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Exit Strategies Determinants in Equity Crowdfunding

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## **Abstract**

The recent changes in the financial world led to the emergence of alternative financing channels such as crowdfunding, which has experienced huge growth in the past years. Of all the models it comprises, the most intriguing type is Equity Crowdfunding. However, its diffusion has been affected by several factors, one of them being the lack of exit strategies after investing. So, two relevant questions arise: are there any exit strategies from Equity Crowdfunding? If so, what determines an exit strategy for investors on a particular company?

This dissertation provides empirical evidence on the determinants of the exit strategy of the investors on companies that went through equity crowdfunding. The sample contains 46 companies, most of them European, in a time frame that goes from December 2013 to July 2020.

Through a Multinomial Logistic Regression Model, we found that the size of the company has a positive link with the probability of exiting through either an IPO or M&A instead of exiting through the Secondary Market. We also found that the higher the equity crowdfunding financing before exit the higher the probability of exiting through the Secondary Market instead of exiting through IPO or M&A. Furthermore, we tested which variables impact the exit without differentiating exit modes, finding that the size of the company, the amount of equity crowdfunding financing before exit and profitability of the company are significant variables. Analyzing marginal effects, we further found that changes in the standard deviation of profitability, capital intensity, the amount of equity crowdfunding financing before exit, the size of the company and age significantly affect the probability of exiting through a specific route.

This study is the first to provide empirical evidence on the determinants of the exit strategy in an equity crowdfunding setting. It gives investors the first perspective on which characteristics to consider for their exit strategy when investing in equity crowdfunding.

**Key-words:** Crowdfunding, Equity Crowdfunding, Exit Strategy, Alternative Finance.

**JEL-Codes:** G-21, G-30, L-26

## Resumo

As mudanças recentes no mundo financeiro levaram ao surgimento de canais alternativos de financiamento, como o *crowdfunding*, que sofreu um enorme crescimento nos últimos anos. De todos os modelos que inclui, o *Equity Crowdfunding* é o mais intrigante. No entanto, a sua difusão tem sido afetada por vários fatores, sendo um deles a falta de estratégias de saída após o investimento. Assim, surgem duas questões relevantes: existem estratégias de saída do *Equity Crowdfunding*? Se sim, o que determina a estratégia de saída dos investidores em cada empresa?

Esta dissertação fornece evidência empírica sobre os determinantes da estratégia de saída em empresas que passaram por *Equity Crowdfunding*. A amostra contém 46 empresas, maioritariamente europeias, num período que vai de Dezembro de 2013 a Julho de 2020.

Através de um Modelo de Regressão Logística Multinomial, descobrimos que o tamanho da empresa tem uma correlação positiva com a probabilidade de saída através de um IPO ou M&A, em vez de uma saída pelo Mercado Secundário. Também descobrimos que quanto maior o financiamento em forma de *Equity Crowdfunding* antes da saída, maior a probabilidade de sair pelo Mercado Secundário em vez de sair através de um IPO ou M&A. Além disso, testamos quais as variáveis que afetam a saída sem diferenciar os modos de saída, e descobrimos que o tamanho da empresa, a quantidade de financiamento em forma de *Equity Crowdfunding* antes da saída e a rentabilidade da empresa são variáveis significativas. Ao analisar efeitos marginais, descobrimos ainda que variações no desvio padrão da rentabilidade, da intensidade de capital, da quantidade de financiamento em forma de *Equity Crowdfunding* antes da saída, do tamanho da empresa e da idade afetam significativamente a probabilidade de sair através de um meio específico de saída.

Este é o primeiro estudo que providencia evidência empírica sobre os determinantes das estratégias de saída no *Equity Crowdfunding*. Dá aos investidores a primeira perspectiva sobre quais as características a considerar para a sua estratégia de saída quando investem em *Equity Crowdfunding*.

**Palavras Chave:** *Crowdfunding*, *Equity Crowdfunding*, Estratégia de Saída, Formas Alternativas de Financiamento.

**Códigos-JEL:** G-21, G-30, L-26

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## 1. Introduction

The evolution of the financial world in the recent past has introduced several changes to the traditional means of financing. This change has been more evident, particularly after the 2007-2009 crisis, which affected many businesses, especially small ones who depend on banks to finance their growth (Galkiewicz & Galkiewicz, 2018; Mills & McCarthy, 2014). Their impact on the economy is easily noticed, with small businesses creating most of the existent jobs in the USA, for example (Mills & McCarthy, 2014).

The truth is banks became more risk averse and tightened the lending conditions (Mills & McCarthy, 2014), leading to the decrease of the percentage rate of loan application success (Obiora & Csordás, 2017). Adding to the falling interest rates, entrepreneurs were forced to pursue new ways of financing which would provide better yields (Delivorias, 2017). This led to the emergence of alternative financing channels and nowadays, it is inconceivable to separate such concept from the concept of online platforms, which concede a bridge between lenders and borrowers (Baeck, Collins, & Zhang, 2014; Obiora & Csordás, 2017). In fact, means such as Crowdfunding have seen its funding values rise exponentially, going from \$0.5 billion in 2011 to nearly \$140 billion in 2015 (Rau, 2018). Within this context, it is interesting to understand such a phenomenon. What is crowdfunding after all? How does it impact our economy?

According to Belleflamme, Lambert, and Schwienbacher (2010, p. 5) “Crowdfunding involves an open call, essentially through the Internet, for the provision of financial resources either in form of donation or in exchange for some form of reward and/or voting rights.” It comprises 4 basic models (Mollick, 2014): the Patronage Model, Peer-to-Peer lending, Reward-Based and finally, Equity Crowdfunding.

As expected, in the past years there has been a boom in the literature regarding this theme. Such a phenomenon attracts the attention of many scholars and, in fact, most of the existent literature started by focusing on the factors and characteristics of successful crowdfunding campaigns and on the legal environment surrounding it. However, there are still pertinent aspects to explore in which the literature is lacking. For example, even with this extreme growth of alternative financing, in particular of equity crowdfunding, traditional financing is still the number one form of funding (Obiora & Csordás, 2017). The truth is that there are many barriers to the diffusion of equity crowdfunding, such as legal constraints (Cusmano

& Koreen, 2015; Dushnitsky, Guerini, Piva, & Rossi-Lamastra, 2016) or the lack of a secondary market that would allow an “assured” exit (Cusmano & Koreen, 2015). This gap jeopardizes the development of the primary market as well (Gabison, 2014) and it prevents the measurement of the return on investment on an aggregate level (Gray & Zhang, 2017). In fact, many investors will not invest without a pre-planned exit strategy (Gabison, 2014). According to Ahlers, Cumming, Guenther, and Schweizer (2015) when companies announce the intention of pursuing an Initial Public Offering (IPO) or trade sale as exit strategies, they are more likely to attract investors. Kleinert, Volkmann, and Gruenhagen (2018) also find that firms with pre-planned exit strategies attract 27% more investors and are 87% more likely to be funded. Additionally, “ninety percent of all the cash returns are produced by 10 percent of the exits” (Freedman & Nutting, 2015, p. 106), once again emphasizing the importance of the better understanding of this area.

But what are the existent exit strategies from equity crowdfunding? Hornuf and Schwienbacher (2016) find that some commonly used exit strategies like IPO are not suitable for most crowdfunded companies because they are too small. Signori and Vismara (2018) agree, further exposing that since the secondary market is inexistent, crowdfunding investors can only have returns through Mergers and Acquisitions (M&A) or IPO. However, they also state that the percentage of firms that gets through these exits is extremely low. So, it poses the question: how can an Equity Crowdfunding investor exit their investment?

This study seeks to fill this gap in the literature, providing the first analysis of the determinants of exit from Equity Crowdfunding investments. Given the newness of this theme and its rising importance, the lack of studies on exit strategies from equity crowdfunding and consequent lack of analysis of data, we evaluate what the existent exit strategies from equity crowdfunding are and which characteristics lead to one exit instead of another. More specifically, the aim is to 1) analyse project and funding characteristics to see how they impact the exit path on equity crowdfunding, which is lacking in the literature and 2) enhance the comprehension of such issues.

The methodology used is the same utilized by Cumming (2008), Jenkinson and Sousa (2015) and Sudarsanam and Nwaghodoh (2005) in several analysis of exit determinants on other types of investments, namely in venture capital, private equities and leveraged buyouts. The model employed is the Multinomial Logistic Regression, on a hand-collected database that

contains 46 companies which have resorted to equity crowdfunding and further incurred in an IPO, Secondary Market or M&A activities.. From these, 40 are European and the time frame goes from December 2013 to July 2020.

Our results suggest that the size of the company, the total amount of equity financing before exit and the company's profitability affect the exit path choice. Furthermore, we observe that the bigger the company size the higher is the probability of a company exiting through IPO or M&A when compared with the probability of exiting through a Secondary Market. On the contraire, the higher the total amount of financing through equity crowdfunding before the exit date, the higher is the probability of exiting through the Secondary Market instead of exiting through the other two.

Additional analysis on marginal effects shows that, on average, a standard deviation increase in profitability significantly decreases the probability of exiting through M&A. Regarding the IPO exit, on average, a standard deviation increase in capital intensity and in the amount of equity crowdfunding financing before exit decrease the probability of going through an IPO. Additionally, on average, a standard deviation increase in the log of assets decreases the probability of exiting through the Secondary Market. On the contraire, on average, a standard deviation increase of the amount of equity crowdfunding financing before exit and in age of the company at the time of exit increase this probability.

To the best of my knowledge, this is the first investigation that provides empirical evidence on the determinants of exit in an Equity Crowdfunding setting, enriching the literature with new results regarding such matter and giving investors the first look on which characteristics to consider when planning their exit from an Equity Crowdfunding investment. It might also be useful for policy makers in order to create just, adequate norms which benefit all parts involved and for platforms to better accommodate and manage expectations regarding exit perspectives.

The remainder of this report is structured as follows: in Section 2, a literature review of the topic is made, containing the most relevant definitions and conclusions reached by the several existing studies regarding Crowdfunding and Equity Crowdfunding, in particular the regulatory environment, the possible exit strategies and the determinants of the exit strategy. In section 3 we explain the model and the sample used and the following section presents

the results obtained and their discussion. Section 5 presents the conclusion with remarks regarding our findings and suggestions of further investigation ideas.

## 2. Literature Review

Alternative Finance saw its values reaching US \$ 290,61 billion in 2016, on a global scale, according to Hao (2018). Arising from the need of better financing conditions, it consists in obtaining financing from methods other than the traditional ones, i.e, banks or stock and bond markets (Segal, 2016). Since firms often find themselves lacking the necessary resources to reach their peak of value creation (Cumming, Deloof, Manigart, & Wright, 2019), alternative methods of finance may provide the solution for the acquisition of these resources, whether in financial or intangible terms (Gabison, 2015).

As found in the literature, firms start getting financing from their friends and family's funds, evolving to other methods, successively bigger, such as grants, trade credit, business angels and later even venture capital, private equities and/or equity markets. These compose the "finance escalator" (Cumming et al., 2019), in which firms obtain financing from different sources according to their lifecycle. The rising of alternative finance comes to disrupt this sequence, adding more hypothesis for firms who cannot access the traditional means.

It mainly differs from the traditional methods because it considers the character of the borrower and other non-financial data in the decision-making process (Obiora & Csordás, 2017). However, alternative finance is more prone to information asymmetry, which varies with the firm's business cycle (Bonini & Capizzi, 2019; Hirsch & Walz, 2019), and to adverse selection problems alongside moral hazard (Fu, Yang, & An, 2019; S. Wang & Zhou, 2004).

Of all the methods that Alternative Finance comprises, Crowdfunding is certainly one of the most popular (Paschen, 2017). Therefore, and alongside the Alternative Finance numbers, Crowdfunding has also suffered an exponential increase after the 2007/2008 crisis. According to Dushnitsky et al. (2016), since 2011, the capital obtained through crowdfunding as well as the number of projects in this category raised dramatically, with an expectation of incremental growth of US \$ 89.72 billion from 2018 to 2022, according to Technavio's report<sup>1</sup>.

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<sup>1</sup> Technavio (2019). Global Crowdfunding Market 2018-2022 at <https://www.technavio.com/report/global-crowdfunding-market-analysis-share> accessed on 28/12/2019.

The remainder of this section is divided in subsections that focus on specific subjects that deserve our attention, namely Crowdfunding, Equity Crowdfunding, the Regulatory Environment, Possible Exit Strategies from Equity Crowdfunding and the Determinants of the Exit Strategy.

## **2.1. Crowdfunding**

Entrepreneurs have been resorting to simpler forms of crowdfunding throughout the ages, with the funding from friends and family occurring in the initial stages of almost every firm. The development of the internet, however, disrupted this simple process and opened the access to more investors (Bender, Gal-Or, & Geylani, 2019).

Within Crowdfunding we find four basic models (Mollick, 2014): the Patronage Model, where investors support causes they believe in without expecting any direct return; the Lending Model (also recognized as Peer-to-Peer), where private investors lend money in exchange for a specified interest rate, similarly to a loan; Reward-Based, where investors receive a reward for their financing of the company, which can go from being credited in a movie to receiving CDs earlier than everyone else, and finally, Equity Crowdfunding, where private firms offer securities to the public through the internet, i.e., offering a stake in the company or something similar to that extent. The latter is an intriguing process given the possibility of acquiring a participation in the firm's ownership, namely through equity, even when the firm is private. Additionally, according to Segal (2016), there are two other models which surfaced in a recent past, Revenue and Profit-Sharing Crowdfunding and Invoice Trading. The author describes the first one as the case where several investors create a loan which is then granted to a company, which later must repay such loan based on future receivables. In the latter case, a group of investors will pay cash for invoices sold at a discount. Although it is debatable whether the last example is considered a form of crowdfunding, the author justifies its inclusion with the existence of a pool of investors instead of just one.

In fact, this is one of the advantages of the use of crowdfunding: the access to a large pool of investors. Not only does it give access to more funds, it also allows investors to share the risk of the investment, since it does not fall solely on one investor, i.e., the existence of diverse lenders mitigates the individual risk (Belleflamme, Lambert, & Schwienbacher, 2014;

Gabison, 2015). However, according to Ahlers et al. (2015) and Bonini and Capizzi (2019) individuals who take part in crowdfunding campaigns as investors are usually less sophisticated and lack knowledge and business/ financial experience. Despite that, actors in crowdfunding generally have a rational behaviour, even the ones who have less expertise (Ahlers et al., 2015).

On the other hand, there are, as in any investment, some risks. Even though companies start crowdfunding campaigns, there is always the risk of them not achieving their target, and in some all-or-nothing platforms this means the firm needs to give back the money invested by the different individuals if they do not fully reach the goal value (Bonini & Capizzi, 2019).

As a matter of fact, entrepreneurs that present more over-optimism are more likely to indulge in a crowdfunding campaign and to fail in achieving their target (Blaseg & Schwienbacher, 2019). Fundraisers also need to consider carefully the target amount and the chosen platform, since crowdfunding platforms provide publicity and visibility, and in case a campaign fails it might make it hard for the company in question to reach other means of financing, i.e., damaging the firm's follow on capacity to obtain funding resources (Bessiere, Eric, & Wirtz, 2019; Bonini & Capizzi, 2019). Additionally, it may also give rise to plagiarism since borrowers need to share a lot of information regarding their ideas in order to obtain investors willing to bet on their projects and, given the large pool of investors they are exposed to, it is practically impossible to fix non-disclosure agreement with all of them (Hemer, 2011).

It is important to take all these points in consideration when choosing the source of financing one wants to use since it is costly to create a crowdfunding campaign, not only in tangible terms with the payment of fees to platforms, but also with the disposal of time in the construction and publicizing of the campaign (Gabison, 2015). One should also carefully choose which factors to prioritize since there are some which are more prone to make a campaign successful, such as elaborating and presenting financial projections and roadmaps. These are positively perceived by investors, increasing the chances of success of the campaign (Ahlers et al., 2015). Strong internal governance with expert qualified members are also contributors to the likely success of the crowdfunding campaign, attracting more investors and potentially increasing the speed of funding resources (Ahlers et al., 2015).

It is also interesting to analyse what impacts the creation of the platforms. As stated by Dushnitsky et al. (2016) there is a significant impact of national boundaries on platform

creation, not only on economical grounds but also on cultural and legal national factors. The main ones presented by the authors are the size of each's country's population, the national entrepreneurial rates and the existence of platforms run by financial organizations such as large banks or angel networks.

All this considered, it is worth mentioning that crowdfunding cannot be, however, considered a perfect substitute for traditional financing, especially for firms in later stages; it is nonetheless, a good complement (Hemer, 2011). This way, of all the existent models of crowdfunding, one is particularly similar to the more traditional means of finance: Equity Crowdfunding (in the next subsection, this will be explored more deeply). After all, "Venture-capital investing is primarily equity investing" (Cummings & MacIntosh, 2003, p. 101).

Equity Crowdfunding has a few characteristics in common with Business Angels and early stage Venture Capital such as the existence of a pre-money valuation, the average size of more recent equity requests and the equity offers in each deal (Vulkan, Åstebro, & Sierra, 2016). Additionally, the crowd acts like angels when acquiring securities online (Hornuf & Schwienbacher, 2016). In fact, Mollick and Nanda (2015) find that there is a strong compatibility between the evaluation and funding decisions of the crowd and sophisticated, expert investors. The authors also find no significant difference between the long-term outcomes of projects liked by the crowd or by experts.

Nonetheless, other authors such as Walthoff-Born, Vanacker, and Collewaert (2018) argue that despite the existence of wisdom of the crowd, adverse selection issues prevail in the equity crowdfunding market, showing its presence in their results, since non equity crowdfunded companies presented lower failure rates than equity crowdfunding firms. Having said that, on average, non-sophisticated investors have correct perceptions about the quality of a project (Brown & Davies, 2015).

Given these findings, it is not surprising to observe that the efficiency of platforms can be enhanced with the mix of the characteristics of their sophisticated and naïve investors (Brown & Davies, 2015). In fact, there are hybrid crowdfunding platforms such as SyndicateRoom, which cross expert investors such as venture capitalists or business angels as the main investor with the crowd (Correia, 2019).

One other similarity is that in all of these methods participants are faced with asymmetry of information and uncertainty, which is higher for early stage and high technology firms (Gompers, 1995), their main focus.

## **2.2. Equity Crowdfunding**

As previously exposed, small firms are having difficulty in accessing the traditional methods of finance. The same happens for startups, presenting a phenomenon known as financing gap (Reverte & Badillo, 2019). Therefore, governments have been supporting equity crowdfunding in order to cover this gap (Reverte & Badillo, 2019). Curiously, however, according to Walthoff-Born, Schwienbacher, and Vanacker (2018), firms turn to equity crowdfunding only as a last resort. Their results draw on the pecking order theory, which exposes that firms first seek internal funds, then debt and only when these two are exhausted do they attend the equity market. The authors also find that firms that turn to equity crowdfunding are likely to be more unprofitable and to possess excessive levels of debt and more intangible assets.

In spite of this, a lot of fundraisers adhere to equity crowdfunding. Even though there are other reasons, when asked about why they utilize this method, most investors give financial reasons as their main motivation (Estrin, Gozman, & Khavul, 2018). Other motives presented are the use of these platforms as a marketing strategy or the quick access to a large pool of funds and investors, although in general less wealthy (Hornuf & Schwienbacher, 2016). In fact, ever since methods like these emerged, firms can stay private for much longer, due to the higher quantities of funding and private investors available (Kesten, 2018). Not having to disclose as much information as with other means and the retention of control rights are also highly attractive for entrepreneurs (Estrin et al., 2018) and, furthermore, in comparison with more traditional means, there is standardization and simplification of contracts and shortness in the needed time for the process (Vulkan et al., 2016).

Given the existence of such a pool of investors, the parts can take advantage of the relations between all the involved. One useful tool for Equity Crowdfunding investors is the connections established among entrepreneurs and as a matter of fact, backers learn from each other and take their peers' opinions into account (Estrin et al., 2018; Gabison, 2015)

The existence of public profile investors impacts positively the success of a campaign, once that lenders take this information into account (Vismara, 2016). For entrepreneurs, they can obtain feedback or take advantage of the knowledge of their contributors (Gabison, 2015).

Other factors that positively impact Equity Crowdfunding Campaigns are the firm being previously awarded with financing, i.e, lenders perceive it in a good way and it leads to less information asymmetries, which induces a bigger success in the campaign's outcome (Kleinert et al., 2018). This impact is bigger for companies who present more uncertainty. Furthermore, affiliation with venture capitalists is perceived as a sign of quality (Gompers & Lerner, 2004; Kleinert et al., 2018) and in fact, some entrepreneurs are willing to sell their start up equity stakes at discount in order to be affiliated with a reputable venture capitalist (Hsu, 2004).

As with the more ample concept of Crowdfunding, there are risks in participating in the Equity Crowdfunding market. There is the chance of overfunding, that will lead to the dilution of voting rights (Weinstein, 2013); the risk of fraud, incompetence by the project entrepreneurs, lack of a secondary liquid market and difficult tax and legal regulations (Gabison, 2015) and investors need to be wary of the valuations made by the project creators since they cannot have the certainty it is correct due to the lack of the traditional market mechanisms (Gabison, 2014). Nonetheless, the participants in these markets seem to be aware and properly compute the risks they are incurring in (Estrin et al., 2018).

Contrarily to this view, Bento, Gianfrate, and Groppo (2019) find that in crowdfunded companies the risk profiles are not consistent with the returns, at least in the clean tech market, which they focused on. They highlight that technological risks, altruism and bounded rationality as well as cultural dimensions significantly affect the risk-return profile, causing this mispricing. However, and in line with Estrin et al. (2018), Bento et al. (2019) find that projects which show better risk-adjusted returns obtain larger contributions.

Even given all of this and the huge growth of Equity Crowdfunding in the last years, there are still several barriers to its diffusion. It is challenging to grant adequate risk adjusted rates of return for investors in these platforms, i.e., to ensure that these investors obtain returns that justly compensate the risk incurred (Schwienbacher, 2019). At the same time the efficiency and profitability of the equity crowdfunding platforms are controversial and there exists the need of these platforms to really create unique sources of economic value added

(Schwienbacher, 2019). Additionally, as mentioned before, the lack of assurance of an exit strategy, which creates some of the aforementioned problems, and the regulatory environment profoundly affects this dimension (Cusmano & Koreen, 2015). To overcome the exit strategy problems, some platforms in China offer post-investment services in order to facilitate alternative means of exit or to ease the listing of those companies on regional equity exchange systems (Lin, 2017). In order to protect investors, one measure employed was the syndicate model, where there is a leading investor and a bunch of co-investors who are granted priority exit rights in further financing rounds, in some major platforms (Lin, 2017).

### **2.3. Regulatory Environment**

Given the expansion that crowdfunding has suffered, it expectedly attracted the attention of regulators. Even though there is no unified unique regulation system, universally applicable (Bonini & Capizzi, 2019), many regulators are taking this matter into consideration. In fact, it would be difficult to create a universal system because the needs and preferences of borrowers and lenders are different in the different countries, even inside Europe (Dushnitsky et al., 2016). In reality, what happens in many cases is that as a first check-up, normally, project creators and their ideas are checked by the platforms since they have a big incentive to promote credible, non-fraudulent projects (Gabison, 2015). However, since that is the case, platforms are incentivized to have their own regulation. Is further governmental regulation needed after all? (Gabison, 2015)

The answer seems to be yes. With the legal rights merits having a negative impact on Equity Crowdfunding (Dushnitsky et al., 2016), it seems important to regulate them in order to facilitate this method of financing. Indeed, in the recent past, the regulatory environment has become more favourable to equity crowdfunding, in particular in Europe (Bonini & Capizzi, 2019), where most of this type of crowdfunding occurs (Gabison, 2015).

From 2010, the UK opened ways for equity crowdfunding with light regulation, and from there on other countries like Australia, Ireland, France, the Netherlands and Switzerland also established laws which support this method (Estrin & Khavul, 2016). Italy was, however, the first country that developed an explicit legal basis specifically tailored to crowdfunding, with

Equity Crowdfunding being regulated since 2013 (Dushnitsky et al., 2016; Hemer, 2011). In the USA, the Title III of the Jumpstart Our Business Startups (JOBS) of 2012 revoked the obligation of all crowdfunding transactions to be registered<sup>2</sup>. In 2015, the Securities and Exchange Commission adopted the final regulation to implement Title III (Vismara, 2019) and starting in 2016, companies were able to indulge in such method for raising capital<sup>3</sup>.

## **2.4. Possible Exit Strategies from Equity Crowdfunding**

As exposed by Gabison (2014), there are investors who need a pre-planned exit strategy to invest in a project. Many authors (for example, Bascha & Walz, 2001; Bayar & Chemmanur, 2006; Schwienbacher, 2008) highlight just how crucial an exit strategy is for a firm. The scarce evidence of successful exits from Equity Crowdfunding (Ahlers et al., 2015; Cusmano & Koreen, 2015; Estrin et al., 2018) however, seems to impose a restriction and generate some hesitation regarding this method of financing. Nevertheless, Freedman and Nutting (2015) assure the existence of exits, further explaining that some will be achieved through bankruptcy or dissolution, the “downside exits”, and others will be “upside exits” which earn a return for the investor, through IPO or Acquisition, for example.

Furthermore, and even though the difficulty to exit small investments is well known (Metrick & Yasuda, 2010) there has been an increase of startups’ exits in Europe (Pisoni & Onetti, 2018). As with startups, most equity investments are not of a big scale, except in the case of some companies which are titled “unicorns” and so, it is important to understand how to exit them, since there is evidence that indicate that such exits are possible.

In a broad sense, an exit is a way of materializing the return on investment. Given this, Johnson (2014) as well as Freedman and Nutting (2015) present some possible exit strategies from equity crowdfunding:

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<sup>2</sup> SEC (n.d.). U.S. Securities and Exchange Commission Crowdfunding Regulation at <https://www.sec.gov/info/smallbus/secg/rccomplianceguide-051316.htm>, accessed on 13/12/2019.

<sup>3</sup> SEC (n.d.). U.S. Securities and Exchange Commission Crowdfunding Regulation at <https://www.sec.gov/info/smallbus/secg/rccomplianceguide-051316.htm>, accessed on 13/12/2019.

- Dividends

Although a difficult option for start-ups and with the risk of not providing the expected return for investors (Johnson, 2014) a dividend-based exit is possible for an equity crowdfunded company. This method allows investors to obtain a return on their investment and in fact, there have been real life cases of this situation. For example, Beara Beara, a leather bag company on Crowdcube since 2014, has paid dividends to their investors, according to the Crowdcube's website<sup>4</sup>.

- Secondary Markets

According to Gabison (2015) there is no efficient secondary market. However, although there are few in existence, secondary markets would be one of the best bets for exiting equity crowdfunding investments. Actually, there already exists such thing, for example the German platform Berfgürst, which allows a secondary market for IPOs in a small range (Hornuf & Schwienbacher, 2016). In the Netherlands, we can also find Symbid, a platform that allows their investors to resell their stakes to other Symbid investors (Walls-Hester, 2016), working as a low level secondary market. Additionally, Seedrs has developed a beta secondary platform, active since 2017, which allows to buy and sell shares from shareholders of companies listed on Seedrs, during trading cycles which start on the first Tuesday of every month and last a week<sup>5</sup>.

However, there are still impediments to the mass development of such markets. As an example and according to Signori and Vismara (2018), in the USA, during the first year of issuance there can be no secondary market, as stated in the JOBS Act. In China, for

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<sup>4</sup> Crowdcube (n.d.). How many exits have there been from equity investments made through Crowdcube? at <https://help.crowdcube.com/hc/en-us/articles/115000038984-How-many-exits-have-there-been-from-equity-investments-made-through-Crowdcube->, accessed on 05/12/2019.

<sup>5</sup> Lynn, J. (2017). Trading Tuesdays are coming – Seedrs will launch a secondary market this summer at <https://www.seedrs.com/learn/blog/seedrs-news/features-updates/secondarymarket>, accessed on 11/03/2020.

instance, unsanctioned secondary markets which operate online are forbidden under the rules imposed by the Securities Association of China (Lin, 2017).

Nonetheless, Freedman and Nutting (2015) are hopeful for the emergence of new internet based secondary markets or public stock exchanges for investors to realize their returns and sell their shares. Blockchain technology may help in the development of such secondary markets (Schwienbacher, 2019).

- Buybacks

This would be one of the simplest methods of exit for equity investors amongst all the existing ones. It is to be noticed though, that it might be complicated for firms in an initial stage to be able to go through with them though (Johnson, 2014) since it demands significant capital. Even so, there are several examples of companies promising to buyback the company's shares when a specific threshold is reached (Walls-Hester, 2016) and in reality, we can observe, for example, Celixir, a biotech firm listed on Crowdcube, which returned 2.7x the investment of their backers with a share buy-back in 2017<sup>6</sup>.

- Merger or Acquisition by a competitor or larger company

Even though an acquisition may be tricky due to the large number of investors involved in equity crowdfunding (Johnson, 2014), it is also one of the most likely exit ways from this type of investment. As a matter of fact, there have been several cases on Crowdcube alone, such as Camden Town Brewery which was acquired by AB InBev, or E-Car Club acquired by Europcar<sup>7</sup> (more on this subject is exposed in the IPO section). Furthermore,

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<sup>6</sup> Crowdcube (2017). More financial returns for Crowdcube investors as Celixir delivers 2.7x return at <https://www.crowdcube.com/explore/blog/investing/more-financial-returns-for-crowdcube-investors-as-celixir-delivers-2-7x-return>, accessed on 05/12/2019.

<sup>7</sup> Crowdcube (n.d.). How many exits have there been from equity investments made through Crowdcube? at <https://help.crowdcube.com/hc/en-us/articles/115000038984-How-many-exits-have-there-been-from-equity-investments-made-through-Crowdcube->, accessed on 05/12/2019.

Signori and Vismara (2018) found that 1.4% of the companies in their sample incurred in M&A as a way of exiting equity crowdfunding, all presenting positive returns.

- IPO

Throughout the literature IPOs have emerged as the most profitable exit path (Folus & Boutron, 2015; Gompers & Lerner, 2004). High-quality firms often exit through IPOs (Cummings & MacIntosh, 2003).

However, according to Metrick and Yasuda (2010) only big companies have a real chance of going through an IPO or M&A. The same was stated by Hornuf and Schwienbacher (2016), as previously mentioned, who find that some commonly used exit strategies like IPO are not suitable for most crowdfunded companies due to their small size. Schwienbacher (2019) also states that startups financed in equity crowdfunding platforms are less prone to having the necessary growth prospects for an IPO in comparison with Venture Capital backed companies.

However, the importance of this exit is not to be overlooked, since for example, in Cumming and Johan (2008) investigations, in of all their investments, Venture Capitalists pre-plan an exit through IPO or Acquisition in 31% of the firms they invested in.

Furthermore, companies that announce the perspective of pursuing an IPO or trade sale have higher chances of attracting investors, with IPO taking the lead (Ahlers et al., 2015). However, the authors also point that even though these exits have yielded the highest returns in the past, when comparing with other possible exits, they also yielded higher risks. It is worth noticing, nonetheless, that even though investments in equity crowdfunding are risky they are not excessively risky when compared to other classes of investments (Estrin et al., 2018). Signori and Vismara (2018) also point out IPOs and M&As as available exit ways for equity crowdfunding, highlighting the small percentage of firms that actually made it through these means.

- Acquisition by a Private Equity or Venture Capital

Hornuf and Schwienbacher (2016) also propose Acquisition by a private Equity or Venture Capital, presenting the example of Gini, an equity crowdfunded German company that got follow-up funding from TVenture, a venture capital fund. Complementing this idea are Signori and Vismara (2018), who found in their sample that 9.4% of the crowdfunded firms got private equity from Business Angels and/or Venture Capitalists.

- Secondary Share Sale

Li (2016) additionally brings forth a Secondary Share Sale as a feasible exit strategy for crowd investors in private firms. It consists in the sale of their participation to a third party who is not related to M&A activities, possibly in further financing rounds. As a matter of fact, this is the case of Antabio, a french company which raised financing from WiSeed.com, a french crowdfunding platform. In 2012, after a first investment in the company in 2011, an angel investor offered to buyout the remaining investors, providing a 70% return on their investment<sup>8</sup>. Other companies such as blow Ltd, which raised money via Seedrs, and Mettrr Technologies, which got financed on Crowdcube, also granted returns for the equity investors through this channel. In the first case investors were granted a return of up to 3x their investment<sup>9</sup> and in the second case, investors got a 9x return after angel investments in the company<sup>10</sup>.

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<sup>8</sup>Thread7 (2012). First Successful Exit for Equity Crowdfunding. <http://crowdlanding.com/wp/?p=39>, accessed on 20/08/2020.

<sup>9</sup> Alois, JD (2017). Equity Crowdfunding Success: Seedrs Funded blow LTD Receives \$10 Million Investment from Debenhams. <https://www.crowdfundinsider.com/2017/09/122315-equity-crowdfunding-success-seedrs-funded-blow-ltd-receives-10-million-investment-debenhams/>, accessed on 20/08/2020.

<sup>10</sup> Crowdcube (2017). Crowdcube completes first on-platform secondary share trade. <https://www.crowdcube.com/explore/blog/crowdcube/crowdcube-completes-first-on-platform-secondary-share-trade-as-angel-investors-snap-up-crowd-shares-in-mettrr-technologies>, accessed on 20/08/2020.

As can be seen, there are several ways of exiting an equity crowdfunding investment. Their feasibility, however, is still uncertain. Despite the existence of examples for all of the possible exit strategies, some of them present really low numbers of real-life cases. This way, the main exit strategies adopted by investors in equity crowdfunding seem to be IPO, M&A and the Secondary Market.

## **2.5. Determinants of the Exit Strategy**

Throughout the literature, several authors have turned their attention to analyzing which factors determine one specific type of exit strategy, whether in Private Equity deals, Venture Capital, Leveraged Buyouts or private firms that either went public or were acquired. To the best of my knowledge, no investigation has focused on the factors affecting Equity Crowdfunding exit modes, hence the primary contribution of this study to the literature.

Mainly, some authors have found that macroeconomic conditions are crucial for exit activities (Brau, Francis, & Kohers, 2003), determining its timing (Folus & Boutron, 2015). For example, when there exists an IPO market “hotness”, firms are more likely to go through an IPO than through M&A (Brau et al., 2003). However, when the conditions in the M&A are favorable, bidder activity is encouraged (Golbe & White, 1993), leading to a bigger propensity to trade sales (Sudarsanam & Nwaghodoh, 2005). Factors such as the legal, tax and regulatory environment affect the exit path chosen (Folus & Boutron, 2015).

Other authors such as Jenkinson and Sousa (2015), who study a sample of private equity deals, find that the exit channel is mainly dependent on capital market conditions. This goes in line with Brau et al. (2003)’s findings that stock market conditions and industry factors influence the choices of firms during restructuring. In fact, they explain that an industry’s level of concentration may lead to different choices when considering an IPO or acquisition. In their research, Brau et al. (2003) explain that in high concentration industries an IPO is more likely whereas in low concentration industries mergers would be more likely to occur.

Additionally, these authors as well as C. K. Wang and Sim (2001), who focused on venture capital backed companies in Singapore, argue that high technology firms seem to be more prone to IPOs than to other forms of exit such as M&A. Bayar and Chemmanur (2006), who focused on private firms backed by a Venture Capitalist, also argue that the nature of the

industry of the firm, capital intensive, for example, affect the exit choice, with IPOs being more likely in intensive capital industries and acquisitions being more likely in industries with a dominant firm.

On a firm level, Jenkinson and Sousa (2015) find that companies that can support high levels of debt are more prone to a secondary buyout, maybe because they are more indicated for private equity ownership. Brau et al. (2003) explain that firms with high levels of debt are looked at with bigger caution and therefore would be more underpriced in an IPO, reason why a more conservative route like M&A would be more adequate in a restructuring decision. However, Brau et al. (2003) also present a conflicting view with these arguments: since companies already passed the scrutiny of lenders, shareholders may consider them as attractive for an IPO.

Profitability is another factor brought up as indicative of the exit strategy, with Bienz (2004), finding that companies backed by Venture Capital that present high profitability will go through an IPO; companies which present lower levels of profitability will go through trade sale. The author adds that there is a threshold that defines the exit mode. One additional factor found to influence the exit path is the value of the firm. Bascha and Walz (2001) in their study of venture capital finance show that for low firm values a trade sale is preferred over an IPO; for high firm values the contrary is true. In the model later developed by Bayar and Chemmanur (2006) the valuation of firms going through acquisitions is also lower than for firms going through IPOs.

The impact of business age and firm size on the exit path, however, has been discussed. Chang and Singh (1999), analyzing a sample of 772 public companies in the United States in the manufacturing industry, from 1981 to 1989, argue that the age of the business affects the exit mode, with it being weakly and positively associated with a higher probability of exit by dissolution. They also find that differences in advertising intensity influenced the exit mode and factors such as market share or business size were not relevant for this decision. DeTienne and Cardon (2006) also find that age and size do not impact the exit strategy, with a sample of 1334 privately held firms. Differently, Pagano, Panetta, and Zingales (1998) find a positive correlation between firm size and IPO likelihood. Brau et. al (2003) finds that firm size is relevant for the choice between IPO or M&A as well, with bigger firms having inclination towards going public. Contrarily to these findings, Sudarsanam and Nwaghodoh

(2005) find that there is a negative correlation between firm size and the probability of going public.

Other authors focused on product market characteristics, such as Schwiendbacher (2008). The author studies whether the level of innovation affects the exit route, finding that firms that are more innovative and present higher levels of profitability have a higher probability of going through an IPO rather than through a trade sale.

Presenting a perspective regarding the human capital factor, DeTienne and Cardon (2006) argue that the education level of the entrepreneur, previous entrepreneurial experience, industry experience and area of study affect the exit path decision. With their results they proved that human capital theory is relevant for understanding the factors leading to each exit strategy.

Additionally, other studies such as the ones of Sarin, Das, and Jagannathan (2002) focused on other characteristics finding that firms that present high post-money valuations have a higher chance of exiting through IPO than by acquisition. Their analysis is based on a sample of 52,322 financing rounds by venture and buyout funds, in 23,208 firms, from 1980 to 2000. Bayar and Chemmanur (2006), on the other hand, state that later stage firms with more consolidated business models are more likely to go through an IPO whereas earlier stage firms have an increased probability of being acquired.

More related to the financing rounds, we have the perspective of C. K. Wang and Sim (2001), who while analyzing the Singapore market of venture capital backed companies, as previously mentioned, found a positive relation between total amount of financing and likeliness of exiting through IPO. They establish that the frequency of financing rounds, however, is independent of the exit through this route. Additionally, DeTienne and Cardon (2006) affirm that the total initial investment also has its weight on the exit path taken.

Summing up all the information presented so far, there seem to exist several determinants of exit strategies across diverse type of investments. Can we extend this conclusion to the Equity Crowdfunding environment? Given this question it is relevant to analyze what determines an exit strategy for investors on a particular company in equity crowdfunding.

The present dissertation aims to contribute to the literature by expanding the findings on this area, which, to my knowledge, are still lacking. We analyze whether the determinants

which affect the exit path in contexts other than equity crowdfunding, for instance in Private Equities and Venture Capital, also impact the exit strategy in equity crowdfunding cases.

This is the first study to analyze such determinants in this setting, shedding the first lights on the determinants of exit in equity crowdfunding, providing investors with an idea of what variables to consider when they plan to exit their crowd investment.

Similar studies such as Signori and Vismara (2018) analyzed post campaign scenarios from 212 companies in the British platform Crowdcube, finding that in their sample only a small percentage of firms went through M&A post crowdfunding (1.4%). 9.4% had follow-on funding from Private Equity or Venture Capitalists and 25.5% raised more equity on the same platform as the first funding. Of the remaining companies 17.9% failed and 45.8% simply were not involved in any post-offering deals. A similar analysis was conducted by Hornuf and Schmitt (2017) who analyzed 656 companies which raised successfully the goal amount in an equity crowdfunding platform either in Germany or in the UK. They found that German firms have higher likelihood of obtaining follow-on funding from Business Angels or Private Equities and are less likely to fail than the British companies. The authors found that the age of the firm, for example, reduce the probability of follow-on funding but crowd exits increase this probability.

Regarding the determinants, similar studies for other type of investments such as the one from Sudarsanam and Nwaghodoh (2005), who focused on exit strategies for UK Leveraged Buyouts, argue that a firm's operating performance, firm size, the length of the holding period the sponsor and being in a high-tech firm are the main influencers of the exit mode. They find that bigger firms with better operating performance are more prone to secondary buyouts. Other similar studies such as the ones presented in the subsection "Exit Determinants" focused on firm size (Brau et al., 2003; Chang & Singh, 1999; DeTienne & Cardon, 2006; Pagano et al., 1998; Sudarsanam & Nwaghodoh, 2005), leverage level of the firm (Brau et al., 2003; Jenkinson & Sousa, 2015), entrepreneur characteristics (DeTienne & Cardon, 2006), value of the firm (Bascha & Walz, 2001; Bayar & Chemmanur, 2006), firm profitability (Bienz, 2004), industry characteristics (Bayar & Chemmanur, 2006; Brau et al., 2003; C. K. Wang & Sim, 2001), age of the business (Chang & Singh, 1999; DeTienne & Cardon, 2006), product market characteristics (Schwienbacher, 2008), initial investment (DeTienne & Cardon, 2006) and financing rounds characteristics (C. K. Wang & Sim, 2001).

This dissertation will, therefore, focus on 5 firm specific determinants, 2 industry factors and 1 financing round factor: Firm size (by log of total asset value), Leverage level of the firm (by total debt to total assets ratio), Firm Profitability (through the EBITDA margin), Age of the firm at the time of exit, Capital Intensity of the firm (by revenue to assets ratio), the Industry type (whether it is high-tech or not) in which the firm's business operates and Level of Equity Crowdfunding Financing at the time of Exit.

As in other studies already mentioned, which mainly focus on two or three paths of exit, namely IPO, M&A and secondary buyout, this study intends to analyze the impact of the three main methods of exit adopted by investors in regard to equity crowdfunding, namely M&A, IPO and Secondary Market, contributing this way to the literature. The remaining methods were not analyzed given the extremely small number of investors that exited through them.

### 3. Methodology and Data

This section describes the methodology, the explanatory variables, the dataset and the descriptive statistics for the sample.

#### 3.1. Methodology

In order to estimate the determinants of the exit decision in companies that resorted to equity crowdfunding financing we used the same model employed by other authors who wanted to test the impact of certain variables on the exit path in other types of investment. It is the case of Sudarsanam and Nwaghodoh (2005), who used the Multinomial Logistic Regression model on a sample of 204 UK leveraged buyouts to test the determinants of exit in Leveraged Buyouts; of Cumming (2008) who analyzed a sample of 223 European firms who had received financing from a Venture Capitalist to analyze what variables impacted the exit in Venture Capital Finance; Cumming, Fleming, and Schwienbacher (2006) who wanted to analyze the impact of legality in venture capital exits through a sample of 468 companies financed by Venture Capitalists in 12 Asia Pacific countries and of Jenkinson and Sousa (2015), who used it to test the determinants of exits in a sample of 1022 European private equity exit deals.

The Multinomial Logistic Model is an extension of the binary logit model, with an added complexity in interpretation due to the larger number of comparisons required (Long, 1997). In fact, according to Long (1997, p. 149), in order to understand how the Multinomial Logistic Model works one can think of it as “simultaneously estimating binary logits for all possible comparisons among the outcome categories”. The author adds that the simultaneous estimation increases both the logical relationship between parameters and the efficiency of how the data is used, when in comparison with separate binary logit estimations.

When we have  $J$  categories, the dependent random variable  $y$  that takes the values of  $J=0,1,\dots,J-1$  (Long & Freese, 2006). Let  $x$  be set of the independent variables. We can write the conditional probability of an individual belonging to the  $j$  category = 0, 1, ...,  $j-1$  as  $P(y_i = j|x_i)$ . There are two reasonable restrictions that can be applied:

- $P(y_i = j|x_i) \in (0,1)$  (Cameron & Trivedi, 2009)
- The probabilities sum to unity (Cameron & Trivedi, 2009; Wooldridge, 2010)

Applying the restrictions, we have:

$$P(y_i = 1|x_i) = \frac{\exp(x_i\beta_1)}{1 + \exp(x_i\beta_1) + \exp(x_i\beta_2)}$$

$$P(y_i = 2|x_i) = \frac{\exp(x_i\beta_2)}{1 + \exp(x_i\beta_1) + \exp(x_i\beta_2)}$$

$$P(y_i = 0|x_i) = 1 - P(y_i = 1|x_i) - P(y_i = 2|x_i) = \frac{1}{1 + \exp(x_i\beta_1) + \exp(x_i\beta_2)}$$

The interpretation of the coefficients can be done in the same way used for binary logit parameters, with the comparison being in relation to the base category (Cameron & Trivedi, 2009) and is mainly based on predicted probabilities (Long & Freese, 2006). It is easy when both  $\beta_{1k}$  and  $\beta_{2k}$  have the same sign. In this case, when they are both positive (negative) an increase in  $x_k$  decreases (increases) the probability of the individual belonging to the base category.

We can also calculate partial changes, to assess how the changes in one explanatory variable affect the dependent variable, ceteris paribus (Long & Freese, 2006). These marginal effects are a quick useful way to understand the effects on the single impact of each explanatory variable in the overall model (Long, 1997; Long & Freese, 2006).

The marginal effects are represented by:

For  $j=1, 2$

$$\frac{\partial P(y_i = j|x_i)}{\partial x_{ik}} = P(y_i = j|x_i) \left[ \beta_{jk} - \frac{\beta_{1k} \exp(x_i\beta_1) + \beta_{2k} \exp(x_i\beta_2)}{1 + \exp(x_i\beta_1) + \exp(x_i\beta_2)} \right]$$

For  $j=0$

$$\frac{\partial P(y_i = 0|x_i)}{\partial x_{ik}} = P(y_i = 0|x_i) \left[ -\frac{\beta_{1k} \exp(x_i\beta_1) + \beta_{2k} \exp(x_i\beta_2)}{1 + \exp(x_i\beta_1) + \exp(x_i\beta_2)} \right]$$

However, these expressions cannot be interpreted. Additionally, the marginal change represents an instantaneous rate which depends on the levels of all variables in the model, making it volatile (Long & Freese, 2006). So, it is preferable to compute discrete changes in the average standard deviation of the variables and obtain results from there (Long & Freese, 2006). On average, when the standard deviation of  $x$  increases (decreases) by its average value, it increases (decreases) the probability of the individual belonging to the category in question, by the coefficient value.

Given all of this and since the multinomial logistic regression model is adequate to nominal variables, that cannot be ordered (Long, 1997), the exit probability model employed in this dissertation is based on a Multinomial Logistic Regression in which the exit paths are the dependent variable, which assumes the value 1 if the exit path is M&A, 2 if the exit route is IPO and 3 if it is Secondary Market. This way, the model works on paired comparisons for all the possible outcomes, with one base outcome and, therefore, the results emerge as a relative probability. The Secondary Market is the base outcome.

As mentioned before, we will focus on the three main exit paths taken by investors given the low number of cases for the other possible methods of exit.

### **3.2. The explanatory variables**

The explanatory variables are derived from the several sources in literature.

- a) Firm size is represented by the log of total assets of the company (Jenkinson & Sousa, 2015; Sudarsanam & Nwaghodoh, 2005).
- b) The leverage level of the firm is assembled from the ratio between Total Debt and Total Assets, where total debt includes both long- and short-term debt (Sudarsanam & Nwaghodoh, 2005).
- c) Firm profitability is represented by the EBITDA margin (earnings before interest, taxes, depreciation and amortization – EBITDA - to revenue ratio). As explained by Sudarsanam and Nwaghodoh (2005), the use of the EBITDA instead of the EBIT cancels some noise that may be introduced by depreciation and amortization policies.

EBITDA was computed as: 
$$\frac{\text{Value of EBITDA in the profit and loss statement} \times 12}{\text{number of months in the statement}}$$

The revenue was computed as: 
$$\frac{\text{Value of Revenues in the profit and loss statement} \times 12}{\text{number of months in the statement}}$$

Both represent the annual equivalent value.

d) The age of the firm is calculated from the year of creation until the year of exit.

e) To identify a company's industry, the codes from the NACE Rev. 2<sup>12</sup> were used (for European companies and estimated for the remaining). In order to classify them as high-tech or not, the same codes were used, following the aggregations of industries made by Eurostat<sup>13</sup> and the OECD technology intensity definition<sup>14</sup> (based on Sudarsanam & Nwaghodoh, 2005).

f) Capital intensity is measured by the revenue to assets ratio (Jenkinson & Sousa, 2015).

g) The Level of Equity Crowdfunding Financing at the time of Exit was calculated by the sum of all equity crowdfunding campaigns that were successful for each company, before the exit date. This data was computed from Crunchbase and the equity crowdfunding platform websites.

All of the data computed from financial statements is from the latest publication before exit.

### 3.3. Dataset

The initial universe for the present dissertation is companies who have raised financing through equity crowdfunding in European platforms as well as in the most important platforms worldwide<sup>15</sup>, located in North America, Oceania and Israel, and later provided exits to their investors through IPO, Secondary Market activities in the British platform

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<sup>12</sup> NACE is the “statistical classification of economic activities in the European Community”, as stated in <https://ec.europa.eu/eurostat/documents/3859598/5902521/KS-RA-07-015-EN.PDF>

<sup>13</sup> Eurostat indicators on High-tech industry and Knowledge – intensive services at [https://ec.europa.eu/eurostat/cache/metadata/Annexes/htec\\_esms\\_an3.pdf](https://ec.europa.eu/eurostat/cache/metadata/Annexes/htec_esms_an3.pdf)

<sup>14</sup> ISIC REV. 3 Technology Intensity Definition at <https://www.oecd.org/sti/ind/48350231.pdf>

<sup>15</sup> List Of The Best Equity Crowdfunding Sites at <https://startupfundingsecrets.io/equity-crowdfunding-sites/>, accessed on 20/06/2020. This website is managed by Nathan Rose, a crowdfunding strategist, author of two bestsellers regarding equity crowdfunding. He measured the relative size and popularity of each platform in order to compose this list.

Seedrs or M&A. One of the main concerns regarding Equity Crowdfunding exits is the low number of companies that actually achieved such exit. Even further, many of those which exited are private companies of small size and therefore do not have to disclose all of their financial statements. The sample is then restricted to companies i) where it is possible to obtain all the necessary information from the latest published financial statements before exit and ii) that have a revenue  $> 0$  in that same financial statement<sup>17</sup>. Consequently, most of the sample is constituted by European companies given their obligation to still file most of the financial data.

Out of 188 cases considered, and after eliminating all the companies who did not meet the requirements, it was possible to obtain a sample of 46 subjects.

The dataset used in the dissertation contains information from Crunchbase, Company Check, Companies House, Global Database, Orbis Europe and Thomson Reuters Eikon, as well as the websites from the public companies which provide their own financial information and the equity crowdfunding platforms where the companies received funding (**Table 7** in Annex).

Crunchbase is a platform which contains information about private and public companies, like business characteristics and important events. Companies House is a governmental organization where all UK companies must register to become limited, that provides company information to the public and the owner of Company Check, an information company. Global Database also provides company information and Orbis Europe is a database of public and private European companies, with financial statements and business information, from the Bureau van Dijk. Lastly, Thomson Reuters Eikon is a financial data platform, including financial information of public companies, news, financial analysis, etc..

The sample in this dissertation consists of hand-collected information on 46 cases, from which 40 are European companies, 3 are from the USA, 1 is from Australia, 1 is from New Zealand and 1 is from Israel, in a data frame that goes from December 2013 to July 2020. The data used refers to the accounting data from the most recent report before the exit date.

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<sup>17</sup> In order to calculate Capital Intensity and the EBITDA margin.

### 3.4. Descriptive Statistics

**Table 1** presents the summary statistics of the whole sample. It is observable that on average total value of assets is below € 14 million and therefore, the companies in the sample are mostly of a smaller size. It is also observable that on average the revenue value is of around € 5.5 million which means that most companies on the sample are small to micro sized<sup>18</sup>, corroborating the previous statement. Out of the 46 companies that compose the sample only 12 have a revenue over 5 million and furthermore, only 6 have it over € 10 million. This means that 74% of the sample has lower revenue levels. Regarding the leverage level the average is 0.89 and the median is 0.76, meaning that overall, a large part of the companies' assets are funded by debt. Regarding the age at time of exit, companies are quite young, with the average exit happening around the 7<sup>th</sup> year of the company. The average EBITDA is of -1 746 341, a negative value, which is probably derived from how young most of the businesses of the sample are.

On **Table 2** and **Table 3** we find the nationality and industry of the companies related to each type of exit. The predominant country in the sample is the UK, followed by Sweden and the USA (but to a much lesser degree). Regarding industries the selection was made based on the NACE codes previously mentioned. The industries with the biggest representation are Telecommunications and Financial and Insurance services, accounting for 40% of the sample (20% each). Professional, scientific and technical activities amount to 15% and Manufacturing adds up 13% of the sample. Other industries show lower to no representation in the sample. As an example, Accommodation and food service activities and Administrative and support service activities both fill up 9%. Agriculture, forestry and fishing, Arts, entertainment and recreation, Construction, Information and other services each present 2% of the sample. On the other hand, there is no representation of industries such as Mining and quarrying or Real Estate Activities, for example.

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<sup>18</sup>European Commission definition in Internal Market, Industry, Entrepreneurship and SMEs at [https://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition\\_en](https://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition_en)

**Table 1** – Descriptive Statistics

This table presents the Descriptive Statistics at the time of exit for the whole sample of 46 companies which exited through M&A, IPO or Secondary Market, from December 2013 to July 2020.

| Variables               | Average    | Median    | Std. Dev   | Min.        | Max.        | Sample Size |
|-------------------------|------------|-----------|------------|-------------|-------------|-------------|
| Total Assets            | 13 759 058 | 1 688 907 | 48 097 568 | 40273       | 305 407 283 | 46          |
| Total Debt              | 9 298 638  | 736 935   | 39 790 359 | 8111        | 268 053 907 | 46          |
| Leverage Level          | 0.89       | 0.76      | 0.85       | 0.05        | 4.87        | 46          |
| Turnover                | 5 495 052  | 889 703   | 13 433 539 | 389         | 76 520 167  | 46          |
| Capital Intensity       | 42.56      | 1.91      | 189        | 0.27        | 1262        | 46          |
| Age                     | 7.2        | 7         | 4.5        | 1           | 22          | 46          |
| Total Eq. Cr. Financing | 1 954 491  | 742 727   | 2 936 368  | 8165        | 14 733 552  | 46          |
| EBITDA                  | -1 746 341 | -421 420  | 3 529 364  | -18 755 421 | 4 336 686   | 46          |
| EBITDA margin           | -58.66     | -0,66     | 258.321    | -1450       | 0.73        | 46          |
| Log of Assets           | 14.24      | 14.34     | 2.03       | 10.60       | 19.54       | 46          |

**Table 2 - Sample Description by Country**

This table shows details regarding the country of origin the 46 companies which exited through M&A, IPO or Secondary Market between December 2013 and July 2020. The sample is sorted through exit modes.

| Country     | Exit Route |     |                  |       |
|-------------|------------|-----|------------------|-------|
|             | M&A        | IPO | Secondary Market | Total |
| Australia   |            | 1   |                  | 1     |
| Denmark     |            |     | 1                | 1     |
| Finland     | 1          | 1   |                  | 2     |
| France      | 1          |     |                  | 1     |
| Israel      |            | 1   |                  | 1     |
| Italy       | 2          |     |                  | 2     |
| Lithuania   |            | 1   |                  | 1     |
| New Zealand |            | 1   |                  | 1     |
| Norway      |            |     | 1                | 1     |
| Poland      |            |     | 1                | 1     |
| Portugal    |            |     | 2                | 2     |
| Spain       | 3          |     |                  | 3     |
| Sweden      |            | 3   | 1                | 4     |
| UK          | 8          | 3   | 11               | 22    |
| USA         | 1          | 2   |                  | 3     |
| Total       | 16         | 13  | 17               | 46    |

**Table 3 - Sample Description by Industry**

This table shows details regarding the industry to which the 46 companies which exited through M&A, IPO or Secondary Market between December 2013 and July 2020 belong to. The sample is sorted through exit modes.

| Industry                                          | Exit Route |     |                  |       |
|---------------------------------------------------|------------|-----|------------------|-------|
|                                                   | M&A        | IPO | Secondary Market | Total |
| Accommodation and food service activities         | 1          | 1   | 2                | 4     |
| Administrative and support service activities     | 2          | 1   | 1                | 4     |
| Agriculture, forestry and fishing                 |            | 1   |                  | 1     |
| Arts, entertainment and recreation                |            |     | 1                | 1     |
| Construction                                      |            |     | 1                | 1     |
| Financial and insurance activities                | 4          | 2   | 3                | 9     |
| Information and communication                     |            | 1   | 1                | 2     |
| Information service activities                    |            | 1   |                  | 1     |
| Manufacturing                                     | 2          | 2   | 2                | 6     |
| Other services activities                         | 1          |     |                  | 1     |
| Professional, scientific and technical activities | 2          | 2   | 3                | 7     |
| Telecommunications                                | 4          | 2   | 3                | 9     |
| Total                                             | 16         | 13  | 17               | 46    |

## 4. Results and Discussion

The present section contains the main results obtained from the Multinomial Logistic Regression, the Likelihood Ratio test, a marginal effects analysis and concludes with Robustness Tests.

### 4.1. Multinomial Logistic Regression and Marginal Effects

We start by presenting the results of the Multinomial Logistic Regression on *Table 4*. The model shows the exit outcomes as function of 5 firm specific determinants (size of the company, leverage level, profitability, age and capital intensity), 1 industry factor (belonging to the high-tech sector or not) and 1 financing round factor (level of equity crowdfunding financing at the time of exit). The basis outcome is the Secondary Market. Overall, the goodness of fit of the model is tested by the global Likelihood-ratio chi-squared test. Since the null hypothesis was rejected, we reject that all the coefficients of the explanatory variables are equal to 0, simultaneously. The chi-squared statistic is of 29.99, with 14 degrees of freedom and statistical significance (p-value = 0.007).

Since the Secondary Market is the base for the comparison, there are two types of results: M&A in comparison with the Secondary Market and IPO in comparison with the Secondary Market. We also implemented the multinomial logistic regression with the M&A route as the basis outcome but the results were not statistically different from the ones presented in this section (*Table 8* in Annex).

**Table 4** - Summary of the main empirical evidence

This table reports the multinomial logistic regression results for the full sample of 46 exits. The dependent variables are the three exit routes - IPO, M&A and Secondary Market. Secondary Market is the base outcome. The table also reports the marginal effects on the sample of 46 exits, with each value representing the discrete changes in the average standard deviation of the explanatory variables. Additionally, this table reports the Likelihood Ratio (LR) test which shows the individual impact of the independent variables on the exit path with no differentiation between exit modes. Standard errors are reported under the coefficients in parenthesis. \*, \*\*, \*\*\* indicate significance level at 10%, 5% and 1%, respectively.

| Variables                     | Multinomial Logistic Regression |                           | Marginal Effects    |                      |                      | All Exit Modes |
|-------------------------------|---------------------------------|---------------------------|---------------------|----------------------|----------------------|----------------|
|                               | M&A                             | IPO                       | M&A                 | IPO                  | Secondary Market     |                |
| Log of Assets                 | 1.359***<br>(0.523)             | 1.518***<br>(0.547)       | 0.103<br>(0.106)    | 0.159<br>(0.101)     | -0.262***<br>(0.051) | 14.612***      |
| Leverage Level                | -0.747<br>(0.806)               | 0.0767<br>(0.746)         | -0.106<br>(0.083)   | 0.068<br>(0.089)     | 0.038<br>(0.073)     | 1.338          |
| Capital Intensity             | -0.009<br>(0.011)               | -0.035<br>(0.052 )        | -0.050<br>(0.249)   | -0.280***<br>(0.062) | 0.330<br>(0.248)     | 2.249          |
| Age                           | -0.230<br>(0.149)               | -0.203<br>(0.157)         | -0.089<br>(0.065)   | -0.048<br>0.069      | 0.136*<br>0.079      | 2.677          |
| Total Eq. Crowd.<br>Financing | -7.17e-07*<br>( 4.13e-07)       | -1.08e-06**<br>(5.28e-07) | -0.125<br>(0.103)   | -0.213***<br>(0.072) | 0.339***<br>(0.121)  | 13.609***      |
| Profitability                 | -0.019<br>(0.030)               | -0.015<br>(0.030)         | -0.283**<br>(0.114) | -0.209<br>(0.311)    | 0.492<br>(0.406)     | 4.769*         |
| High tech                     | 0.069<br>(1.331)                | 1.422<br>(1.324)          | -0.051<br>(0.061)   | 0.086<br>(0.059)     | -0.035<br>(0.056)    | 1.934          |
| $\chi^2$                      | 29.99***                        |                           |                     |                      |                      |                |

According to the results obtained in **Table 4**, when comparing M&A and Secondary Market two variables emerged as significant: the size of the firm (represented by log of total assets) and total amount of equity crowdfunding before exit. A high value of total assets increases the probability of the company exiting through M&A instead of going through the Secondary Market whereas a high total amount of equity crowdfunding before exiting increases the relative probability of exiting through the Secondary Market.

In regards to the IPO vs Secondary Market situation, the same variables presented significance. Additionally, they both presented the same relation, meaning that a high value of assets increases the probability of an IPO instead of exiting through the Secondary Market and a higher level of equity crowdfunding financing leads to a higher probability of exiting through the Secondary Market instead of exiting through an IPO. These results are similar to the ones of Pagano et al. (1998) who found that bigger sized companies have higher chance of incurring in an IPO. They contrast with the results from Sudarsanam and Nwaghodoh (2005), who found a negative correlation between company size and the IPO exit. Regarding the total amount of financing they diverge from the results presented by C. K. Wang and Sim (2001), who found that higher amounts of financing increases the likelihood of an IPO.

In order to better understand the impact of the explanatory variables on the exit paths we also performed a marginal effects analysis, differentiating among exit routes. Marginal effects show the estimates of the impact of the change of one of the independent variables on the dependent variable, keeping all others constant. Cumming et al. (2006) and Cumming (2008) reiterate that marginal effects provide not only statistical significance but also explicit economic significance.

As can be seen in **Table 4**, on average, a standard deviation increase in profitability of roughly 358 euros<sup>20</sup> significantly decreases the probability of exiting through M&A by 0.28. This variable did not appear as significant in the multinomial logit analysis.

Regarding the IPO exit, on average, a standard deviation increase in capital intensity of around 190 euros<sup>20</sup> significantly decreases the probability of going through an IPO by 0.28. Again, this is another variable which did not show significance in the multinomial logit regression model. In addition, a standard deviation increase of around 3 million euros<sup>20</sup> in

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<sup>20</sup> These value can be found in **Table 1**.

the amount of equity crowdfunding financing before exit also significantly decreases the probability of going through an IPO by 0.21. This result is in line with the conclusions reached through the analysis of the multinomial logit model, where the increase in this variable favored the exit towards the Secondary Market, when in comparison with the IPO route. In both analyses, this variable presents significance in the same direction.

We also observe that, on average, a standard deviation increase in the log of assets of roughly 2 euros<sup>20</sup> decreases the probability of exiting through the Secondary Market by 0.26. This result corroborates the significance of this variable in the previous analysis of the multinomial logit regression, which indicates that the bigger the company the lower the probability of exiting through the secondary market, increasing the chance of exiting through either IPO or M&A. Furthermore, on average, a standard deviation increase of the amount of equity crowdfunding financing before exit of roughly 3 million euros<sup>20</sup> increases the probability of exiting through the Secondary Market by 0.34 and on average, a standard deviation increase of the age of the company at the time of exit of 4.5 years<sup>20</sup> increases the probability of exiting through this same mean by 0.14. Once again, we see a new variable emerging as significant, proving the necessity of the analysis of the marginal effects and its importance for an in-depth knowledge of the theme in question.

Given both of these analyses, we still find no significant effect of profitability when considering the exit through the IPO channel. Therefore, the pecking order of exit channels, applicable to Venture Capital backed companies, explained by Bienz (2004) where IPOs yield higher returns because companies which present high levels of profitability go public seems to not apply in this sample.

With the purpose of enriching the analysis and subsequent findings, the variables were also tested on their individual impact on the exit path with no differentiation between exit modes through the Likelihood Ratio Test. The results are shown in **Table 4**. Since the null hypothesis was rejected, the impact of the size of the company on the exit mode is significant, again. These results are contrasting to the ones of DeTienne and Cardon (2006) who analysed a sample of over 325000 companies, mostly privately held, and found no significance of size of the company on the predictability of the exit path chosen. It also contrasts with the results of Chang and Singh (1999) who found that size did not impact the exit route decision in their sample.

Additionally, the amount of equity crowdfunding before the exit also presents statistical significance without the exit route differentiation as happened in previous analyses with such differentiation, namely in the multinomial logit regression and in the marginal effects. Profitability also emerged as a significant variable on the exit decision. The same happened in the marginal effects' analysis, exclusively related to the M&A route.

There is no significant evidence that the leverage level or that belonging to the high-tech industry impact the exit way.

#### 4.2. Robustness Tests

In order to assess the quality of our results and the robustness of the multinomial logistic regression and marginal effects some robustness tests will be performed by 1) using EBITDA to assets ratio instead of EBITDA to Revenue as an explanatory variable; 2) re-estimating the model without the capital intensity proxy to see how its exclusion impacts the model and 3) re-estimating the model without the profitability variable for the same purpose. Both of these variables emerged as significant in the marginal effects' analysis.

To be noticed that estimating the model without outliers, with different weights or omitting or changing a variable all are valid robustness checks (Bianco and Martínez (2009); Cramer (2007).)

As can be seen on **Table 5**, in Model 3 we use EBITDA/Assets instead of the EBITDA/Revenue as a proxy for profitability. The results are very similar to the ones obtained without such change in terms of coefficient signs and significance levels for the multinomial logistic regression. Log of Assets and the total amount of equity crowdfunding before exit are still significant at the same significant level as the previous estimation, meaning that the bigger the company the higher the likelihood that it exits through M&A or IPO instead of through the Secondary Market, and the higher the amount of equity crowdfunding financing before exit, the higher the probability of exiting through the Secondary Market instead of the other two. The chi-squared statistic for the goodness of fit of the model is now 28.2, with 14 degrees of freedom and is statistically significant at the 5% level. When testing the impact of the explanatory variables without differentiating the exit mode (**Table 5**), we found that the size of the company and the amount of equity crowdfunding financing are

still significant variables at the 1% level. However, profitability no longer presents significance when changing the proxy used. Looking at **Table 6** we see that all marginal results are pretty similar for the same significance levels except the marginal impact of capital intensity on M&A, which now presents a different sign and is significant at the 1% level. We find, for Model 3, that on average, a standard deviation increase in capital intensity of around 190 euros<sup>20</sup> significantly increases the probability of going through M&A by 0.24. Additionally, the marginal impact of profitability on M&A is not significant anymore. While capital intensity gained significance, profitability lost it.

Model 4, on the other hand, is estimated without Capital Intensity (measured by total assets/revenue) as an explanatory variable. We observe in **Table 5** that for Model 4 the coefficient signs are the same as the multinomial logistic estimation with that variable included and the same variables are significant for the same significant levels. The coefficients for the size of the company for both IPO and M&A have the same sign as before and are significant at the 1% level, and the level of equity crowdfunding financing before exit is significant at the 5% level for M&A and at the 10% level for IPO. Therefore, the previous conclusions apply. The chi-squared statistic for the goodness of fit is now 27.74, with 12 degrees of freedom and is significant at the 1% level. Regarding the impact without differentiation there is also no relevant difference when comparing with the initial model. The size of the company and the amount of equity crowdfunding are still significant at the 1% level, and profitability is significant at the 10% level. Analyzing marginal effects on **Table 6**, Model 4 presents results which are very similar to the ones of the original model with the capital intensity variable. However, in this model Age does not impact the Secondary Market route anymore and Profitability no longer presents significance in the M&A exit path.

Finally, Model 5, calculated without the Profitability proxy presents no differences in terms of coefficient signs and levels of significance in the multinomial logit model. So, previous findings seem robust. The chi-squared statistic is now 25.22, with 12 degrees of freedom and significant at the 5% level. Without differentiating exits, there is also no significant change. However, when considering marginal effects, we find that all results remain pretty constant, with the exception of capital intensity which shows up as significant for M&A, as happened for Model 3. In model 5 we see that on average, a standard deviation increase in capital

intensity of around 190 euros<sup>20</sup> significantly increases the probability of going through M&A by 0.24.

Given all of this, the results in this dissertation seem to be robust to different estimations, particularly for the impact of the size of the company and the amount of equity crowdfunding financing before exit. The results regarding the effect of capital intensity, profitability and age, however, are not conclusive given their instability depending on model specifications. We argue that this might happen due to the limited size of the sample.

**Table 5 – Robustness Tests Results**

This table reports the multinomial logistic regression results for the full sample of 46 exits. In model 3 we use with EBITDA/Assets as a proxy for the explanatory variable profitability. In model 4 we present the multinomial logistic regression results for the full sample of 46 exits without Capital Intensity as an explanatory variable and profitability is represented by EBITDA/ Revenue. Model 5 presents the multinomial logistic regression results for the full sample of 46 exits without Profitability as an explanatory variable. In all models the dependent variables are the three exit routes – IPO, M&A and Secondary Market. Secondary Market is the base outcome. This table also reports for each model the Likelihood Ratio test which tests the individual impact of the explanatory variables on the dependent variable without differentiating exits. Standard errors are reported under the coefficients in parenthesis. \*, \*\*, \*\*\* indicate significance level at 10%, 5% and 1%, respectively.

| Variables                     | Model 3                  |                           |           | Model 4                  |                           |           | Model 5                  |                           |           |
|-------------------------------|--------------------------|---------------------------|-----------|--------------------------|---------------------------|-----------|--------------------------|---------------------------|-----------|
|                               | M&A                      | IPO                       | All Exits | M&A                      | IPO                       | All Exits | M&A                      | IPO                       | All Exits |
| Log of Assets                 | 1.428***<br>(0.518)      | 1.557***<br>(0.546)       | 16.191*** | 1.359***<br>(0.507)      | 1.520***<br>(0.537)       | 15.267*** | 1.269***<br>(0.466)      | 1.458***<br>(.503)        | 14.863*** |
| LeverageLevel                 | -0.514<br>(0.792)        | 0.096<br>(0.818)          | 0.690     | -0.464<br>(0.761)        | 0.467<br>(0.707)          | 1.605     | 0.541<br>(0.456)         | 0.661<br>(0.644)          | 1.782     |
| Capital Intensity             | 0.002<br>(0.003)         | -0.032<br>(0.061)         | 2.869     | -<br>(-)                 | -<br>(-)                  | -         | 0.001<br>(0.003)         | -0.035<br>(0.059)         | 2.631     |
| Age                           | -0.216<br>(0.145)        | -0.195<br>(0.154)         | 2.490     | -0.209<br>(0.143)        | -0.171<br>(0.151)         | 2.300     | -0.221<br>(0.143)        | -0.198<br>(0.151)         | 2.843     |
| Total Eq. Crowd.<br>Financing | -6.98e-07*<br>(3.91e-07) | -1.09e-06**<br>(5.23e-07) | 13.652*** | -6.64e-07*<br>(3.69e-07) | -9.85e-07**<br>(4.90e-07) | 12.639*** | -5.68e-07*<br>(3.06e-07) | -1.00e-06**<br>(4.60e-07) | 12.228*** |
| Profitability                 | -0.243<br>(0.283)        | -0.161<br>(0.301)         | 2.982     | -0.008<br>(0.023)        | -0.003<br>(0.023)         | 5.151*    | -<br>(-)                 | -<br>(-)                  | -         |
| High tech                     | -0.018<br>(1.291)        | 1.429<br>(1.320)          | 2.083     | -0.016<br>(1.289)        | 1.104<br>(1.230)          | 1.469     | 0.040<br>(1.232)         | 1.400<br>(1.268)          | 1.952     |
| $\chi^2$                      |                          | 28.2**                    |           |                          | 27.74***                  |           |                          | 25.22**                   |           |

**Table 6** – Marginal Effects Results for the Robustness Tests

This table reports the marginal effects on the sample of 46 exits, with each value representing the discrete changes in the average standard deviation of the explanatory variables. In model 3 we use with EBITDA/Assets as a proxy for the explanatory variable profitability. In model 4 we present the marginal effects on the sample of 46 exits without Capital Intensity as an explanatory variable and profitability is represented by EBITDA/ Revenue. Model 5 presents the marginal effects on the sample of 46 exits without Profitability as an explanatory variable. Standard errors are reported under the coefficients in parenthesis. \*, \*\*, \*\*\* indicate significance level at 10%, 5% and 1%, respectively.

| Variables                  | Model 3             |                     |                      | Model 4           |                     |                      | Model 5            |                      |                      |
|----------------------------|---------------------|---------------------|----------------------|-------------------|---------------------|----------------------|--------------------|----------------------|----------------------|
|                            | M&A                 | IPO                 | Secondary Market     | M&A               | IPO                 | Secondary Market     | M&A                | IPO                  | Secondary Market     |
| Log of Assets              | 0.121<br>(0.108)    | 0.153<br>(0.105)    | -0.274***<br>(0.048) | 0.097<br>(0.109)  | 0.173<br>(0.108)    | -0.270***<br>(0.048) | 0.110<br>(0.108)   | 0.162<br>(0.104)     | -0.272***<br>(0.049) |
| Leverage Level             | -0.081<br>(0.092)   | 0.053<br>(0.096)    | 0.028<br>(0.082)     | -0.100<br>(0.080) | 0.103<br>(0.086)    | -0.002<br>(0.070)    | 0.029<br>(0.074)   | 0.040<br>(0.080)     | -0.069<br>(0.047)    |
| Capital Intensity          | 0.241***<br>(0.084) | 0.282***<br>(0.059) | 0.041<br>(0.078)     | -<br>(-)          | -<br>(-)            | -<br>(-)             | 0.244**<br>(0.103) | -0.282***<br>(0.058) | 0.038<br>(0.097)     |
| Age                        | -0.090<br>(0.071)   | -0.047<br>(0.069)   | 0.137*<br>(0.083)    | -0.087<br>(0.066) | -0.038<br>(0.072)   | 0.125<br>(0.081)     | -0.099<br>(0.075)  | -0.046<br>(0.069)    | 0.145*<br>(0.082)    |
| Total Eq. Crowd. Financing | -0.135<br>(0.107)   | 0.217***<br>(0.071) | 0.351***<br>(0.123)  | -0.123<br>(0.096) | 0.204***<br>(0.074) | 0.328***<br>(0.113)  | -0.104<br>(0.099)  | -0.212***<br>(0.070) | 0.316***<br>(0.108)  |
| Profitability              | -0.153<br>(0.131)   | -0.029<br>(0.171)   | 0.182<br>(0.251)     | -0.217<br>(0.228) | 0.018<br>(0.650)    | 0.199<br>(0.845)     | -<br>(-)           | -<br>(-)             | -<br>(-)             |
| High tech                  | -0.056<br>(0.062)   | 0.089<br>(0.060)    | -0.033<br>(0.058)    | -0.043<br>(0.059) | 0.071<br>(0.056)    | -0.027<br>(0.057)    | -0.053<br>(0.065)  | 0.086<br>(0.059)     | -0.033<br>(0.058)    |

## 5. Conclusion

In this study we fill the literature gap regarding the study of the determinants of exit in equity crowdfunding investments, with the first investigation on the available cases. Several other studies have focused on what happens to companies post equity crowdfunding campaigns or what determines a successful campaign but none, to the best of my knowledge, provided empirical evidence on which variables impact the exit choice.

We analyzed a sample of 46 companies who had resorted to financing through equity crowdfunding platforms and further provided an exit to their investors through an IPO, Secondary Market activities or M&A. The sample is mostly European, in a time frame that goes from December 2013 to July 2020. We employed a multinomial logistic regression approach. Our results show that the bigger the company the higher the chance it will go through either an IPO or M&A instead of exiting through the Secondary Market. This is in line with most of the literature. On the contraire, the higher the amount of equity crowdfunding financing the company gets before exit the higher is the likelihood of exiting through the Secondary Market in comparison with the IPO or M&A route.

We also found that without differentiating exit modes a third variable emerges as significant, firm profitability. This variable also shows significance in a marginal effects' analysis, since we found that, on average, a standard deviation increase in profitability significantly decreases the probability of exiting through M&A. Further results regarding marginal effects show that on average, both a standard deviation increase in capital intensity and a standard deviation increase in the amount of equity crowdfunding financing before exit decrease the probability of going through an IPO. This result corroborates the findings arising from the multinomial logit regression regarding the amount of equity crowdfunding financing before exit. We also found that, on average, a standard deviation increase in the log of assets decreases the probability of exiting through the Secondary Market. It is in line with the findings on the multinomial logit model, where we saw that the bigger the company the less likely is the exit through the Secondary Market, with a favorable probability of exiting through either M&A or the IPO route. Additionally, on average, a standard deviation increase of the amount of equity crowdfunding financing before exit increases the probability of exiting through the Secondary Market, solidifying the results of the multinomial logit model. Moreover, on

average, a standard deviation increase of the age of the company at the time of exit also increases the probability of exiting through this same mean.

We found no support of the exit path being affected by the leverage level of the firm or whether the company is in the high-tech category, contrary to other studies.

The results obtained regarding the firm size and the amount of equity crowdfunding financing before exit are robust to the estimation of a multinomial logistic model without Capital Intensity as an explanatory variable, a multinomial logistic model without profitability as an independent variable and to a multinomial logistic model which uses EBITDA/Assets instead of EBITDA/Revenue as a proxy for profitability. Results regarding capital intensity, profitability and age, however, are inconclusive.

These findings are useful mainly for investors who can now have a sense of which variables to consider when investing in companies through Equity Crowdfunding, when they want to realize an exit down the path. Platforms can also better manage expectations regarding prospective exits and benefit from these insights. Furthermore, policymakers can take these findings into consideration and adapt the regulation for exits, creating more adjusted and beneficial policies for all parts.

Nonetheless, this study presents some limitations. The choice of Capital Intensity and EBITDA margin as explanatory variables restricted the sample size, given the necessity of knowing the Revenue value, which many small sized companies do not reveal. This choice was, nevertheless, based on the existent literature which brings a second limitation to this study that is the lack of previous studies regarding the determinants of exit strategy in an equity crowdfunding setting. Therefore, in our literature review, in particular regarding the determinants of the exit strategy, we had to resort to studies regarding different investment types, which may affect the analysis.

Given these limitations we suggest further research with different explanatory variables, including macroeconomic and capital market variables to see how they influence the exit decision. We also suggest the study of different geographical areas, for example, the Chinese market which has seen Equity Crowdfunding growing and has specificities regarding the exits, as previously exposed.

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## Annex

**Table 7** - List of Platforms used and their Country

This table reports the platform and its country of origin where the 46 exit deals occurred.

| Company                           | Platform      | Country   |
|-----------------------------------|---------------|-----------|
| E-Car Club                        | Crowdcube     | UK        |
| Camden Town Brewery               | Crowdcube     | UK        |
| Friends & Brgrs                   | Invesdor      | Finland   |
| Kiunsys                           | StarsUp       | Italy     |
| Zank                              | Crowdcube     | Spain     |
| Cake Technologies                 | Crowdcube     | UK        |
| Lingbe                            | Startupxplore | Spain     |
| Sugru                             | Crowdcube     | UK        |
| Pod Point                         | Crowdcube     | UK        |
| Altcoin.io                        | Wefunder      | USA       |
| Oval Medical Technologies         | SyndicateRoom | UK        |
| GymForLess                        | Crowdcube     | Spain     |
| Loco2                             | Envestors     | UK        |
| Ebury                             | Envestors     | UK        |
| PayPlug                           | Anaxago       | France    |
| Scloby                            | Mamacrowd     | Italy     |
| bidstack                          | Crowdcube     | UK        |
| Trendlines                        | OurCrowd      | Israel    |
| Beyond Meat                       | OurCrowd      | Israel    |
| Big Sofa                          | Crowdcube     | UK        |
| Heeros Oyj                        | Invesdor      | Finland   |
| Jayride                           | VentureCrowd  | Australia |
| ReWalk Robotics                   | OurCrowd      | Israel    |
| CropLogic                         | Equitise      | Australia |
| FrontOffice Nordic AB             | FundedByMe    | Sweden    |
| Dr. Sannas                        | FundedByMe    | Sweden    |
| FundedByMe Crowdfunding Sweden AB | FundedByMe    | Sweden    |

|                        |        |    |
|------------------------|--------|----|
| Freeagent              | Seedrs | UK |
| Neo Finance            | Seedrs | UK |
| Seedrs                 | Seedrs | UK |
| Tossed                 | Seedrs | UK |
| WeSwap                 | Seedrs | UK |
| TransferGo             | Seedrs | UK |
| Hyper Poland           | Seedrs | UK |
| Vultus                 | Seedrs | UK |
| Equator Aircraft AS    | Seedrs | UK |
| Choc Chick             | Seedrs | UK |
| WiseAlpha              | Seedrs | UK |
| West Berkshire Brewery | Seedrs | UK |
| Killing Kittens        | Seedrs | UK |
| Corkbrick Europe       | Seedrs | UK |
| Landbay                | Seedrs | UK |
| Tiimo                  | Seedrs | UK |
| Perkbox                | Seedrs | UK |
| City Falcon            | Seedrs | UK |
| Zypho                  | Seedrs | UK |

**Table 8** – Multinomial Logistic Regression with M&A as the base outcome

This table reports the multinomial logistic regression results for the full sample of 46 exits. The dependent variables are the three exit routes – IPO, M&A and Secondary Market. M&A is the base outcome. Standard errors are reported under the coefficients in parenthesis. \*, \*\*, \*\*\* indicate significance level at 10%, 5% and 1%, respectively.

| Variables                  | Exit Mode             |                          |
|----------------------------|-----------------------|--------------------------|
|                            | IPO                   | Secondary Market         |
| Log of Assets              | 0.160<br>0.340        | -1.359***<br>(0.523)     |
| Leverage Level             | -0.0254<br>0.828      | 0.747<br>(0.806)         |
| Capital Intensity          | -0.025<br>0.051       | 0.009<br>(0.011)         |
| Age                        | 0.028<br>0.123        | 0.230<br>(0.149)         |
| Total Eq. Crowd. Financing | -3.65e-07<br>4.10e-07 | 7.17e-07*<br>( 4.13e-07) |
| Profitability              | 0.004<br>0.005        | 0.019<br>(0.030)         |
| High tech                  | 1.352<br>1.126        | -0.069<br>(1.331)        |