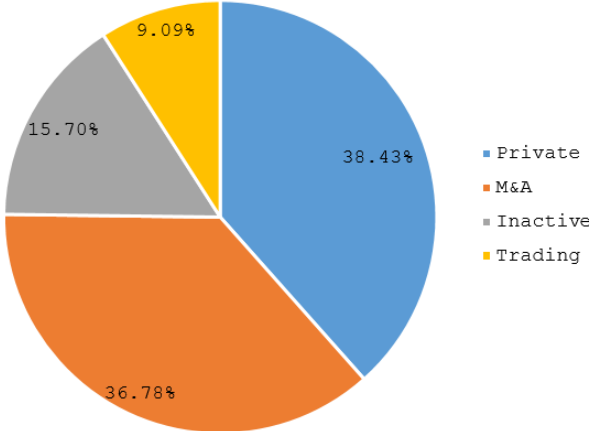
## A.2. Additional qualitative information on PE and VC deal size

We manually collect the deal terms from various publicly available sources such as Bloomberg, Thomson Reuters Eikon, CapitalIQ and LexisNexis. The private nature of most transactions implies a data availability and accuracy issue.

*Private Equity*

In the sample of 334 European IPO withdrawals over the 2001–2015 period, there are 84 companies backed by private equity. Out of the PE-backed withdrawn IPO companies, 42 engaged in M&A of which 21 were secondary buyouts (50%). We do not find public information on 11 M&A deals, whereas 31 have information on selected deal terms such as the transaction size disclosed. 17 transactions have 'worse' deal terms which we define as the negative difference between the offer size as per the IPO prospectus and the the disclosed M&A deal size. On average, scaled by the individual offer and deal size, the percentage difference is -63%. The time frame is approximately 36 months after the IPO filing. On the contrary, we identify 14 transactions to evidence 'better' deal terms defined as a positive difference between the offer size as per the IPO prospectus and the disclosed M&A terms. There is a significant difference of +746% between the offer and deal size. The M&A deals in this category are signed within the first 24 months after the IPO filing which means, on average, a year less than for the 'worse' deal terms. For secondary buyouts (21), we identify 16 transactions where the deal terms are publicly available, of which 10 manifest 'better' deal terms with an average +958% increase from offer to deal size within 21 months after the filing. Whereas 6 transaction show 'worse' deal terms within 46 months after the IPO filing with -62% on average. Interestingly, it seems that the amplitude for significantly better transaction sizes takes place within the first two years after the IPO filing. This, yet only of qualitative nature, echos the idea of a dual-track strategy pursued by private equity whereby the sponsor withdraws the IPO in favour of a superior option.

*Venture Capital*

In the sample of 334 European IPO withdrawals over the 2001–2015 period, there are 35 companies backed by venture capital. Out of the VC-backed withdrawn IPO companies, 15 engaged in M&A. We find information on selected deal terms such as the transaction size for 13 transactions. We identify 9 withdrawn IPO companies that show 'better' deal terms defined as the positive difference between the offer size in the IPO prospectus and the disclosed transaction deal size. On average, scaled by the individual offer and deal size, the percentage difference is +527%. In contrast to the average time for PE-backed transactions, the post-IPO withdrawal outcome of 'better' deal terms takes place within 45 months of the IPO filing. We identify 4 transactions with 'worse' deal terms defined as a negative difference between the offer size as per the IPO prospectus and the disclosed M&A terms. The negative difference between the offer and deal size averages at -58%. The M&A deals in this category are signed within the first 28 months after the IPO filing, which is significantly shorter period compared to the equivalent PE-backed transactions and positive deal terms transactions. We assume that fundamental difference of the institutional investment framework and scale of VC and PE investments can explain the observations.