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 very large 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. 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. Better corporate governance decreases the probability of a negative post-IPO withdrawal outcome. In a survival analysis we show that the majority of companies experience a positive post-IPO withdrawal outcome (M&A or trading) *shortly* after an IPO withdrawal.

Keywords: IPO, Europe, Withdrawal, M&A, Probit, Survival

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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. Despite clearly understood benefits, certain planned IPOs may end up withdrawn, for instance 12% of filed IPOs are withdrawn in Europe (Helbing et al., 2019). The issuer always reserves an option to change course at any time and withdraw the IPO before its completion (Busaba, 2006). 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a superior option for cashing out or otherwise attaining objectives, withdrawing can be a positive outcome and, having withdrawn, a company can reissue.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 Withdrawn IPO companies might be perceived as riskier and face the 'lemon' problem. Potential investors might find it more difficult to distinguish between a 'good' and 'bad' withdrawn IPO company (Akerlof, 1970).

From 2001 to 2015 an aggregated amount of USD 563 bn and USD 529 bn was raised in initial public offerings in Western Europe and the USA, respectively. While investment opportunities of an accumulated USD 151 bn (Europe) and USD 152 bn (USA) were foregone as a consequence of IPO withdrawals. This paper focuses on the afterlife of firms that decided to go public, but withdraw from this process. By studying both completed *and* withdrawn IPO filings we are in a better place to understand IPOs. Completed IPOs tell us only part of the story (Busaba et al., 2015).

The post-withdrawal outcome of IPO candidates has received limited attention. Surprisingly, we do not know much about the afterlife of an IPO withdrawal, despite its frequency and importance. What happens to the company that withdraws from the IPO? 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 such as M&A or second-time IPO, drawing an empirical conclusion for a globalised world based on a single institutional framework. This pan-European study is another important step to address the social phenomenon of IPO withdrawal on an aggregated level.

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. Second, we identify determinants and timing of post-IPO withdrawal outcomes to uncover whether an IPO withdrawal is a positive or negative event. Third, we explore the special role of private equity and venture capital on the 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. Better corporate governance decreases the probability of IPO withdrawal and of a negative post-IPO withdrawal outcome. We uncover that companies exhibit a positive post-IPO withdrawal outcome (M&A or trading) *shortly* after an IPO withdrawal while the rate of death is constant. The results imply that an IPO is one of several alternatives in which especially private equity and venture capital pursue a dual-track strategy.

The remainder of the paper is structured as follows: Section 2 introduces IPO phenomenon of withdrawal and the factors influencing the post-IPO withdrawal outcomes. Section 3 outlines the modelling approach as well as the dataset. The empirical evidence for the determinants of post-IPO withdrawal outcomes from analysing market and firm level data are presented in Section 4 in which an exploration of the role of PE and VC involvement is presented. Finally, Section 5 concludes this paper with a brief summary and a discussion of the implications of this research.

2. The IPO withdrawal and 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. An IPO withdrawal can either be done actively or passively. Having filed for an IPO the company can *actively* cancel the IPO filing or *passively* not list in due time after filing for an IPO (Helbing, 2019). This paper focuses on the afterlife of firms that decided to go public, but withdraw from this process.

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). 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.

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 that own 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 and must be addressed and mitigated (La Porta et al., 2006). Under a life cycle perspective, Chemmanur and Fulghieri (1999) hypothesise that when a firm grows sufficiently large, it implies an IPO as a conclusive step in a company's life cycle since a more dispersed ownership is required. Zingales (1995) argues that by going public, insiders facilitate the acquisition of their company. The Alternative Investment Market (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). Under the market timing theory, and 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). Information transfers through signalling possesses a key efficiency property since signalling incurs potential welfare costs. A reliable and credible signal must be too costly to be imitated by 'bad companies', otherwise the role of signals can be called into question (Leland and Pyle, 1977).

Companies predominantly blame unfavourable market conditions for the IPO withdrawal. In this sense, we should be able to observe a large proportion of withdrawn companies to return to the market and second time file for an 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 if the costs of being public exceed the benefits thereof (Loughran and Ritter, 1995) whereby the prospective IPO company is not dependent on going public. 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. Finally, 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.

In Europe, in contrast to the USA, the 'event' of an IPO withdrawal is not formerly defined or mentioned in the European Union (EU) 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). 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). In contrast to the USA, there are only marginal numbers of foreign listings. The IPO market in Europe can be defined as a series of domestic markets with low competition between the different exchanges (Vismara et al., 2012). The IPO environment in the EU in general is characterised by less regulation (fewer regulatory documents and listing standards) compared to the detailed listing environment in the USA. An effort to create a seamless financial market for the European Union and Economic Area (EEA), minimum standards were introduced through EU Directives which more recently focus on the maximised harmonisation to enhance consistency. In 1999, the European Union initiated the Financial Services Action Plan (FSAP) in an attempt to create a single financial services market (Cumming et al., 2011). In line with La Porta et al. (2006), it is argued that the overall change of rule structure has mitigated insider trading and increased market liquidity (Aitken et al., 2015).

2.1. Factors Influencing the post-IPO withdrawal outcome

Dunbar (2011) and Boeh and Dunbar (2013) evaluate the afterlife of withdrawn firms, surfacing the determinants of different post-withdrawal outcomes. In Figure 1 the event of an IPO withdrawal is further deciphered by Boeh and Dunbar (2013). 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. In the latter case, the IPO companies withdraw from the IPO intentionally. 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. Companies consequently withdraw from the IPO once the private placement becomes more beneficial. Lian and Wang (2009) and Lian and Wang (2012) apply the Akerlof 'lemon' problem to withdrawn IPO returning to the IPO market. They argue that withdrawn IPO companies face a valuation penalty as they are perceived riskier. However, 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.

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[2].

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. 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 expect a higher the likelohood of a positive post-IPO withdrawal outcome. Second, we use the change in the country's Gross Domestic Product (ΔGDP), 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 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 (ΔINDEX), 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.

Firm characteristics can be categorised into three areas. First, the *offer characteristics* include the offer size and the intent to retire debt with

[2]This paper examines the post-IPO withdrawal outcomes of European IPOs from 2001 to 2015. Helbing et al. (2019) explore the determinants of IPO withdrawal of European IPOs, in consequence we follow their methodology to derive and identify a number of factors which may be relevant in the IPO withdrawal and afterlife issue. We refer the interested reader also to the Online Appendix in Helbing et al. (2019).

the IPO proceeds. We anticipate that a proposal to use IPO proceeds for debt retirement is a negative signal as it lowers the expectation about the future success of the IPO company and henceforth increases the risk for the investor (Busaba et al., 2001). We differentiate the offer share structure. More established companies tend to issue secondary shares while young and small firms issue a higher proportion of primary shares (Huyghebaert and Van Hulle, 2006). Given the implication of the share structure, we expect IPO companies with a higher proportion of primary shares to be in finance need henceforth end up 'inactive' and secondary shares to be merged or acquired. Another characteristic included is venture capital involvement as the VC sponsor potentially add value to its portfolio firms through operational gearing (Cumming et al., 2016). We additionally include private equity involvement since previous research has not differentiated same. 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). Busaba et al. (2001) find that VC-backed companies were less likely to succeed in the IPO. Boeh and Southam (2011) as well as Helbing et al. (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 in which the post-IPO withdrawal outcome exhibited for backed companies is superior. 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 are more likely to be merged or acquired. Information production is highest at the time of the IPO (Hsieh et al., 2011) and companies might seize and materialise the opportunity for M&A.

Second, drawing from the life cycle theory, 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 include variables for leverage, a higher level of capital expenditure and net income (Lowry, 2003). 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 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).

3. Methods and Data

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, β 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 went inactive it takes the value of 2, if the company engaged in merger and acquisition it takes the value of 3, while it takes the value of 4 if the company subsequently listed after an IPO withdrawal.

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 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 β 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:

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

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 exchange or company's websites or other public sources. We use public sources for economic and market specific characteristics but hand 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[3]. Information on important corporate events is searched for in information terminals such as Bloomberg and Thomson Reuters Eikon. 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 verify the specific outcome. This makes our dataset unique in its extent, detail and depth.

Based on these data, between 2001 and 2015 an absolute of 334 IPO withdrawals 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. Information production is highest at the time of the IPO (Hsieh et al., 2011) and companies might seize and materialise the opportunity for M&A. One in almost five companies that withdraw from the IPO is terminated (inactive, 22%). Only a proportion as small as 7% of successful second time IPOs can be documented. A preliminary conclusion can be drawn that not market but firm specific characteristics are determining

[3]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'.

IPO withdrawal.

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, 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. IPO numbers attribute a 'window of opportunity' to the UK (6%), curiously, Germany, Sweden and Denmark show the highest number of withdrawn IPO companies that successfully 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%), with the lowest proportion in Italy (5%) and Germany (12%).

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. 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.

4. The afterlife of IPO withdrawal companies

4.1. General findings

A first descriptive analysis reveals some similarities and differences for our sample of the afterlife of IPO withdrawal companies in Table 2.[4] 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.

Insert Table 2 about here

In terms of firm specific factors, the 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 driven by the companies filing at the AIM[5] . We can conclude that positive post-IPO withdrawal outcomes such as M&A and trading more often exhibit involvement from risk capital providers such

[4]Helbing et al. (2019) evidence that the determinants of IPO withdrawal in the different European countries are similar and can be aggregated. Following future EU Directives an even further alignment is expected. Therefore, it is reasonable to explore the post-IPO withdrawal outcomes on an aggregated European level.

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

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.

Given the small number of observations, the results of the multinomial probit regression are of indicative nature. In Table 3 the results of the multinomial probit analysis 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 four possible outcomes after the IPO withdrawal: private, inactive, M&A and trading. Companies that remained private or went inactive faced a negative post-IPO withdrawal outcome (59%). If a company engaged in merger and acquisition or is trading subsequently, this can be considered a positive post-IPO withdrawal outcome (41%).

Insert Table 3 about here

As reported in Table 3, there are similarities for the different post-IPO withdrawal outcomes. However, some differences exist between the positive and negative outcomes. When examining the individual post-IPO withdrawal events we derive the following conclusions. Companies that did 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. Henceforth, we conclude that IPO companies that withdraw from their IPO and die experienced worse credit conditions as well as 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. 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.

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). Interestingly, we do not find that the underwriters' prestige is influencing the post-IPO withdrawal outcome in contrast to the US findings (Dunbar and Foerster, 2008). When economic conditions are favourable (Δ 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 however, that most economic impacts on the probability for this post-IPO withdrawal outcome are marginal.

Companies that engaged 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 the post-IPO withdrawal outcome of merger and acquisition. It is noted that the majority of companies with this post-IPO withdrawal outcome are acquired within the first 24 months after filing for an IPO. Information acquisition costs pose a main hurdle for any transaction (Allen and Faulhaber, 1989). At an IPO the company reveals a high degree of information (Sherman and Titman, 2002); we assume that the information production during an IPO filing significantly reduces the private equity information acquisition costs. We consequently hypothesise that private equity seizes the opportunity of the IPO filing and its imminent withdrawal probability with its negative effects.

4.2. Post-IPO withdrawal outcomes in a survival analysis

We can exhibit similar results to the indicative multinomial probit regression from the survival analysis in Table 4 and Figures 5, 6, 7. 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 post IPO withdrawal are less likely to have intended to retire debt with the proceeds of the failed IPO (0.458). Likewise, companies that did not sell and consequently died were 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) 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 withdrawal, around 10% of companies are likely die. While 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 withdrawal, 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 of this post-IPO withdrawal outcome to happen shortly after an IPO withdrawal. This is as expected when examining the hazard ratios in Table 4. Companies that end up merged or acquired 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 and file for an IPO a second time and end up listed we can exhibit a almost binomial survival estimate in Figure 7. Either a company is likely to be traded within the first two years after an IPO withdrawal (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

4.3. 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 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 engaged in a presumably superior alternative. This means that the withdrawn companies were acquired, sold in a secondary buyout or went public. In contrast, only 29% of non-backed IPO withdrawal companies exhibit a superior alternative. In fact, Gill and Walz (2016) argue that an IPO with venture capital 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). Based on the empirical statistical evidence on the post-IPO withdrawal outcomes, it is hypothesised that PE and VC indeed pursue a dual-track strategy. Furthermore, it is argued that private equity and venture capital exploit market timing. 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).

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 remain private after they withdraw from the IPO. This post-IPO withdrawal outcome is documented for 21% of PE backed and

29% VC backed 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. 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 more frequently by VC or PE.

The results in Table 5 show that backed companies that withdraw from the IPO demonstrate better corporate governance characteristics. On average, backed IPO withdrawals have 7 board members with a higher proportion of independent board 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. The empirical evidence indicates that venture capital and private equity exit the investment *shortly* after the withdrawn IPO.

4.4. 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 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 distinguish between PE and VC involvement and secondly argue for a dual-track strategy of VC and PE partners to exit their investments. Compelling evidence emerges for this idea in a survival analysis setting where the majority of PE and VC exit *shortly* after the IPO filing. 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 (Klein et al., 2016).

5. Conclusion

In this paper, we analyse a unique data set of all 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 uncover 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 a superior alternative to an IPO withdrawal. Some interesting results emerge. We find that PE and VC backed companies that withdraw from the IPO are more likely to have a superior alternative such as returning or engage in M&A. The particular institutionalised investment framework of PE and VC companies pressure a timely and lucrative exit. In a survival analysis setting we find further evidence for the determinants of the different outcomes. We uncover that companies exhibit a positive post-IPO withdrawal outcome (M&A or trading) *shortly* after an IPO withdrawal while the rate of death is constant. This leads us to the conclusion that companies file for an IPO while pursuing other alternatives. In particular, PE and VC managers pursue a dual-track strategy. The IPO was 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.

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

Variable	Variable Name	Source	Definition	Predicted Effect
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.	Negative
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.	Negative
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.	Negative
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.	Negative
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.	Negative
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.	Positive
x_7	ΔGDP - 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.	Negative
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.	Positive
x_9	ΔIndex - 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).	Negative
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.	Negative
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.	Negative
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.+	Positive

*: 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 *withdrawal* date.
Please refer to the Online Appendix for more details.

Table 1b: Data Description and Sources - Offer Characteristics

Variable	Variable Name	Source	Definition	Predicted Effect
Offer Characteristics				
x_{13_a}	Offer Size	Prospectus / Bloomberg	The natural logarithm of the company's offer size is computed.	Positive
x_{13_b}	Offer Size Dummy	Prospectus / Bloomberg	The 180 days rolling averages of the offer sizes prior to the IPO filling date are computed.* This dummy takes the value of 1 if the size of the offer is above average and 0 otherwise.	Positive
x_{14}	Primary Shares	Prospectus	The percentage of newly created shares being sold in the IPO.	Negative
x_{15}	Secondary Shares	Prospectus	The percentage of existing shares being sold in the IPO.	Negative
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.	Negative
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.	Positive
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.	Positive
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.	Positive
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.	Negative
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.	Negative

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

Table 1c: Data Description and Sources - Firm Characteristics

Variable	Variable Name	Source	Definition	Predicted Effect
Firm Characteristics				
x_{22_a}	Firm Size	Prospectus / Bloomberg	The natural logarithm of the company's total assets is computed.	Negative
x_{22_b}	Firm Size Dummy	Prospectus / Bloomberg	The rolling averages of the firm sizes measured by total assets are computed. This dummy takes the value of 1 if the size of the company is above average and 0 otherwise.	Negative
x_{23_a}	Age	Prospectus / Bloomberg	The natural logarithm of the company's age is computed.	Negative
x_{23_b}	Age Dummy	Prospectus / Bloomberg	The rolling averages of the firm ages are computed. The dummy takes a value of 1 if the firm age is above average and 0 otherwise.	Negative
x_{24}	CapEx	Prospectus / Bloomberg	The position of capital expenditures is divided by the total assets of the IPO company to get the CapEx ratio.	Negative
x_{25}	Return on Assets	Prospectus / Bloomberg	The position of net income is divided by the total assets of the IPO company to get the return on assets.	Negative
x_{26}	Leverage	Prospectus / Bloomberg	The position of total debt is divided by the total assets to compute the level of leverage of the IPO company.	Positive
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.	Positive
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 between seven categories of multinationality where the highest level of MNAT is the cumulation of all classifications up to the value of 1.	Negative

Table 1d: Data Description and Sources - Corporate Governance Characteristics

Variable	**Variable Name**	**Source**	**Definition**	**Predicted Effect**
Corporate Governance Characteristics				
x_{29}	Retained Ownership	Prospectus	The proportion of ownership in shares hold by insiders post IPO (Djerbi and Anis, 2015).	Negative
x_{30}	Lock-up	Prospectus	Number of days the pre-IPO owners agree not to sell their shares.	Negative
x_{31}	Board Size	Prospectus	This variable accounts for the absolute number of board members.	Negative
x_{32}	Board Independence	Prospectus	This variable accounts for the ratio of board members that have no link to the IPO company.	Negative
x_{33}	Female Board Members	Prospectus	This variable accounts for the ratio of female board members.	Negative
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.	Positive

Table 2: Descriptives of post-IPO Withdrawal Outcomes

	Private		**Inactive**		**M&A**		**Trading**	
Variable	**Average**	**St. Deviation**	**Average**	**St. Deviation**	**Average**	**St. Deviation**	**Average**	**St. Deviation**
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
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 ΔGDP	0.019	0.015	0.021	0.013	0.018	0.015	0.023	0.012
x_8 VIX	19.076	6.202	18.136	5.798	18.948	6.952	17.006	4.834
x_9 ΔINDEX	-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
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
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
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

	Inactive		M&A		Trading	
Variable	**Coef.**	**Marginal Effect**	**Coef.**	**Marginal Effect**	**Coef.**	**Marginal Effect**
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%
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 ΔGDP	-12.836	-191.21%	-3.769	-7.61%	37.351*	2.36%
x_8 VIX	-0.003	-0.37%	0.040**	1.20%	-0.092*	-0.01%
x_9 ΔINDEX	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%
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%
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%
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. 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 marginal effect of a unit change on the probability that the dependent variable takes the value of 1 (IPO withdrawal) 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

	Inactive	**M&A**	**Trading**
Variable	**Hazard Ratio**	**Hazard Ratio**	**Hazard Ratio**
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
x_5 10yr Government Bond	0.999	0.867	0.547**
x_6 Credit Spread	1.429**	0.910	1.502
x_7 ΔGDP	0.000	0.510	6.96E+12
x_8 VIX	0.973	1.0345**	0.889*
x_9 ΔINDEX	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
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
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***
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^{β}. *, ** 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 χ^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

	non-backed IPO withdrawals		**backed IPO withdrawals**		
Variable	**Mean**	**SD**	**Mean**	**SD**	**p-value successful vs. Withdrawn IPO**
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 ΔGDP	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 ΔIndex	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)

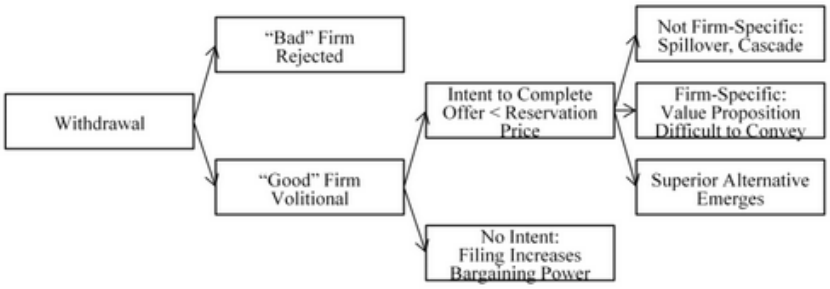


Figure 2: Post-IPO Withdrawal Outcomes

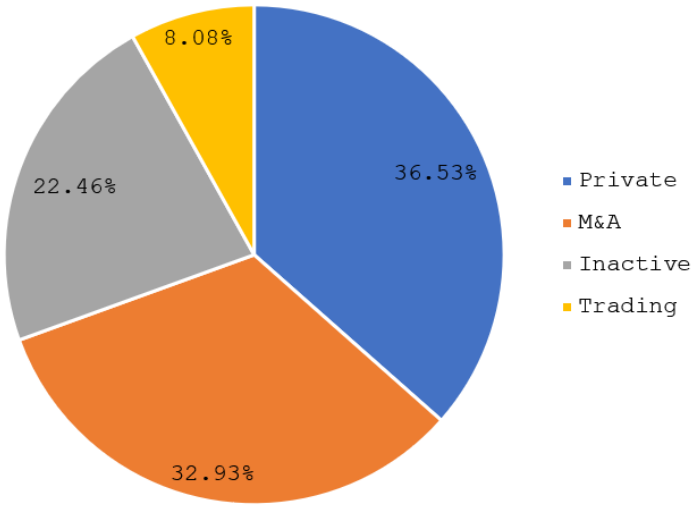
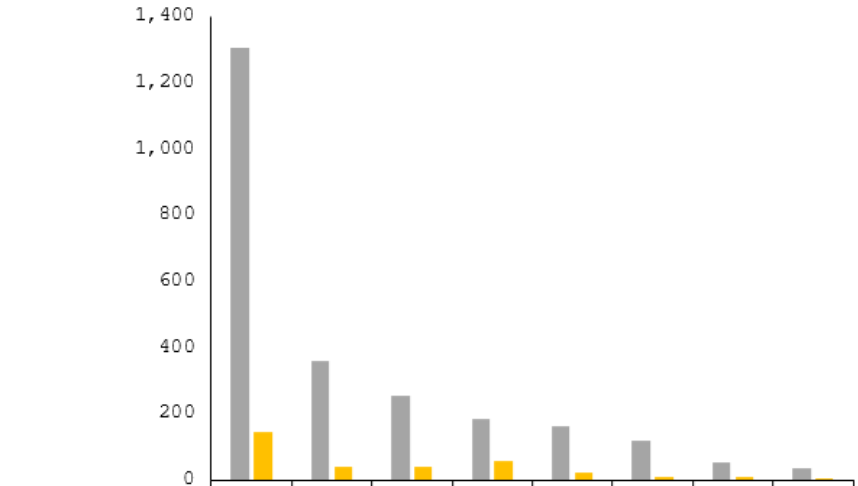
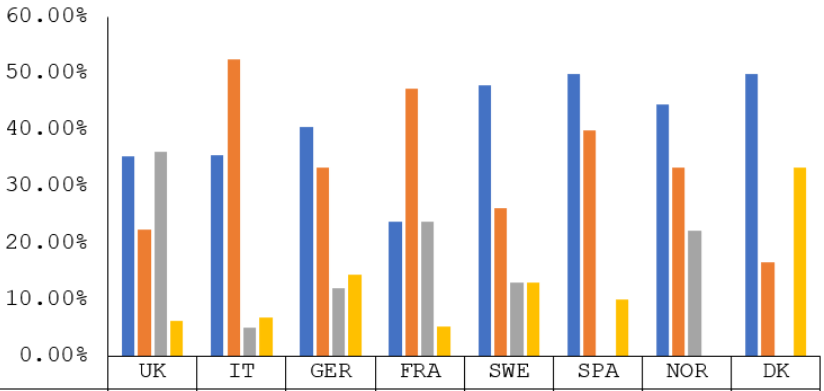


Figure 3: Number of IPO Withdrawal by Country



	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

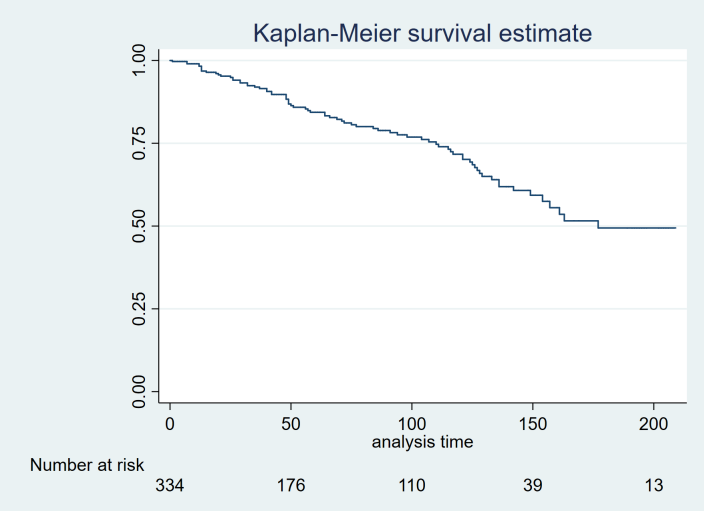


Figure 6: Survival estimate of post-IPO withdrawal outcome (ii) M&A

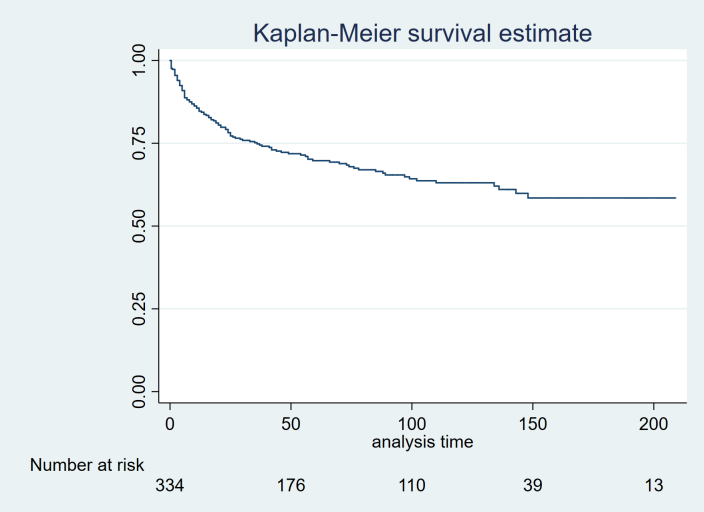


Figure 7: Survival estimate of post-IPO withdrawal outcome (iii) trading

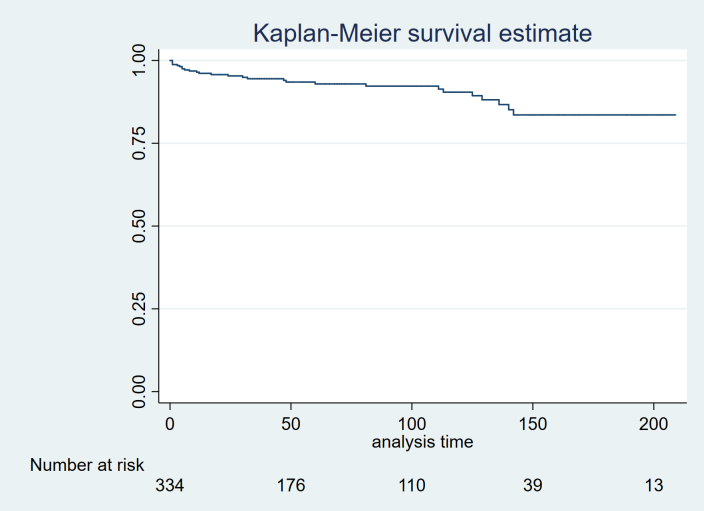


Figure 8: Superior post-IPO withdrawal outcomes for PE, VC and non-backed IPO withdrawals

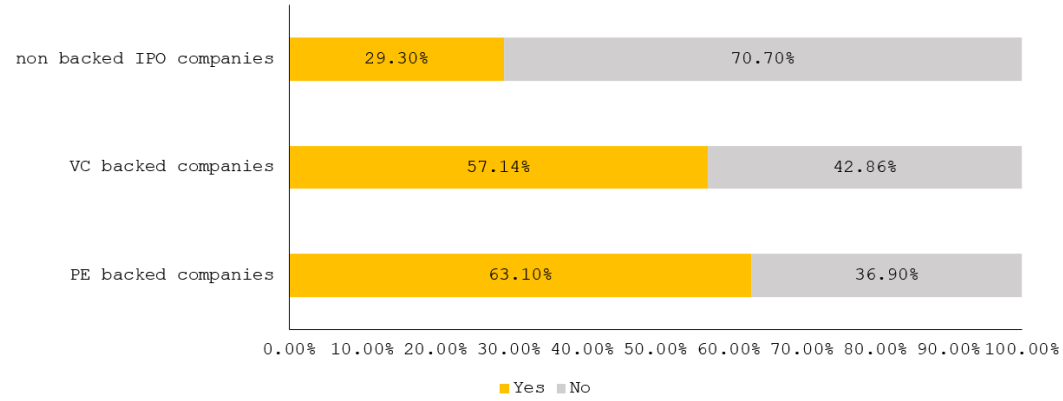
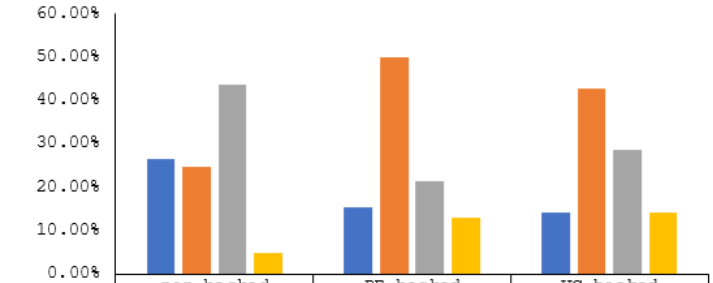


Figure 9: Distribution of post-IPO withdrawal outcomes according to PE and VC involvement



	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%