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Graduate School of Management

Master in Corporate Finance

PERFORMANCE ANALYSIS OF CROWDFUNDING INVESTMENTS

Master's Thesis by the 2nd year student

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ЗАЯВЛЕНИЕ О САМОСТОЯТЕЛЬНОМ ХАРАКТЕРЕ ВЫПОЛНЕНИЯ ВЫПУСКНОЙ КВАЛИФИКАЦИОННОЙ РАБОТЫ

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_______________ 04.06.2020 (Дата)

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I, Shestakov Sergey Maratovich, (second) year master student, program «Management», state that my master thesis on the topic «*Performance analysis of crowdfunding investments*», which is presented to the Master Office to be submitted to the Official Defense Committee for the public defense, does not contain any elements of plagiarism.

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_______________ 04.06.2020 (Date)

АННОТАЦИЯ

Автор	Шестаков Сергей Маратович
Название ВКР	Анализ результативности краудфандинг инвестиций
Образовательная программа	38.04.02 Менеджмент
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Научный руководитель	Березинец Ирина Владимировна
Описание цели, задач и основных результатов	Цель: Проанализировать результативность краудфандинг инвестиций. Задачи: - Представить обзор краудфандинг практики. - Идентифицировать характеристики фирм, сигнализирующие об инвестиционной привлекательности. - Обосновать выбор показателя финансовой результативности компании. - Провести эмпирическое исследование для определения взаимосвязи между характеристиками компаний и результативностью краудфандинг инвестиций. - Подвести итоги и сформулировать рекомендации на основе полученных в ходе исследования результатах. Основные результаты: Были выявлены взаимосвязи между размером совета директоров, количеством патентов, возрастом, средним вложением на одного инвестора, наличием у генерального директора акций компании и возможностью роста цены акции на следующий год после краудинвестинг кампании (долевой краудфандинг кампании): Положительно влияют увеличения параметров: Размера совета директоров, количества патентов, среднего вложением на одного инвестора, наличием у генерального директора акций компании.
Ключевые слова	Краудинвестинг, краудфандинг, инвестиции, частные инвестиции, альтернативные инвестиции, долевой краудфандинг.

ABSTRACT

Master Student's Name	Shestakov Sergey Maratovich
Master Thesis Title	Performance analysis of crowdfunding investments
Educational Program	38.04.02 Management
Main field of study	Corporate Finance
Year	2020
Academic Advisor's Name	Irina V. Berezinets
Description of the goal, tasks and main results	Aim: To conduct a performance analysis of crowdfunding investments. Goals: - To present the review of crowdfunding practice. - To identify equity crowdfunded firms' characteristics that signal of the investment opportunity. - To justify the selection of the financial performance indicator. - To conduct an empirical study for identification of relationship of companies' characteristics and share price changes within a year from equity crowdfunding campaign. - To draw conclusions and formulate recommendations based on the results of the conducted research. Main results: The relationship has been identified of companies board size, quantity of patents, company age, size of average contribution per investor, whether CEO has the equity of the company of operation and chance of share price increase in a year after the equity crowdfunding campaign: Positive effect is produced by size of the companiy's board, number of patents, size of average contribution per investor, and CEO being a shareholder of a company.
Keywords	Crowdfunding, equity crowdfunding, private investment, alternative investment, private equity, crowdinvesting

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Introduction

"In what to invest?" resembles a question that requires answers on a daily basis for institutional and professional investors. The question both simple and complex provides the incentive to reevaluate options that are revealed regularly, thus seeking the opportunity with the highest potential.

It is equally important to consider the implications of investments opportunities from both investor and acquirer sides. Some may have a more evident impact on the investors prosperity, such as fund investments, pie investments, deposits or government bonds. There are some incentives, which have a more sophisticated impact on the acquirer side of the deal. It can be: easing the capital acquisition as crowdfunding possibilities, gaining a higher sum through venture capital funds or individuals, getting an early stage financing with a professional advices with Business Angel investments. Despite all of the mentioned forms of investments represent opportunities to invest and generate capital for various entities, there by no means equal: by returns and by risk imposed on the participating investors, however, they can all be regarded as investment opportunities.

The number of choices for investment is vast, with many more emerging as the time passes on. New opportunities however, are hard to grasp at first, as they propose a new ways to make money or generate capital. Crowdfunding, in this sense is the youngest investment opportunity emerged just before the 2012 boom in popularity. Even though, it provides a good opportunity for businesses to attract the early stage financing capital, growth capital or money for later stage enterprise development, it is yet to be completely understood in terms of opportunities provided to investors.

Crowdfunding could be deemed an actively developing source of finance and investment, but it had to start somewhere. First instance of modern crowdfunding is attributed to Vrian Camelio with his idea of ArtistShare, which was launched in 2003 (Freedman D. and Nutting M. 2015). Ever since its appearance, crowdfunding has developed, introducing different forms: peer-to-peer lending, reward-based crowdfunding, donation-based crowdfunding and investment based or equity crowdfunding etc. In spite of wide variety of practices that involve crowdfunding, knowledge about factors that apply to growth of value of private equity is a must. Moreover, the familiarity with existing research is drastically important as to understand what measurements and findings were already presented, in conjunction with risks that are associated with crowdfunding investments. For the purposes of this research equity crowdfunding will be looked at, as traditionally investments are made for a promise of return generation, equity crowdfunding does align with such statement. (Signori A. and Vismara S. 2016)

Further, investments in equity crowdfunding are done in a form of donations that lead to the acquisition of share stake in the target firm. The offered share stake in the end is divided among all participating investors with regards to amount contributed. Therefore, investors are presented with an opportunity to generate returns later selling their stake in the company, much like public stock market, however, more risky, as symmetry in available information is vast as well as liquidity of equity crowdfunding investments is not on par with public shares.

This, in turn, leads to the research question:

What factors of target companies, during the crowdfunding campaign, may facilitate an increase in share price for firms in the future?

Due to the asymmetry of the information, however, it is less evident as to what to look for, for a potentially beneficial[1] investment. Some of the generally adopted procedures for publicly traded companies could prove useful for the analysis. On the other hand, equity crowdfunding has been looked at from a perspective of firms, their financing needs and their success, that was derived as continuation of operation (Hornuf L., Schmitt M. and Stenzhorn E. 2017). The investors' side of the transaction, in terms of returns generated and investment performance, has been neglected. Therefore, in order to address this issue, the **aim** of this research is to conduct a performance analysis of crowdfunding investments.

It can prove very difficult, as it is yet to be revealed what factors affect the performance of such investment. Thus, leading to several **goals** that would need to be met in order to achieve the aim of this research:

- To present the review of crowdfunding investment.
- To identify equity crowdfunded firms' characteristics that signal of the investment opportunity.
- To justify the selection of a financial performance indicator in informationally asymmetric environment.
- To conduct an empirical study for identification of relationship of company characteristics and share price changes within a year from equity crowdfunding campaign.

[1] This term is associated with an investment, which generates realizable returns for participating contributors within a period of time. In equity crowdfunding, firms offer equity for funds, since majority of enterprises are private, liquidity risks associated with private equity are in effect.

- To draw conclusions and formulate recommendations based on the results of the conducted research.

This work will be structured in the same manner as goals above.

First chapter will address crowdfunding practice as a whole and outline basic concepts. In this part, types of crowdfunding will be discussed involving reward-based, donation-based and equity-based practices will be outlined and explained with examples. The chapter will then proceed with types of investors, which are eligible to participate in such practices, outline and their characteristics. Finally, in this section equity crowdfunding as an investment opportunity will be discussed.

Second chapter outlines factors that different investors look for in equity crowdfunding and justification of selected financial performance indicator. It will start with campaign process outline with factors that investors consider during the public investment stage. Further, post-campaign outcomes are presented with significance of revaluation instances outlined. It is then, followed by information asymmetry discussion in conjunction with private investors' criteria for equity investments. The financial performance indicator concludes this chapter.

Third chapter represents the empirical analysis of this research. It starts with hypotheses statement, followed by model and variables description. Then this section describes sample acquisition along with descriptive statistics. Hypotheses testing and acquired results discussion furthers the discussion and concludes.

The research has been conducted on a sample of companies that, in a period from 2011 to 2019, acquired financing through equity crowdfunding campaigns. Data acquired from: Companies' House – the United Kingdom's database for various enterprises that provides free access to reports of mentioned firms; Crowdcube – crowdfunding platform in possession of a saved past equity crowdfunding campaigns; Amadeus, by Bureau Van Dijk – international database of small and medium enterprises.

Main findings of this paper, provides evidence for investors in equity crowdfunding, as to what characteristics of business pay closer attention to, such as, average investment during the equity crowdfunding campaign, size of the board within a company, number of patents and CEO being a shareholder within a company of operation, all of which have a positive impact on probability of appreciation of the investment value for equity crowdfunding contributors. Additionally, it creates more questions due to be answered for further research.

Chapter 1. Crowdfunding: basic concepts

It is believed by some that crowdfunding originates from early days micro lending ventures (Fundable 2019). According to infographics of "Fundable", an equity based crowdfunding platform launched in conjunction with implementation of JOBS act of 2012, the first instance of crowd financing, in capacity of peer –to – peer lending, it was identified in 1700 in Ireland with its loan fund.

It has received more attention, however, after the financial crisis of 2008. Despite that, the crowdfunding was not perceived to be as a relevant source of capital for small and medium enterprises, however, that was only the case before year 2012 for United States of America (USA) – JOBS Act of 2012[2]. United Kingdom, recognized the relevance even before the crisis, from year 2000 Financial services and Markets act, with an addition followed in 1/10/2014 (Financial Services and Markets act 2000, 2019), which had a predecessor in 2006 addition to Companies act (Companies act 2006, 2019)[3].

Due to the crowdfunding being a relatively young phenomenon, with high impact on SMEs' wellbeing in terms of early stage capital acquisition, it might provide a good opportunity to conduct the research attempt. As growth of crowdfunding popularity has been substantial, from appearance to a more recent time, the regulatory incentives in conjunction with investment value growths represent a research worthy aspect of financial world. The main problem, however, is lack of standardized valuation and performance measurements further complicated by lack of information otherwise disclosed by public counterparts of limited liability enterprises. The house of companies' database, for instance, provides a solid source of information of private firms' documentation. Meanwhile, the requirements for financial reports are the same for public and private companies alike, private financial reports still have exemptions with regards to the information that should be disclosed.

Crowdfunding, which facilitated over a decade ago, when artists used this method to raise online donations from their fans, has changed significantly. More recently, some start-ups and

[2] The Jumpstart Our Business Startups (JOBS) Act, enacted in April 2012, includes the Capital Raising Online While Deterring Fraud and Unethical Non Disclosures Act (CROWDFUND Act), which authorizes equity crowdfunding. In October 2015, the Securities and Exchange Commission (SEC) adopted final rules, set to become effective 180 days after publication in the Federal Register

[3] Companies Act 2006 CHAPTER 46 An Act to reform company law and restate the greater part of the enactments relating to companies; to make other provision relating to companies and other forms of business organization; to make provision about directors' disqualification, business names, auditors and actuaries; to amend Part 9 of the Enterprise Act 2002; and for connected purposes.8th November 2006, Available at http://www.legislation.gov.uk/ukpga/2006/46/contents

other small companies turned to this practice when traditional sources of capital did not provide financing. Crowdfunding sites like Kiva, a non-profit micro lender, report that they have arranged upwards of $250 million in capital for small companies (Newman C. 2011). Since it provides a unique way of capital raising as well as opportunities to find the customers beforehand, it undoubtedly unique and risky way of acquiring capital, but it provides an opportunity - “Crowdfunding is booming. A report by Massolution, a research firm, forecasts that $2.8 billion will be raised worldwide this year, up from $1.5 billion in 2011 and only $530m in 2009” (The Economist 2012). The forecast was nearly reached, as CF platforms generated $2.7 billion dollars, which is just $0.1 billion below from the expected target.

It is especially relevant when looked at certain countries, vast emphasis in which is put upon SMEs[4]. For example, vast majority of employment (61%) and turnover (51%) of UK’s businesses is concentrated within SME, additionally, vast majority of businesses in UK are SME (just under 99%). These entities comprise most of UK’s economy, therefore, logical derivative will be, that any benefit to SMEs in UK will benefit UK’s economy more than any benefits subsidies or other help to large businesses (House of Commons 2019). Thus, for the purposes of this research, United Kingdom will be looked at, as it provides more developed SME gradation as well as regulations aimed at tackling the crowdfunding fraud expectations.

Even though, this information is scarce, it gives a glimpse at what crowdfunding is and expected effects of its presence, as well as, some numerical information to back it up. As for the investor’s side, the trend is much more uncertain, as it has been outlined, authorities try to enact as much investor protection as seen needed. As crowdfunding emerges and solidifies as a viable alternative source of finance, it becomes more viable and safe, more projects arise to invite investors to participate with potential of returns generation, which results in increase in overall funding generated. Less sophisticated investors, those that do not possess an experience, received the opportunity to invest. This, however, does not mean that experienced investors will not be able to generate enough profit for this opportunity to be recognised.

As for the investors’ benefits gained from crowdfunding - returns on investments in EC funded ventures, companies and start-ups vary greatly: from -100% to almost 371% return (Signori A. and Vismara S. 2016). However, that was quantified in 2016, the return on such investment, in aggregate, is believed to be at around 8.8%, at the same time as this figure

[4] Small and Medium enterprise – commonly used abbreviation to indicate businesses that generate revenues, employ staff or maintain asset levels below certain threshold (Investopedia, 2020), usually used to indicate micro, small and medium sized businesses.

emerged in 2017 the risk free rate of return was 1.23% (Trading economics 2020) and stock investment return was a dazzling – 1.42%(The Global Economy 2020).

1.1. Crowdfunding types

Equity-based crowdfunding – type of crowdfunding, which uses equity as a reward for donations that can earn returns. Additionally, the equity sold using the type of funds generation provide all of the usual benefits of any normal equity – fluctuates in value, thus giving the potential for growth; it gives the ownership of part of the business; etc. This form of crowdfunding requires extensive regulation, which is being tried to impose in several countries to minimize or, otherwise, to avoid fraud (UKECA 2019).

Chapel Down can be seen as pioneer, as it is perceived as one of the first public companies to ever enter an ECF[5] campaign. Company incorporated in 2002 as a spirits production company with focus on wine making.

Starting with capital of 2,540,000 GBP of 255,000,000 shares 0.01 GBP each. Which jumped to 100,110,064 shares, with the total indicated nominal capital of 5,005,503.20 in 2013. Whilst the nominal value when just about twice the original capital, the shares that were offered during crowdfunding, sold for 0.28 GBP which is just above 5 times as much as the original value. As in 2019, the share price also increased, although, not as drastically as previous 11 years, but within 5 years they gained 0.07 GBP. And these results are fascinating, as the number of shares was increasing during each sale, through the process of allotment, bringing the total number to as high as 166,273,493 shares. Thus the around 66.4 times increase in amount of shares was in conjunction of 6.6 times gain in share price[6]. The company operates to this day, offering spirits.

Reward-based crowdfunding, on the other hand, instead of generating returns, rewards investors for donations, usually, the rewards are: honorable mentions, completed products, exclusivity in further participations etc. (Zhao Y., Harris P. and Wing L., 2019).

As a bright example of reward based crowd funding model, that is still exploited by the company is Grinding Gear Games (GGG). They started a crowdfunding campaign to fund their

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[5] Equity crowdfunding abbreviation

[6] All figures where taken from Companies' House public access documentation. Available at: https://beta.companieshouse.gov.uk/company/04362181/filing-history?page=1.

project – a game called “Path of Exile”. After completing 2 rounds of campaigns, the company raised enough funds to pursue their goal and release the product the have been working on. However, it must be stated, that the company is still using the same model of funding up to this day, but directly from customer (backer) to the company, alleviating transaction costs imposed by crowdfunding platforms.

The Studio was founded in late 2006 in New Zealand. Initially the funding was conducted from the members’ savings. However, the project demanded more, and developer set their eyes to crowdfunding initiatives. It went through 2 crowd founding campaigns, second one being bigger several times the initial amount. After generating the adequate player-base, company decided to leave the sales strategy the same. The difference is that anyone can purchase goods supplied by the company in the form of cosmetic in game augments, which persisted through 6 years of second campaign aftermath, from 2013 to 2019, when the company was recognized by developed entity, Tencent. Tencent is a multi-billion giant, of online gaming world, with around 398.851 billion USD market capitalization (Bloomberg 2019).

In the end, GGG team grew from 3 people to over a 100 people in the office, as well as a product became recognized. It was invested in by Tencent, Chinese gaming company, which now owns majority of 80% of stock. Whilst one of the founders, Chris Wilson, had his stake in the company to just drop to 13.17% (Newsbeezer 2018).

Donation-based crowdfunding, that initially triggered the development, can be referred to as charity, as investors do not acquire any returns for their donations (Zhao Y., Harris P. and Wing L., 2019).

The solid example is the instance of raising money through the crowd, that goes back to 1997, to the band called “Marillion”, little known rock band, which was backed by the fans to tour to the USA. In 1997, when the Band cancelled their US tour, fans all over America donated money to help the musicians to generate just enough to conduct the tour and let the fans hear their music.

Inspired by that experience, collective then asked the fans if they would like to preorder the album, thus, after selling about 12,000 albums, they generated enough funds to actually record and release the promised product (Masters T. 2013).

For the purposes of this paper, however, the equity crowdfunding will be used. However, it is important to understand that all of the methods are equally able to generate funds from public for operational, capital growth purposes, but only equity crowdfunding practice resembles an investment opportunity.

1.2. Legislation in crowdfunding

1.2.1. Investor protection in crowdfunding

To begin with, the regulatory side of the ECF practices in terms of investors protection are key to availability of investments opportunities for crowdfunding investors, hence covering the concerns of fraud possibilities that were far more possible in the past as well as level of investor protection appropriate enough, so not to drive businesses off, to use traditional sources of financing. Even though, investor protection can be viewed as a motivation for more sophisticated investors, yet it equalizes opportunities with its drawbacks. Needles to point out, there were already attempts to research what could be seen as adequate investor protection and what directs effects it has on ECF. Therefore, according to the study (Schilz M. and Blohm I. 2013), the governance mechanisms contribute to the success of crowdfunding projects. Through their 2 iteration QCA (qualitative comparative analysis) method, they concluded several conditions to a relevant governance mechanism, that resulted in a more than 500 configurations. These conditions were as follows: Framing, Attribute-based Funding, Categorization, Compensation, Reputation System, Feedback/Follow-up, Updates, Socialization, Peer Coaching. Through assessment of frequency and consistency values some configurations were excluded. The model provided as high as 89.1% of solution coverage in conjunction with consistency of 61.1%.

It is possible to state that the story-oriented archetype emphasizes framing and socialization as core elements. While categorization plays a peripheral role, governance mechanisms regarding compensation are absent. This indicates a setting in Altruistic crowdfunding scenarios, where capital-givers' funding decisions are strongly driven by their emotions. The prestige-oriented archetype focusses on compensation and a reputation system besides updates and framing. Especially the first three mechanisms have a strong external impact and can be seen by other stakeholders on the platform. This archetype is applicable in Hedonistic and for-profit crowdfunding scenarios, where compensation (e.g., product sample, share/interest payments) and reputation (e.g., showing funding experience to other capital-givers) play important roles. The socially oriented archetype accentuates the interaction between the project initiators and capital-givers with updates and socialization as a core mechanism. (Schilz M. and Blohm I. 2013).

These archetypes of configuration are stated to provide an increase in likelihood of a crowdfunding project success. On the other hand however, it is contradictory with findings of other researchers (Hornuf l. and Schwienbacher A. 2017), as it has been promoted, that too strong investor protection may actually harm the crowdfunding, and ECF in particular. Despite the fact, that it is being contradictory to traditional view, that stronger protection is better, it emphasizes the optimum balance of regulation depending on the availability of early stage financing like business angels' or venture funds' financing, as opposed to complete "unifications" of protection levels. Using the theoretical framework, reliant on management rent diversion yields results. As it has been found, funding choices, such as professional investors and equity crowdfunding, along with regulators that represent the disclosure requirements, that leads to certain costs for the firms (Hornuf l. and Schwienbacher A. 2017).

The disclosure regiment is also of concern. The audit, however, is mandatory, therefore, the suggestions are that there are benefits of disclosure of audited accounts for sophisticated investors, it seems yet to be enforced, since some entities still disclose unaudited accounts for the year, moreover, the entities that designate as micro-companies disclose very little information regarding their accounts.[7] However, discoveries support that ECF is being vastly helpful to firms that look for financing below the certain threshold. On the other hand, with poor business angel or venture fund development, using the ECF may prove inefficient, as firms miss out on quite a few investment opportunities that are forgone due to the lack of funding (Hornuf l. and Schwienbacher A. 2017). First, a more developed venture capital and business angels market enables a lower threshold, since it has a higher "supply" (professional investors can finance firms with larger capital needs as their funds are larger) and lower cost of "observing" (professional investors are able to do more cost-efficient contracting and monitoring). Thus, it does not require the regulator to set a higher level of exemption. For sufficiently large venture capital and business angel markets, the exemption level can even be substantially reduced (Hornuf l. and Schwienbacher A. 2017).

Therefore, it can be stated, that either, under and over regulation may impose a toll on the functions and potential of equity crowdfudning however, if the exemption threshold is set about the general need of the small and medium enterprises within the economy, benefits of ECF can

[7] The unaudited reports can be found using the Companies house database, in conjunction with all of the different sized companies' reports and documentation. As an example Upside Capital LTD, a micro company, is represented with the following link: https://beta.companieshouse.gov.uk/company/10543118/filing-history.

be realized at full effect. Moreover, this is also indicative of size of the firm being a good indicator of a potency of an investment, as capital needs of larger firms are logically higher, than those of micro or small size.

Every crowdfunding provider, however, has their own procedures and requirements to enable the entity to run the funding campaign. Despite the fact that the United Kingdom Crowdfunding association provides guide lines to follow for its members, some of the criteria may be differentiated.

1.2.2 Types of investors.

For the purposes of this research let us look at the investors, as not all out of the potential "crowd" of investors are eligible to invest in equity based campaigns as much as deemed necessary. If a potentially interested individual does not fall into one of those categories it will be a lot harder for them to invest. Moreover, as ECF platforms start to form unified standards (UK Financial Conduct 2019) and this research is based on UK's crowdfunding industry, as well as, regulatory and rule changes based on the feedback (UK Financial Conduct 2019) it is important to outline specifications, under which an individual can invest:

Certified sophisticated investor – a person who has a written certificate singed within at least 3 years period by a firm confirming he or she has been assessed by that firm and is sufficiently knowledgeable to understand risks associated with engagement in non-mainstream pooled investments. Additionally, who has signed within a period of 1 year on the date of communication the statement confirming that the person can receive promotional communications of non-mainstream pooled investments, with the declaration of being qualified as sophisticated investor. That he or she knows and understands the risks of financial loss and freedom to seek advice (UK Financial Conduct 2016).

Self-certified sophisticated investor – a person who has singed the statement within a period of 1 year on the date of proposal or promotion, a statement of proclamation of being able to receive the promotions from non-mainstream investment made by an authorised by FCA entity of and investment activities, that such investment pose significant risks of loss. The proclamation should be made based on the following terms: An individual is either a member of a network or syndicate of business angels and has been for at least 6 months prior to the date, or he/she made more than 2 investments in an unlisted company in 2 year period prior to the date, or is working/ worked in 2 year period prior to the date in professional capacity of private equity investor, or in provision of funds for small and medium enterprises, or have been a director of a company with annual turn over of at least 1,000,000 GBP in 2 year period prior to the date (UK Financial Conduct Authority 2016).

High net worth investor – an individual who has signed the statement with the date of communication or promotion that falls within a 1 year period. The statement should contain the following: The confirmation of the ability to receive the non-mainstream sources of investment offers and promotions; proclamation of qualification of high net worth investor as one of the criteria evidently applies. The criteria is: either annual income of 100,000 GBP or more annually also, this income should not be taken from pension savings, or net assets value of 250,000 GBP or more that does not include property of main residence or money raised on any debt secured by this property, any rights in possession under the contract of insurance, any benefits to be paid on retirement or death, or termination of one's services, any withdrawals of pension savings (UK Financial Conduct Authority 2016).

Certified restricted investor – an investor who can confirm that in the preceding fiscal year he/she did not, and in this fiscal year he/she will not, hold more than 10% of net investments (ignoring home, mortgage, pensions and insurance) in private equity investments (Kennedy H. 2016).

Therefore, the criteria for eligibility is applied under UK's law, as well as any transactions made within UK's authority.

Additionally, implementations of barriers for entry could be deemed as investor protection, as the idea of crowdfunding, to bring people to invest in projects or business that they like. However, with an opportunity come additional risks, thus increasing the importance of financial literacy in countries that already ECF practices. Therefore, Russian law FZ 279, that determines the definitions of the investors and platforms can be seen as preparations for introduction of a more thorough regulation. On the contrary, however, ECF practices are not yet strongly present within Russian Federation, but incentives of Banks, e.g. AlfaBank, SberBank to facilitate and use the ideas of crowdfunding through crowd-lending and startup investments respectively, provide basis for assumption, that the benefits are known.

1.2.3. Tax incentives

The benefit of crowdfunding for SMEs is out of the question, since majority of research is focused around determining the optimal blend of factors for a successful campaigns, as well as, earlier articles representation of discussions of potentially vast benefits of crowdfunding forms of funding or ”alternative sources of capital” in some countries, in relation to SMEs funding problem.

To further support that statement, crowdfunding investments are a subject to Seed Enterprise Investment Scheme (SEIS) represents the fact of tax exemptions for investors. The opportunity was established in 2011 autumn statement which harbingered a big changes of tax incentives for investors with various investments schemes. It can provide a maximum of 100,000 pounds within a tax year, that can be spread among the pool of companies that were invested in.

Additionally, enterprises should possess following attributes:

1) Companies cannot raise more than 150,000 pounds within the SIES scheme.
2) Investors cannot control the company receiving their capital, and must not hold more than a 30% stake in the company in which they invest.
3) Investors can receive up to 50% tax relief in the tax year the investment is made, regardless of their marginal rate.
4) The company seeking investment must be based in the UK, and have a permanent establishment in the British Isles.
5) The company must have fewer than 25 employees. If the company is the parent company of a group, that figure applies to the whole group.
6) The company must be no more than two years old.
7) The company must have assets of less than £200,000.
8) The company has to trade in an approved sector – generally not in finance or investment, for example, a property company can't raise capital through SEIS.

The aim of the SEIS, says the Chancellor, is to stimulate entrepreneurship and kick start the economy (SEIS 2019).

1.3. Equity crowdfunding as an investment opportunity

Presently, there are quite a few ways of investment. Options, public stock, private stock, mutual funds and etc. all yield risks and opportunities to a different extent however. Bonds account for the most riskless investments, in particular government bonds, since the risk free rate used in many financial calculations is derived from this numeric. The risk free rate is based upon a 10 year government bonds average yields.

Mutual funds are a joint endeavor that invests in securities. In other words: "A mutual fund is an enterprise that pools money from many investors and invests the money in securities such as stocks, bonds, and short-term debt. The combined holdings of the mutual fund are known as its portfolio. Investors buy shares in mutual funds. Each share represents an investor's part ownership in the fund and the income it generates (U.S. Securities and Exchange Commission 2020). Investments, that are not bound by investor's knowledge or expertise, where professionals do most of the work, could be very potent for some investors. However, they claim a portion of money for their services, known as fees. Another factor is time, as mutual funds may provide several forms of returns: dividends, capital gains or market value growth, will not be instant, and will require time to enter and exit, hindering liquidity of this investment.

Options and stock, on the other hand reside at the top of the chain in terms of riskiness and yield and in terms of speed. In spite of bonds being predetermined in terms of expiration, they are still considered less liquid. Options hold rewards within its owner's ability to use a predetermined price to either sell or buy anything that an option is written for. Stock, however, differentiates significantly from all of the other investments, as it is a highly volatile, sometimes stagnant area of a financial market. Public stock could be seen as proxy of firms existing position as well as, through information digestion, represent expectations of an enterprise's performance. Modigliani and Miller back in 20th century argued that any firm should be priced in accordance with its earning power and riskiness of assets in possession, in absence of any form of interest in dividends or investment financing strategies.

Even now, as one of the most supporting arguments, market capitalization, uses the market value on a per share basis to calculate the perceived total value of a company, as from stock market position. Moreover, the focus of this research is on equity crowd funding, which, in turn, provide the opportunity to invest in illiquid and potentially riskier asset – private equity. Despite private equity function as a normal share, with all of its benefits, company did not undertake the resource consuming initial public offering IPO procedure, thus public trading is next to non-existent. Additionally, due to the lack of secondary market function, with its emerging counter parts, without participation of investors, regulatory bodies and information providers might lack the ability to grow.

In contrast, attempts to create such markets were taken: minor stock exchange in UK AIM for smaller business, startups and growth capital accumulation functioning from 1995

(London Stock Exchange 2020); Seeders, a crowdfunding platform with its aspirations in secondary market establishment in 2017, might have amended the situation. Even though, it can help with private equity liquidity problem, it is yet to be determined, as of now, private equity is still considered one of the most illiquid investments.

Contradictory, high levels of risk associated with private equity promise for substantial reward, as a rule of thumb: the riskier the investment, the more rewarding it is, if successful. Even with bright examples of Apple inc., Google corp. and etc. substantial knowledge of investment is required in conjunction with comprehension of risks associated with it. Before 2012, private equity and start up investment was a phenomenon of interest for narrow groups called Venture capitalists and Business angels or other High net worth individual investors. These individuals thrived on risk and reward balance attributed to these investments. In addition, such endeavors required substantial amounts of capital to start and function. With ambitious entrepreneurs, these sums could reach millions of dollars, which in turn, would be unbearable for common crowd, and that is where crowdfunding steps into the scene. As many problems with early stage financing of firms reside in lack of financially able people to meet the interest of entrepreneurs, crowdfunding provides an easier access to early stage financing.

Crowdfunding poses a viable opportunity for small and medium firms to raise external capital and avoid compliance costs. That is correct, however, in countries that permit solicitation of public without issuance of costly prospectus. The “problem” of business funding existed for quite a long time. Banks are understandably very precise in terms of investment decisions, venture capitalists, even though provide valuable advice for a small and medium sized business, have requirements that are to be met beforehand. Business angels, also providing business consulting, aim to increase their fortune, even if it means to sell the business to the first buyer available. On the other hand, government subsidies are helpful, but too focused on certain fields of enterprise’s specialisation.

For the illustration: lending to SMEs constitute 13% the GDP in developed countries, to compare, developing countries produce just about 3% of GDP in SMEs’ loans (Cortese A. 2011). Crowdfunding provides financing so highly sought by SME’s entrepreneurs. As an example, the “Funding Circle”, is stated to be raising $2.3 million each month for small and medium enterprises (Cortese A. 2011). Additionally, it negates some of the key factors that might prevent the venture from acquiring the capital needed – it has been shown that the probability of investment in any venture declines as the distance between VC and the venture rises (Sorenson O., Toby S., 2008).

Thus it can be said, that the opportunities would be generated, as Crowdfunding is of benefit to SMEs in terms of capital acquisition, thus, it is logical, that more beneficial deals arise and more crowd-investors, both sophisticated and general, will enjoy more investment opportunities in private companies.

1.4. Summary

In this section, basic concepts of crowdfunding have been explained, including: types of crowdfunding, who can invest in crowdfunded firms, what thresholds are present, existing concerns regarding investors protection have been touched on, as well as crowdfunding represented as an investment opportunity.

Chapter 2. Identification of company's characteristics and financial performance indicator

In this chapter, campaigns specifics description and insights into post-campaign scenarios will be drawn, in order to demonstrate at which points of the ECF process the valuation of companies occur as well as to identify the factors that could affect the share price in a year time period. Further, it is followed by including company valuation methods and investment performance proxy solidification, meanwhile identifying post-campaign drivers for firms.

2.1. Crowdfunding campaign specifics and post-campaign outcomes

2.1.1. Equity crowdfunding campaign milestones

The crowdfunding a phenomenon was created not so long ago, however, already developed a market for itself, essentially occupying the niche that was precisely needed. It can be pointed out, that in order to understand how to generate return or how to determine the success of the business it can be deemed essential to understand the mechanism of the campaign. Additionally, it would be in contrast between two platforms: Seedrs and Crowdcube.

Seeders is a platform for equity crowdfunding campaigns, which developed and launched its own secondary market for SMEs' shares. It gives the ability for any private company that has traded shares, regardless of the platform or even the existence of crowdfunding event, to register and provide the investors the additional exit opportunity. The secondary market functions as of 2017, when it was launched for public use (Crowdfund insider 2018).

Crowdcube, on the other hand, platform that specializes in several crowdfunding types, ranging from reward-based, facilitating equity-based crowdfunding and donation-based type. It has no means additional means of funders exits, however, it asks for a 20% funding to be reached during the private launch phase (Crowdcube 2020).

Campaign scenario can be looked at from the perspective of Seedrs and Crowdcube.

Firstly, campaign starts with documentation submission, when a business fills out the necessary forms and contact the representative of platform.

On the second step, the pitch creation takes place. Founder or owner of the business creates a video address and marketing plan with a company specific information disclosed for potential investors to see. It has to be said, that despite the information being company specific, it does not contain all of the necessary figures or accounts in order to conduct the financial analysis to identify potency of such investment. Therefore, it leaves general investors with information presented on the pitch as well as any other, that could be found in public access.

The legislation is the same for every platform, but the regulatory aspects in use are not. Even though UKCFA has been facilitated, which brought unification of process design and support to investor protection in order to avoid fraud, its code of conduct is the only rule that is strictly followed, that is apart from government legislations. Therefore, platforms may develop different approaches, as of how to handle ECF. This leads to a first point of comparison - the closed investment round.

The closed investment round aims to determine whether the business is actually interesting to potential investors, and since the UK's regulation obstructs the investment advertisement to non-certified investors, it is only targeted the limited group of people, VC and angel investors, certified investors, family and friends. Thus, Seedrs platform publicly publishes only those funding campaigns, that demonstrate traction (Seedrs 2020). It is followed by verification in Crowdcube. In contrast, Seedrs concludes the process of justification of fairness of business values in the first stage, after the initial registration.

Further, private launch occurs. With regards to Seedrs it is aimed to determine the interest of investors in such company with such project. Therefore, if company gains enough attention, it proceeds to a public round. Sadly enough, it is not specified as of precisely how much initial investment is necessary in order for the campaign to go public on Seedrs, but Crowdcube requires at least 20% of the target to be reached.

At the public launch stage, the campaign is being published at the Platform website, where it can be observed by general investors or certified non-sophisticated investors. The campaign time frame is limited to 40 days of public access. After which the closure occurs, and end result can be observed.

After the campaign hits 100% of the target the funds are set to be received by the raiser. If such milestone occurs in the middle of said 40 days period, the pitch can still remain available for further investors to take advantage of overfunding. For Crowdcube, on the other hand, the process of finalization is starting after firms achieve 75% of the target capital (Crowdcube 2020).

In the end, the campaign process takes enterprises to capital reception. At this point in time, the raiser receives all of the accumulated funds, less Seedrs or Crowdcube platform fees, and is awarded the membership of the Seedrs Alumni Club. Additionally, ownership of private equity offered by the business is confirmed at this stage.

Investors, that are allowed to participate at certain stages, do look for a specific items within the presented pitch or any other available information about the company, other than personal preference, since the attributable value might be missed. For instance, it has been found, that signaling plays a huge role for funding success, as investors pay attention for board structure and size, management experience, which proved to be correct in terms of firms capital acquisition. Additionally, it has been indicated that market by large behaves in a rational manner, therefore, governance and financial materials represented by the firm are important for an individual investors (Ahlers et al 2015).

With regards to signaling, it could be stated that, factors affecting the board structure and size (such as number of directors the company has or presence of non-executive directors on a board) might play a role in future prospects of the business, after the campaign. Especially, if they are considered in conjunction with potential of non-executive directors in terms of life expectancy of a business (Institute of Directors 2018).

Moreover, patents information play a major role in success (when the company reaches 100% of the asked capital) of a campaign. Even though, the filing process is expensive (Gov.uk 2020), it could be seen balanced by the fact of market protection in a form of a barrier for entry (Rajan 2012). Despite the earlier indications of patents playing a mediocre role in fund raising success (Ahlers et al 2015), with time, larger firms were able to access equity crowdfunding type of financing, thus the importance of patents could have changed.

2.1.2 Post-campaign outcomes

After the campaign mile stones has been surpassed, the range of post campaign scenarios are open for the company to proceed. Essentially, investments in ECF businesses will be made with an intention of making a return within a long term period, approximately 5-10 year timescale, via events such as a trade sale (M&A), a share buyback or secondary market or rarest case - an IPO (Crowdcube 2017). These events if occur help to track the performance of an individual's investment, as well as, some of them provide exit opportunity for existing shareholders, which due to the fact of illiquidity of private equity acquired through ECF campaign represents preferable outcome for the investors willing to realize their returns.

The first to mention will be bankruptcy or company becoming dissolved. The risk tolerance and financial literacy studies has attracted a great deal of attention in the UK, thus pointing out the worst outcome first seems logical.

It is regarded as negative 100% in terms of investor gains in some literature (Signori A. and Vismara S. 2016). It is however, not entirely true, as ordinary A-type shares provide the right to compensation from the assets' sales in event of liquidation, as well as preemption rights and voting rights. And since the ordinary shares could be deemed as the most common equity offered for campaign participation it can be regarded differently, this could be supported by the fact, that companies offer A-type shares during the initial round of funding. When the business seizes to exist due to financial problems of unbearable sorts the assets are being sold in order to compensate stake holders in order of importance: Creditors, shareholders and other stake holders. Therefore, unless creditor compensation takes up all of the assets sales cash, shareholders will be compensated. On the other hand, it can be regarded as necessary assumption, since the loss occurs, and due to the nature of SME in most of the instances shareholders will not be compensated. Moreover, despite the fact of availability of such information, loss still occurs, thus making the "scrap values" of such investments irrelevant to the Investor gains.

Mergers and acquisitions could be seen as an exit opportunity for the investors and revaluation event. Therefore, new value of a business would indicate the performance of one's investment. It is however, frequently objected by the business founding owners and as a result it is a rare opportunity for the investors. On the contrary, investors with enough power to push the decisions in the board, BA and VCs or sophisticated/experienced investors, may support such event, thus increasing the chances of M&A deal to occur. Further, it could shed some light on investors herding phenomena that frequently happens when sophisticated investors participate in ECF campaign (Vismara S. 2015).

Share buyback is also an exit opportunity, even though, claimed to be more preferable over dividend payments in recent years (Investopedia 2020), is not necessarily frequent phenomenon. This is due to the fact, that it requires spare funds for a business to repurchase their shares. Additionally, buybacks on-the-market basis will not function properly, since the market is still establishing. Therefore, only direct buyback are available for businesses.

Seasoned equity offering produces a valuable opportunity for company revaluation, thus providing a data point to compare to the initial campaign. It can be considered comparing Pre-money valuation, which is the valuation of business that entered ECF campaign on which the target amount of capital and offered equity is based, in sum with acquired capital/raised, to pre-money valuation of a more recent campaign. If the firm is valued at a lower rate than previously, it is called down round. This might indicate downturn in business performance and will facilitate decrease in investment value. Furthermore, expectancy is that business develops, thus sequential rounds of financial would be valued at a higher price. On the contrary, if during the subsequent round of financing firm is valued higher; the term is Up-round (Investopedia 2020), that in turn indicates growth and higher performance. Therefore, investment provides as expected – increase in value. The terms originate from VC financing, and closely associate with SMEs.

Additional note, for an equity crowdfunding campaign valuation of the business is required for offered equity pricing, which constitutes the Target capital (target). Usually the target is calculated through offered equity, target itself and pre-money valuation, valuation that is disregards the additional capital expected to be accumulated through campaign. The formula for calculation of the target is as follows:

$$Target = Offered\ equity * (Target + Premoney\ valuation)$$

Therefore, it can be deduced that target value already incorporates additional potential capital, the equity cost is proportional to a fraction of business it represents and total value of a business, if this capital is to be acquired. Sequentially, it makes calculation of total value – possible. Thus, it further supports the statement that the SEO acts as a milestone for investment performance identification. The figure, however, would represent realizable value, that could be acquired only if exit opportunity will arise.

Last, but not least - Initial public offering is a lengthy phase that implies a substantial amount of guidelines to follow. It is time consuming as well as resource consuming. However, if such event occurs, investors gain opportunity to realize their returns. In addition, to exit opportunity, it provides the revaluation, thus investors who would want to identify how their investment has performed without realization of their return or loss. This could be beneficial for the firm, in accordance with some academic studies (Bruton G., Chahine S. and Filatochev I. 2009).

2.2. Equity crowdfunding: financial performance indicator

2.2.1. Overview of a company valuation methods and concept of fair value

Over the course of time, accountants and investors have developed several techniques to valuate businesses of interest. Some of those methods will be discussed further into the section in order to give an overview of how a business could be valuated, so that the returns and performance could be measured. For aims of investment in the companies the knowledge the performance measurements could be seen as next to essential, this could also be tied to ongoing investment endeavors, as investors would highly likely want to know: How is their investment progressing, did they make a loss or are they gaining something? Thus, understanding of valuation approaches of enterprises could provide benefit toward achieving the goal of this paper, as some of the problems encountered by investors on crowdfunding platforms is that valuation gap, as firms are valued only when some events occur.

First in line is an *Asset based approach.* Asset based methods imply the calculation of shareholder equity value, by subtracting total liabilities from total assets. On the other hand, it is still open for iterations as some may exclude intangible assets and some may use some of those if not all. This however, could be argued, as it is deemed as a generally accepted method for business valuation and also widely recognized method by authoritative institutes (Weston K., and Weston K. 2018).

It is however, generally not widely used, since it is considered too complex and client disruptive or inapplicable toward the current business in focus. Despite its effectiveness and recognition, it may still incur some problems with regards to access to data and personnel. In other words the valuated company's data that the specialist needs and the company of interest personnel that the analyst needs access to could simply be no longer available. This however may hold true if the valuation case is not standard, as several parties may be involved and some disputes may arise within the business in focus (Weston K. and Weston K. 2018).

However, there are several pathways to take in asset based approach; these differentiate with regards to the ultimate goal of the valuation and the expected usage of such information. Therefore, for instance, knowledge of companies' total assets will be helpful in structured acquisition when a buyer would want to acquire all of the company's assets, as opposed to stock purchase. On the other hand, knowledge of value of total long-term debt and equity, may give a buyer necessary information with regards to cost of equity purchase as well as debt assumption if acquisition is to take place. However, knowledge of value of total equity is likely to be involved in equity based transactions (Weston K. and Weston K. 2018).

In essence, it could be said, that approach changes slightly depending on subject of interest: assets, equity, particular class of shares or debt. It also quite closely resembles Modigliani's and Miller's approach to equity valuation, as equity represent the fraction of business, thus if total value of the business acquired through the asset based method, total value of assets less total value of liabilities, it could be then used to determine the value of each individual share. Despite the fact, that the asset based method lacks incorporation of net present value of enterprise future cashflows, it could be justified through accounting means, as the result of the formula should be balanced by capital portion of balance sheet.

Secondly, *Income based approach* will be looked at. Income based approaches value an enterprise based upon the past, current, or expected future cash flows of the business and the probability that the business in focus will not produce the desired return (Gordon J. 2015). It takes into account the net present value of future cashflows of the firm. This in turn implies certain assumptions. If equity is valued, than Gordon-growth model assumptions might take place in valuations processes. In other words, this approach resembles the usage of discounted cashflow analysis in finance in order to identify the value of the company. Moreover, the impact of simplifying assumptions on firm value estimates can be significant, since as practitioners introduce simplifying assumptions in their firm valuation, they also introduce biases in their firm value estimates (Plenborg T. 2002).

Even though, quite popular, it does resemble some problems, for instance, accuracy in future projections. This holds true with regards to income valuation approach relying on number of criteria in valuing a firm, such as a capitalization rate, risk-related discount factors, and the projection of future cash flows as well as perpetual growth rate to value the cashflows beyond the end point of the model.

Last valuation approach to consider, *Market based approach*. The theory of the market based valuation approach is the economic principle of substitution: Some would not spend more than others who would have to pay for an equally desirable alternatives, thus guidance is sought from prices of other similar subjects that have been sold (Pratt S. 2005). Regardless of the type of asset being valued, it studies recent sales of similar assets, making adjustments for the differences between them (Investopedia 2020). It is a widespread valuation approach, it could be deemed simple and generally overlooked by academic and practical literature, despite its popularity (Bernstrom S. 2014).

These approaches are in focus since these could be considered a widely known valuation methods for companies that are present on the market. Additionally, these could be used to determine the value of any company, regardless of its origin and present legal structure: Plc, Llp, Ltd and etc. However, it should be pointed out, that any of the present valuation methods are subject to information and access dependency. Despite the fact, that market based approach could be more or less be used in information scarce scenarios, some particular data of the company of interest would be needed needed in order to compare it to its peers and competitors.

Fair value concept - Fair value is the amount for which an asset, liability or equity instrument could be exchanged or settled between knowledgeable, willing parties in an arm's length transaction. In some instances you may require expert advice to determine a fair value (RSM UK Group LLP, 2020). The crowdfunding platforms use the fair value concept in order to finalize their valuation procedures. Seedrs, for instance, uses the fair value with regards to share valuation for secondary market initiative, as well as during the initial pricing of business for the crowdfunding campaign. Crowdcube, on the other hand, draws attention to this concept, in their advices for company valuation for crowdfunding process. This emphasis is justified through the expertise developed by the platform throughout the years (Crowdcube 2017).

Regardless of the fact, that the actual method used to determine the value of the business is unknown, it does resemble significance in terms of returns' analysis and, as a result, performance analysis of the business (Signori A. and Vismara S. 2016). Unfortunately, these approaches do require access to information, not widely presented in documents filed to Companies' House, rendering them completely ineffective in terms of identification of financial performance of the firm. On the other hand, value of the enterprise plays a role in welfare of investors, as appreciation of total value of the firm, with its equity numbers remaining constant, leads to appreciation of investment values for existing shareholders.

2.2.2. Private equity investment decision factors

Companies that usually participate in ECF campaigns are private SMEs. On the other hand, some sources claim that recently larger companies started to more frequently utilize the equity crowdfunding (Beaurhurst 2019). With that in mind, private companies problematic to value, as it requires access to particular data. Thus, usage of the valuation methods outlined, even though, justified, is still problematic. As a result of this obstruction, the determination of share price for private companies, which participate in equity crowdfunding capital acquisition, is also problematic. Therefore, the instances of re-valuation of the company remain only plausible opportunity to reveal the changes in contributor's investments. But, it could be held true, only for general investors, that do not possess the power to address the lack of necessary information to conduct the analysis by themselves, so that the investor may have frequent updates over the made investment.

It could be argued, that the facilitation of secondary market by Seedrs, might benefit both academics and investors, as it yields the needed data to conduct the research on this front, as well as the availability of public data through companies' house. However, the data represented in secondary market is still provided with substantial gaps, despite it being long due. Additionally, inconsistency and gaps in firms' reporting holds, despite regulations being the same as to public companies, holds back the research.

Despite problematics within companies' house reporting, it does represent the opportunity to track the performance of the investments for individuals that contributed to a company during the campaign.

In contrast, private equity investors, in other words, venture capital funds (VC) or business angles (BA) have long history with investment in private companies and startups to generate substantial profits, over a long-term period (more than 1 year).As a measure for their performance, researchers use NPV analysis or IRR metrics (Signory A. and Vismara S. 2016). However, VC and BA entities have their own metrics to measure the potential of a business or startup of interest. Needless to say, these entities have more authority and more power to access the information otherwise not available to general public. The requirements, however, vastly dependent on personal expertise and intuition of the person in charge of the given project within VC fund for instance. Due to the subjectivity of the metrics, and so called "gut feels" the knowledge gap is further enhanced.

However, despite the fact, that these primary capital sources have been established long ago, the methods are not publicly available, since they are based on the experience of a VC. Bits and pieces of information found on VC valuation methods direct the research efforts towards a more qualitative approach, using questionnaires and interviews. In spite of previous research being available for consul, it still provides the same idea of direct access to businesses through leaders of start-ups or established SMEs. The broad criteria, however, is identifiable. The investee should possess good prior job record, maintain personal integrity as well as, be realistic. Meanwhile, business has to have either substantial competitive advantage for markets with a number of competitors, or access to a market with low competition, establishing market. Additionally, returns projections should also fall in line. Exit opportunity should exist, within 3 to 5 years. There has to be a potential for high return, around 30%-70%, and at the same time, firm should have potential for high absolute returns (Fried V. and Hisrich R. 1994). However, as it was identified, it heavily relies on individual expertise, since the rates and precise requirements may vary depending on VC (Fried V. and Hisrich R. 1994). Additionally, most of the research is done through one-on-one interviews as well as survey analysis. On the other hand, a more recent paper (Block J. et al 2019), that analyzed 749 private equity investors, concluded that Revenue growth is most important critera, followed by value added by the product/service, management track record and profitability.

Even though, criteria of VC firms quite closely resembled by individual professional investors, the criteria of what is appropriate in terms of return on investment for individual investors is not clear. Moreover, attitude to risk might be different, in turn, creating a totally different attitude of several investors toward the same asset.

Moreover, as years passed by it is yet to be established – the guidelines of the SMEs evaluation for crowdfunding investment. Thankfully, the data quantity has risen to a point of creation of databases for SMEs in UK. Still, the ratios and growth percentiles have been used to successfully indicate the potential quantitative outcomes in Stockholm. They used percentile growth values of sales, employees, profit growth and asset growth as dependent variables, performance indicators. However, despite the fact that those could contribute for investment success, the additional data is needed in order to fully utilize the potential of such variables (Decarre M. and Wetterhag E. 2014).

2.2.3. Private company performance and financial performance indicator

Share price could be seen as a proxy for performance of the business, which in turn makes it possible to derive that better performing businesses have higher share prices. This could deemed as a rule of thumb, as share prices of public companies are very susceptible to information availability regarding that particular company that shares represent.

On the other hand, it could be artificially smoothed according to residual policy employed by a company. Therefore, if a company engages in dividend smoothing, then its share price, that is indicative of a company’s net present value of future cash flows, will be different, as opposed to companies with non-smoothing policy.

This in turn signifies, that if share price is dependent on a firm's future cash flows, therefore performance indicators that could label "success" or "failure" scenarios, could also be applicable to share price as it could now be seen as a close resemblance of business value.

The valuation of the business, in the crowdfunding practice, is happening during the second step of the crowdfunding process. This is what authors (Signory A. and Vismara S. 2016) of first attempt to quantify the returns from equity crowdfunding have referred to in terms of valuation during SEO occurrence. However, with introduction of secondary market by Seedrs, it is possible for companies to forward the documents that justify the change in their share price, thus can happen more frequently. On the other hand, documentation, namely – conformation statements, statement of capital after allotment of shares, will specify the changed share price, if any changes incurred.

Despite increased frequency, information still remains invalid in terms of thorough financial analysis. This is due to the gaps within the presented documentation, regardless of attempts in facilitation of share price changes on Seeders secondary market by companies. It is even more illustrative, when a firm holds its accounts without release, thus falling into overdue accounts warning from companies' house. Additionally, directors of the company may file a document either extending or decreasing their firm's accounting period, which further hardens the analysis.

On the other hand, there is an obscurity of the analysis of private companies. Fair value, is used to reduce the impact of subjectivity by forcing the business owners to confirm business value with its counterparty and independent party, if M&A is picked as an example. All three parties must agree on a value of a business.

In contrast, there is a notion that business performance indicators of SME may differ with regards to aim of the individual, and since crowdfunding mostly consists of SMEs, ECF will be subject to it as well. Despite the fact, that objective results are easier to replicate and facilitate by independent researchers, it has been stated that, non-large business performance could be unclear, as definitions of failure and success may differ (Watson K., 2010). However, there are several criteria that could be applied towards SMEs' failure to perform:

Discontinuance (Watson K. 2010) – It is purely logical to assume, that if business seizes to exist, it could be labeled as a failure. However, it does not take into account rebranding of business, certain types of M&A, when business existence is no more, however, all of its structure and employees might be a part of a different company.

Bankruptcy with losses to creditors (Watson K. 2010) – Any business that go bankrupt and impose losses on creditors labeled as a failure. However, the objectivity of this criteria could be questioned, as for instance businesses that impose losses on its creditors still functions considered a success.

Liquidation to prevent further losses (Watson K. 2010) – Creates questions as for whom this outcome would be regarded as failure, as for investors, given that they did not incur loss on that liquidation, this might be a stagnation of investment. On the other hand, if shareholders incur losses, thus the business is liquidated to prevent further withdrawals, it could then also be seen as a success, as withdrawals have ended.

Failure to "Make a go of it" (Watson K. 2010) – If a business does not meet certain expectations of any stakeholder. Even though, this definition of failure would be somewhat similar to a group of stake holders, some might have different criteria thus making such a business failure or a success from their perspective.

Therefore, it makes it possible to state, that the factors and criteria would be entirely dependent on perspective of a stakeholder's view and aim.

Further, some papers impose criteria of performance as AIRR metric (Signori A. and Vismara S. 2016). Thus positive IRR would imply the returns provided to investor. Some researchers deduce the investors' gains through annualized IRR calculation, using the initial target of the company in conjunction with offered equity. Then equity usually diluted when SEO happens, therefore, for illustration, consider 10% equity offered for £ 10,000 target for the initial campaign is then followed by 8% of offered equity for another £ 10,000. This dilutes position of initial investors to a point of 9.3% of equity, which is 0.1/1.08. Then, if 8% of the company is equal to £10,000, then 10,000/0.08 = £125,000. Furthermore, 9.3% out of £125,000 is equal to £11,574.1. According to that, AIRR will equal to 10.9% (Signori A. and Vismara S. 2016). However, if an enterprise experienced a share price changes regardless of issuance of equity, in private investment for instance, the calculation would not be applicable. Additionally, it does possess its own problems if compared with NPV, since both are closely related. As it could be considered as a rule of thumb to invest in projects with positive IRR, it will not always represent potential gains, as the metric is derived from the NPV formula, equalizing it to 0. It is disregarding current DCF factor, as it substitutes it. Therefore, neglecting, capital structure of the firm.

On the other hand, NPV measurement, could be seen as more reliable, but require more information to be available in order to calculate NPV. As CAPM formula provides a commonly used discount factor within NPV calculation, for a private firm it would be problematic. The documents filed to companies' house do not possess all of the necessary data points in order to sufficiently calculate DCF. On the other hand, if acquired equity holds underlying dividend payments, that would be conduct with some frequency, or if an investor has precise exit opportunity that will occur regardless, under these conditions such metric as NPV would be applicable towards measuring both investment and company's performance, given they are closely tied.

In terms of investment in private companies, good company performance is usually equal to good investment performance (Fried V. and Hisrich R. 1994). For instance, if public companies are considered, share price could be seen as a proxy for net present value of all of the company's future cashflows. Therefore, if company is generating larger positive cashflows, the share prices presumably will go up. At the same time, potential that is attributed to company of interest would also be reflected in share price, as prognosis would be more optimistic.

In spite of that, it could resemble the mechanism of private equity pricing, therefore, performance of a private firm will be reflect in its share price. However, due to the nature of the market, given its potential risks and fact, that secondary market is not established at its prime, the information absorption mechanisms could be lacking, especially, if valuation of the business could be done only if access to necessary documentation and people in charge is allowed. In addition, time lags in-between valuations may vary from company to company.

To conclude this section, in accordance with performance criteria discussion, share price could be seen as a proxy for business performance, as well as to calculations above, it could be stated that if a share price raises, investor's initial contribution will appreciate value. A similar approach was used before, with regards to total value of the company (Hornuf L. et al 2017). However, firm value does not necessarily take into account investment value of previous contributors, as it has been suggested, that companies tend to issue new equity for further funding (Signori A. and Vismara S. 2016). Therefore, it is possible to derive that, if a share price rises – investment is successful, given that the opposite scenario is also valid, as it captures shareholder value creation more closely, as value creation would be expected, regardless of company's operational focus (Inc. Russia 2020).

Thus, given the opportunity that share price change could be trackable, it could be derived: it is possible to analyze the performance of equity crowdfunding investments through

ROI, as it does not require information apart from the initial and future share prices. Additionally, it satisfies the criteria selection for private investors for potential growth (Block J. et al 2019), enabling calculations regardless of SEO occurrence, dependent only on disclosure of SMEs. Also, it does enjoy beliefs of simplified and reproducible analysis (Watson K. 2010).

2.3. Summary

In this chapter, campaign milestones have been covered, with emphasis on stages when SMEs undergo valuation. Post-campaign outcomes have been outlined. Company valuation methods have been described. Valuation problems have been addressed with regards to private companies and SMEs. Valuations within equity crowdfunding concept have been discussed. Performance indicators have been considered in terms of investment and business, as well as their ties outlined. The investment financial performance indicator has been identified.

Chapter 3. Empirical study of equity crowdfunding investments

3.1. Research hypotheses

The extensive recommendations of having a non-executive director are widely spread (Kakabadse N. et al 2010). The benefits of having such person within a company's board are extensive and noticeable. On the other hand, it is of question, whether the benefits of following recommendation are realizable by smaller private firms. It was stated, that external directors do have added value for the growing small firms (Boussouara M. and Deakins D. 2000). This study also suggests that trust between CEO of the SME and the non-executive director is required.

Additionally, the presence of non-executive directors improve the quality of financial disclosures (Chen C. and Jaggi B. 2000) done by an enterprise. Therefore, it could address the problem of informational asymmetry within private equity market, thus making reporting more consistent with the needs of sophisticated investors, that also possess valuable knowledge for SME type firms as well as ease the capital acquisition (Pattanapanyasat R. 2017). Moreover, previous research (Signori A. and Vismara S. 2016) companies with non-executive directors are more likely to facilitate further investments.

Thus, it might be possible to derive the hypothesis as follows:

Hypothesis 1. Non-executive directors have an impact on probability of equity crowdfunding investment value appreciation within a year from equity crowdfunding campaign.

On the other hand, overfunding variable could be seen as an indicator of investors' confidence in ventures. Partially it is true, as analysis (Vulkan N. et al 2017) indicates there no relationships with naive herding. In contrast, herding may be indicative of past overfunding, sophisticated investor with public profile participation, that incentivize investors to lean towards investment decisions, that align with preferences of professional investors (Ihi C. and Wick J. 2018) or historical data. Indeed, overfunding, could be deemed beneficial, as it would logically enable firms to undertake opportunities that were otherwise closed. On the contrary, if calculations for the campaign are done correctly, any excess capital would absorb some of intellectual and time resources as identify the way of utilization. On the other hand, quite a few papers have covered the factors that influence the extent to which any firm could be funded on equity crowdfunding platform (Ralcheva A. and Roosenboom P. 2016). Moreover, herding could also indicate lesser risk associated with the investment for less experienced participants (Decarre M. and Wetterhag E. 2014) regardless of the actual risk represent by undertaking such investment.

Based on the above, second hypothesis could be phrased as:

Hypothesis 2. Overfunding, event though, signifies the confidence of investors in a firm, is a result of prior campaigns or herding phenomenon, thus will have no impact on probability of equity crowdfunding investment value increase within a year from equity crowdfunding campaign.

Further, CEOs' motivation could also play a role in company performance and its stock returns. However, Agency problem could be brought up, that the interests of CEOs are not on par with interest of the companies' shareholders. On the other hand, there is evidence, that equity issuance to CEOs as a form of compensation could benefit the performance of such company and result in higher returns for shareholders, as evidence suggests the fact of managerial ownership aligns interest of management and shareholders reducing the implications of Agency problem (Huang H. et al 2009).

In contrast, CEOs' compensation package in terms of options or stock could result in them being more likely not to abide law (Minor D. 2016). It is however, stated, that overall risk tolerance increases, regardless of its attunement – being good or bad for the company. Additionally, it could be pointed out, that such motivation for CEOs also opens room for stock price manipulation (Alsin A. 2017), however, share prices of private companies lack information absorption mechanism, they are illiquid. Therefore that drawback could be disregarded.

Following the line of thought, it could be deduced that:

Hypothesis 3. Motivation of CEOs in form of equity issuance for them to possess will greatly increase the chances of equity crowdfunding investment value appreciation after a year from equity crowdfunding campaign.

Diversification in finance, usually applies to portfolio theory, as to reduce the risk of investment careful selection of investment objects is required. Following the logic of benefits of diversification, it could be implied that the more company is diversified the lesser the risk of bankruptcy, but it has to be pointed out, that the opposite is also true (Markides C. 1997).

On the other hand, over diversification may occur. Corporate diversification represent the main focus of the business. Each of the launched ventures, for public companies, and project, for less grown firms, supposed to have adequate resources available in order to operate, therefore, it could be indicated that starting too many ventures at the same time diffuses the company's resources and leaves less available for support of potentially good incentives (Biggadike R. 1979).

Continuing thread, it could be connected directly to outcomes explored within this research, for the same reasons as business performance linked to the investment success. In accordance, it is possible to state the following:

Hypothesis 4. Diversification reduces risk of the company, therefore, increases its probability to increase its share price within a year time form equity crowdfunding campaign.

Continuing the hypothesis discussion, intellectual capital could be measured using patents. This could be true, as protected ideas could be seen as a firm's success factor (Rajan 2012), as the story was with Dyson manufacturer for instance (Dyson 2020). On the other hand, it could also be indicate, that not all of the entrepreneurs use the patenting system. Business owners with a more academic background are more likely to publish their intellectual capital in a form of articles or research, as opposed to business related background entrepreneurs that are leaning towards patenting (Link A. and Ruhm C. 2011).

In contrast with clear benefits of patents, there are potential drawbacks to be encountered, as patenting system requires substantial time investment. It is associated with a several steps lengthy process. Some of the steps do require resources in possession to exploit: i.e. Patent lawyer, application fee of £4,000 and period of 5 years to finalize the process (Gov.uk 2020).

In addition, patents could be problematic to benefit from, if no other option is available other then, rent out the right. This could be seen within the Dyson's case (Dyson 2020), as it took a period of time, and owned manufacturing basis in order to exploit the patented technology. On the other hand, if information technology is taken into account, financial technology in particular. Firms that focus on that aspect are producing applications or programs. Therefore, they are subject to open code legal implications (Walsh E. 2006).

Hypothesis 5. Number of patents has a positive effect on probability of share price increase of a company within a year of equity crowdfunding campaign.

3.2. Research methodology

The model adopted for empirical analysis and identification of relationships between variables, as well as test introduced hypotheses is as follows:

$$Prob(Y_c = y_c^* \mid SIC, OF, LBoard, Non_{exe}, Patent, LAge, API, OS, Size, SH)$$

where,

$$y_c^* = \beta_{c0} + \beta_{c1}SIC + \beta_{c2}OF\_Num + \beta_{c3}LBoard + \beta_{c4}Non\_exe + \beta_{c5}Patent + \beta_{c6}LAge + \beta_{c7}API + \beta_{c8}OS + \beta_{c9}Size + \beta_{c10}SH + u$$

And

$$y_c^* = \begin{cases} 1\ if\ CSP < 0 \\ 2\ if\ CSP = 0 \\ 3\ if\ CSP > 0 \end{cases}$$

3.2.1. Variables

In this section, all of the variables will be described. Their units of measure specified, along with specification of sources of data. The variables are listed below:

1. CSP – change in share price, success factor, indicating change in share price of the company after 1 year period from equity crowdfunding campaign. It is denoted as 1 for companies which experienced a downturn on their share price within the period, y<0; 2 for firms that remained at the same level in terms of share prices, in other words y=0 in 1 year; 3 for firms experienced increase in their share prices within the same period, y>0. The variable has been calculated before coding using the following formula:

$$Change\ in\ Share\ Price = (Share\ Price_{t+1} - Share\ Price_t)/Share\ Price_t$$

a. $SharePrice_{t+1}$ – Share price a year after the Equity Crowdfunding campaign

b. $SharePrice_t$ – Share price established during the crowdfunding campaign

c. t – Initial year.

- ♦ Available share prices are 1) calculated manually using the data from Crowdcube for prices at the Equity Crowdfunding campaign, using the formula:

$$Shareprice = \frac{TotalValue}{Quantity\ of\ Shares}$$

Total number of shares to date will be used in calculation of share price. Data is gathered from companies house enterprise profiles. Documentation representing such values namely: confirmation statements after allotment of shares, statement of capital after allotment of shares, total exemption of company's accounts, if indicative. To ensure the up to date information, relevant available documentation is used in accordance with firm's campaign date;

2) Obtained from documents present within companies of house, which are filed when any transaction involving share capital occurs. Documents that contain that information: Confirmation statements, Statement of Capital after Allotment of Shares, Total Exemption of Company's Accounts.

2. The diversification variable (SIC) is being used to indicate the number of different areas the company is operating. The number of Standard Industry Codes represents number of industries that the company has operations in, therefore, according to general financial theory, it reduces risk of company's default, thus the diversified company is less susceptible to failures on its own. Therefore, it is necessary to indicate that this amount of SIC might pose significance given the current data. Even though, the previous research has indicated that the variable is insignificant, the variable will still be gathered from front web companies' pages on company's house resource, for the modelling purposes, given new information and secondary market beta testing the level of influence of this variable might change. As an example, the company AirSorted Ltd. and DeskLodge Ltd. could be brought forward. According to House of Companies overview, AirSorted has just 1 SIC – "Management of real estate on a fee contract basis" (Companies House

2020); whereas, DeskLodge has 3, namely: “Other passenger land transport”, “Other letting and operating of own or leased real estate”, “Management of Real Estate”(Companies House 2020)

3. Overfunding variable (OF_Num) – Variable to indicate investors’ interest in the company during the equity crowdfunding campaign. It is expressed as difference in Raised and Target values of the company during the financing. The calculation is conducted using the following formula:

$$OF = Raised - Target$$

   a. Raised – amount of capital acquired during the equity crowdfunding campaign. Obtained from Crowdcube platform.
   b. Target – amount of capital requested by the company for offered amount of equity. Values are acquired from Crowdcube platform.

   Both values are indicated on company’s profile page for each campaign the company has participated or within a campaign pitch page and are measured in British Pounds (£).

4. Number of Directors on a company’s board (LBoard) – this variable indicates the total number of directors present on a company’s board. This value is transformed using log function, due to its value being widely distributed. The data on the number of directors is gathered from Amadeus data base by Bureau Van Dijk. The data could also be cross checked, if necessary, using companies’ house data base. The data is presented under the “People” tab within the company’s profile page.
5. Fraction of non-executive directors to total number of directors within a board of the company (Non_exe) – variable used to incorporate effect of non-executive director on the company. As under the English law it is not required, that the person from outside the firm should be at the board of directors, this however, is seen as highly potent and it is advised to have one. Unbiased and independent advice may prove sufficient to influence the returns of companies constituting the sample and, as the result, potential influence over investors. Existence of non-executive directors obtained using data from Bureau Van Dijk data base – Amadeus. This can also be determined either by looking through companies reporting, as, again, under English law, firms are obliged to list all of its non-executive directors in the reporting they make or looking at the People section of company’s profile on companies’ house.
6. Number of patents (Patent) – it is considered one of the possibilities to measure the intellectual capital of a firm. The values have been obtained using Amadeus data base by

Bureau Van Dijk. Patents data can also be gathered from the patent search engine that allows search by name, as in the companies' house data base this information is not present.[8]

7. Age (Lage) variable is represented in years and it is transformed using log function. It posed great significance in previous model. The figures will be derived using the incorporation date of an Enterprise in the overview section of Business's page on Companies House website. It has be deduced by S. Vismara and A. Sigmori that a more robust companies are more likely to produce funds during the ECF campaign. However, at this time it will be used to determine, as on average, does it pose any significance for the investor to look at the age of the company, before investing through ECF platform, or will the age, on average, play a significant role in returns on shares acquired through ECF campaign. Moreover, it can be initially indicated, that the older the company that has used ECF to generate finance, the more likely the company has done so, multiple times, generating data milestones, that provide for a more accurate calculation of returns and might present changes in significance of variables. To illustrate this statement, AirSorted ltd. has been incorporated on February the 5th 2015, participating in 4 ECF campaigns ever since, in contrast with Brickowner Holdings ltd. that was established on April the 10th 2019 and participated in 1 ECF campaign. Therefore, AirSorted ltd. Already provides for 4 revaluations of share prices, indicating either growth or decrease in value, whilst Brickowner Holdings ltd. just 1.
8. Average contribution per investor (API) would be chosen to identify if the actual investor contribution do pose an effect in firms' share values appreciation, as per rational herding theory (Vismara S., 2015). The variable will be calculated through a simple formula:

$$API = \frac{Raised}{Number\ of\ investors}$$

   a. Number of investors, is gathered from platform. Data represented there, can be divided into two categories, per campaign and total. Despite the fact of absences of the data regarding the experienced investor existence, it will still represent the overall interest in the company. Therefore, by gathering both total data for total amount raised and total number of investors it is possible to calculate the average

[8] Additional search engine that allows to search for patents using the company's name that was used to fill the missing values. Patent search for Europian firms. Available at: https://worldwide.espacenet.com/searchResults?submitted=true&locale=en_EP&DB=EPODOC&ST=advanced&TI=&AB=&PN=&AP=&PR=&PD=&PA=Hyper+Poland&IN=&CPC=&IC=#

amount invested per investor over the whole span of campaigns or within individual equity crowdfunding event. Depending on the up to date regulation and restrictions on general public investment amounts, it is possible to deduce whether the experienced investors were present during any of the fundraising rounds. If the average investment exceeds the £10,000 threshold, this could be indicative of an experienced or institutional investor's commitment in this firm and in this particular campaign.

9. Fraction of ordinary shares within a company (OS) – Variable that is used to determine the fraction that ordinary shares constitute in equity structure of the company. The value is calculated through a formula:

$$OS = \frac{Number\ of\ Ordinary\ Shares}{Total\ Number\ of\ Shares}$$

   a. Number of Ordinary Shares is indicated within conformation statements, statements of capital after allotment of shares and sometimes filed to companies house database.
   b. Total Number of Shares is displayed within conformation statements, statements of capital after allotment of shares and occasionally filed to companies house database.

10. Size of the company (Size) – Variable representing the log transformed value of total assets of the companies of analysis. It is important to consider size of the company in performance analysis, as differently sized enterprises might have different opportunities as well as different resources to achieve certain goals. Therefore, size of the company might have the significant effect in probability of investment success. Data on the total assets of the company is gathered from companies' accounts filed to companies' house database.
11. Indication of CEO being a shareholder of the company (SH) – It is deemed that additional motivation for CEO to perform well is to provide additional ties to the company, through issuance of a portion of shares. The binary variable is equal to 1, if CEO is, in fact, a shareholder, otherwise it is equal to 0. The data in its binary form has been gathered through Amadeus Data Base by Bureau Van Dijk.

3.2.1 Sample description and descriptive statistics

In order to conduct the empirical analysis, entities, which had successfully conducted at least 1 ECF campaign, were obtained through Crowdcube repositories. Their campaigns' information represents the period of 2011 to 2019 (8 years in total), the data has been collected on 600 campaigns. The following criteria have been applied:

Since the main focus is to identify the performance of the ECF investments and limitations to disclosed information persists, only companies with shareprice data available within a year following the ECF campaign, thus reducing the number of firms to 400.

Since there are no legislation to prevent international companies to raise their capital on crowdfunding platforms of United Kingdom, companies originating from different countries have an opportunity to raise capital on the UK's ECF platforms. However, they are not a subject to UK's requirements for financial documentation disclosure. Such companies had to be excluded, since no information could be obtained on them. Therefore, that brought the number of companies to 350.

Due to the nature of private equity, the limited availability of information the number of companies, with justifiable (documentary supported values) has been drawn at 300 firms.

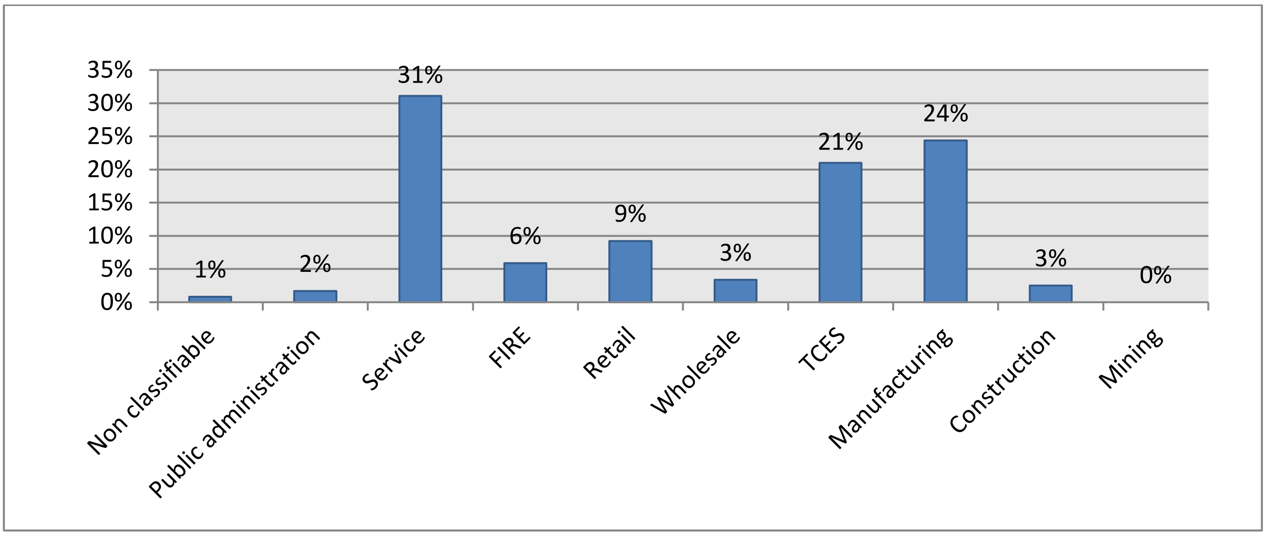
Financial institutions, such as funds had to be also removed from the sample, as they do not fall under the SME designation with regards to disclosure practices. This resulted in a total of 292 campaigns.

After application of mentioned criteria a diversified range of campaigns, which were performed within UK, has been acquired. Following the sample identification, data has been gathered from various sources: Crowdcube, Companies house and Amadeus by Bureau Van Dijk.

Sample in its majority consists of investments in Service – 31% of the sample campaings, Manufacturing – 24% of the whole sample and Transportation, communication Electricity and Sanitary – 21% of the sample. The least represented division is Mining with only 1 campaign within the sample (figure 1).

Figure 1

Campaigns, by division



This distribution is in partial accordance with sample (Hornuf L. et al 2017) that was obtained at year 2017, which consisted of manufacturing was 17% in 2017. 31% of TCES related companies. However, Retail division representation reduced from 17% in 2017 to 9% in 2019.

As ordinal probit model has been chosen for analysis for 3 iterations of investment outcome, these resolutions could be seen as follows:

1) Income – it is identifiable when the investment value is increasing and there returns that are constantly obtained or returns are realizable only through event of sales of such investment. In this case, sales of equity, obtained through ECF by investors, will be categorized as such.
2) Stagnation – It occurs when investment is not growing or decreasing, thus change in value is equal to 0, in this case investor does not obtain any return or loss, even in instance of sales of equity. However, inflation could be considered, which will equalize this case to case one described above.
3) Loss – cases of investment value downturn, such as down-round occurrence and in case of bankruptcy.

Therefore, investments in companies of sample distributes in a following manner: about 50.16% of firms show increase in value of a shareprices within a year from equity crowdfunding campaign, 15.39% of enterprises encountered losses, negative change in value, 34.45% of companies' share price values remained the same, change is equal to 0. These findings could be compared to previous years' sample (Signori A. and Vismara S. 2016). In year 2016, according to the data, 10.4% of companies produced losses for their investors, 59.4% investment values remained the same and 30.2% (Signori A. and Vismara S. 2016) actually produced returns in a form of capital gains. However, it is unknown whether these returns were realized.

The analysis of the sample will proceed with descriptive statistics. The descriptive statistics for variables used in the model are presented in a table (table 1).

Table 1

Descriptive statistics of variables within the sample

Variable	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**
CSP	292	2.34247	0.73628	1	3
SIC	292	0.22945	0.4212	0	1
LBoard	292	1.5396	0.8468	0	3.17805
Non_exe	292	0.00621	0.03673	0	0.5
Patent	292	0.43493	1.32094	0	8
LAge	292	1.03771	1.07788	-3.912	2.92262
API	292	1815.9	2596.71	20.6757	34246.6
OS	292	0.94086	0.14326	0	1
Size	292	5.42514	2.47939	-6.9078	11.8481
SH	292	0.79452	0.40475	0	1
OF_Num	292	376.381	1018.85	0	9970

The analysis of the sample showed, that the average number of campaign participation for companies resulted in 2 camping per firm. The fraction of companies that participated more than once is 42.81% firms for current sample, as in the past the same value was at 30.2% enterprises level. Meanwhile, average number of equity crowdfunding campaigns that firms participated on Seedrs has stabilized at 2 per enterprise. Furthermore, 59.27% of the companies participated in SEOs over the same period.

Additionally, the degree of change in gains has increased. Within the sample this variable fluctuates between -100%, total loss, and positive 440%. Over the year 2019 gains amounted to 8.39% of the initial investment value. Such drastic volatility in gains, could be explained through the riskiness of such investments, thus falling in line with previous available research (Signori A. and Vismara S. 2016). Additionally, comparison with risk free rate of UK, which amounted to

2.1% (Statista 2019) further justifies such statement. It is worth mentioning, that there has been slight decrease in gains, as in the past it has been identified (Signori A., Vismara S., 2016) gains amounted to 8.8% on the initial investment.

100% loss of initial investment has been incurred by investors in 3 companies:

1) “Front Up Rugby” Retail and Wholesale division – A UK’s Rugby clothing brand dissolved on 27.11.15, prior to that in 2014 represented a negative 100% change in investment value.

2) “iNeed” TCES division – A software development company, in area of mobile applications. It has been dissolved on 26.09.17, prior to that in period of 2013 – 2014 had no identifiable changes in share price, and while in 2016 represented a negative 100% change in investment value.

3) “Compare and Share” Service division – Company involved in software development for on-demand economy dissolved on 4.10.16, prior to that in observable periods of 2013 - 2014 and 2015 – 2016 had a consecutive loss of 74.62% and 100% respectively.

In contrast, return of 440% is attributable to “Innovation makers” the manufacturing division company. Returns have been generated through successful launch of their project that was due to be patented the stroller with form and functionality. After the initial campaign team have managed to file applications for a second patent, register trademark for their product in EU. Furthermore, they successfully launched their product “OmniO” to trade at Harrogate International Nursery Fair (Hobey E. 2015).

Proceeding with number of directors and number of non-executive directors within a board of companies it could be identified that a minimum number of directors within the board is 1 in the sample. According to legislation, minimum number of Directors within a board of a private company is 1, for public this amounts to 2 (Thomson Reuters 2020). Average has flattened at 7 directors per board. Moreover, on average of non-executive directors has amounted to 0.24 per board. Number of companies in possession of non-executive director, however, has increased to 14.89% as of year 2019, in contrast with past research (Signori A. and Vismara S. 2016).

It is worth noting, that there is no legal biding that forces companies to have the non-executive director. It only serves as a recommendation. Moreover, it is widely deemed that non-executive director benefits the company. Therefore, it could be concluded, that companies are in general, agreeing with such recommendations, however, it could be attributed to a higher average age of the companies in the sample, since research indicates, that on average existence of non-executive director within a company increases its chances for survival (Institute of Directors 2018).

Patent variable will continue this discussion. Value on average amounted to 0.46th of a patent per company. However, just 19% of firms in the sample are in possession of at least 1 patent. Which is 11% higher than in sample of year 2016 (Signori A. and Vismara S. 2016). "UK building Products Ltd" of the manufacturing and construction divisions is in possession of a sample maximum – 8 patents. "BrewDog", company specializing in manufacturing of spirits, has 7.

Average age, on the other hand, remained nearly the same, thus amounts to months or 65.72 months. Previous research found that average age have been 66.3 months or approximately 5.5 years. This could be attributed to deeper trust for equity crowdfunding, as for financing source, in conjunction with increase in average investment in UK, making it possible for larger companies conduct crowdfunding campaigns (Beaurhurst 2019). On average however, this has amounted to 52.29 months.

Further, sample's average value of Raised Capital (figure 2) has reached £994,113.7. Note, that for year 2019 this variable has occupied a point of £892,111.47, which could indicate a larger number of early stage, micro and start-up companies that potentially dispersed the samples Raised figures. As according to *figure 3*, however, there has been an increase in total number of campaigns from 2017 to 2018, however, from thereon it remained approximately stable through 2019, decreasing only by 1 campaign over the year. The emphasis, however, is on size of the company, even though, the total number of companies remained stable, the number of Large company entries, decreased by 3. Therefore, given the notion that larger companies require larger amounts of resources, the decrease could be attributed to decrease in volume of large companies' campaigns. Additionally, average Capital Raised has substantially increased over 2 years, from 2017 when variable stayed at the point of £376,608.70[9].

[9] Due to figures being presented in EUR currency, to convert EUR to GBP exchange rate was picked as of 29.12.2017. Exchange rate used could be found under the following link: https://www.poundsterlinglive.com/bank-of-england-spot/historical-spot-exchange-rates/gbp/GBP-to-EUR-2017

Figure 2

Raised capital, by year

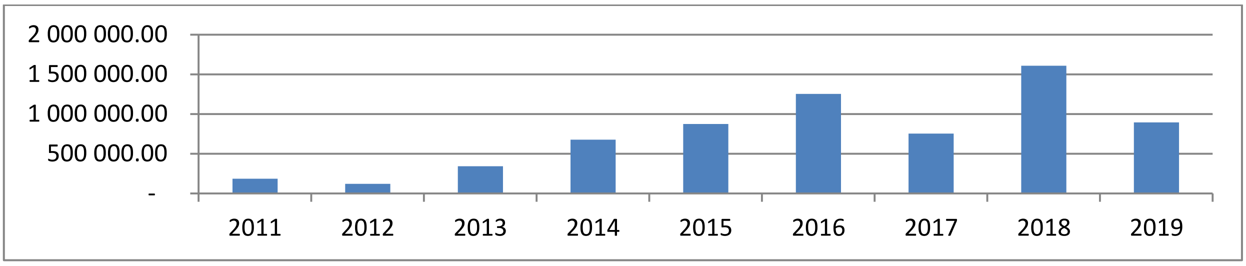
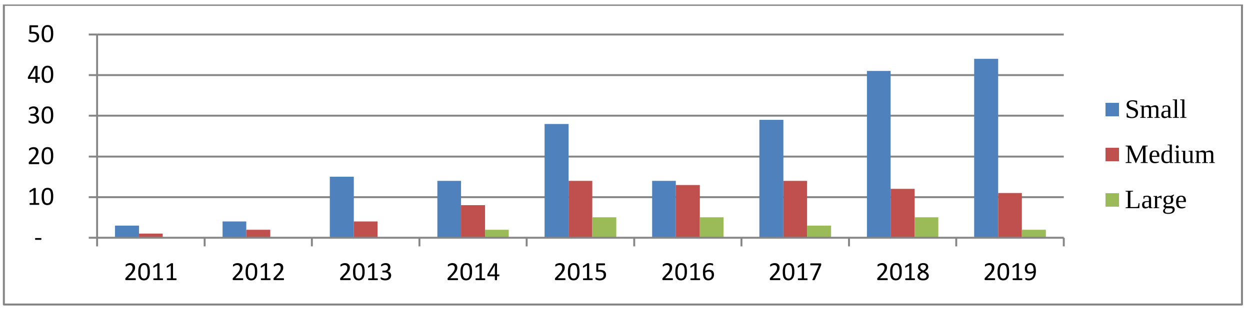


Figure 3

Distribution of investment in companies of various sizes, by year



It could be though that equity crowdfunding financing is being used by prevalently smaller companies and early stage companies. This contradicts some statistical findings presented in UK, as equity crowdfunding is being described as a source of capital for small, medium and large caliber enterprises. This might be attributed to increase in average investment figures and drop in amounts of investors over the UK, and could be further connected to increased activity of VCs and Bas and funds on crowdfunding platforms (Beauhurst 2019). This statement falls in line with findings presented (figure 3), as despite active growth of crowdfunding of various forms has been believed to start in year 2012, it still took 2 years for larger companies to see the benefit of such alternative source of finance.

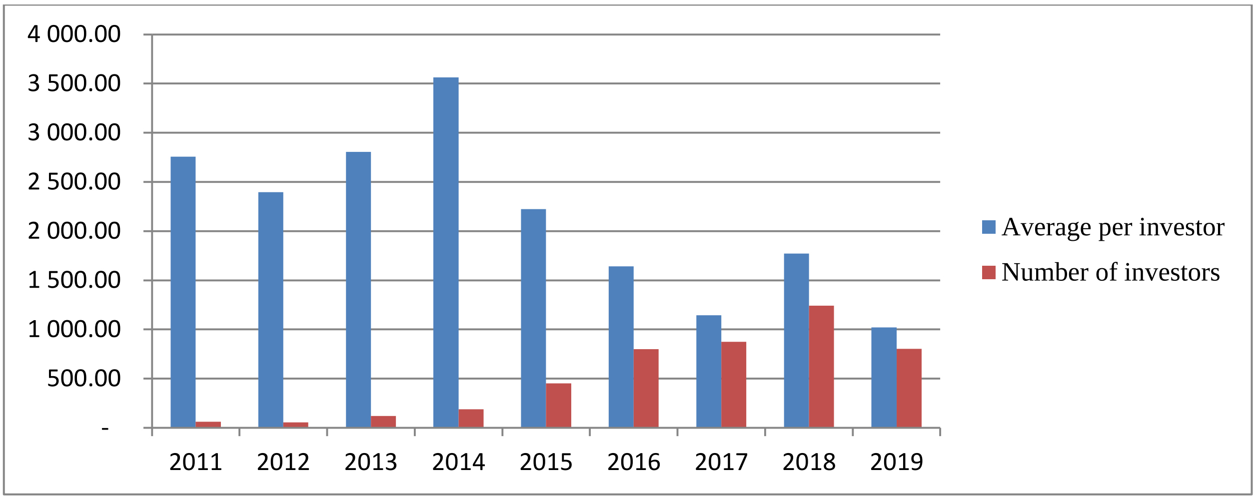
To proceed, average contribution per investor will be looked at (figure 5). The situations of pre 2016 period and after 2016 are drastically different. It could be seen, that while average contribution remained high, number of participants was low: at £2,756.49 and 61 respectively. This, in turn, contradicts the overall statistics for the UK presented by Beaurhurst for first half of 2019 (Beauhurst 2019).

While, the average investment per participator has been decreasing, number of investors has been gradually rising up until 2018. This gradual change in number of investors and their contribution per person could also be linked to sizes of the companies that entered on platform (figure 4). As smaller companies, again, do not require vast resources in order to achieve certain goals, as opposed to medium and large enterprises. On average, however, number of investors as settled at 510 per campaign, and contribution averaged in £2,146.77 per supporter.

Additionally, the distribution of investment amount industries was not gradual. Lowest average values of API and capital raised is attributable to non-classifiable division, companies that not yet chose their SIC codes that suit their operations. In contrast, the largely popular division is Finance, Insurance and Real Estate, averaging £2,790.83 and £3,013.18 in Raised Capital and Average Contributions respectively. However, by far the largest average contribution was received by Public Administration companies, but in terms of capital raised they reside at 7th place, out of 10, within the sample. The largest average contribution is from Crowdcube campaign, which falls into the finance, insurance and real-estate (FIRE) division. It amounts to an average of £34,246.57 per investor. On the contrary, the lowest average of this variable amounts to £20,68, for distillery company, that falls into manufacturing division.

Figure 4

Average contribution per investor and number of investors, by year



This finding contradicts the distribution of sought capital among the divisions, as manufacturing division is leading the sample, with an average of just over £12.5 million target per campaign. And FIRE division is about £10.5 million lower, with an average of approximately £2 million per campaign. Average value of target capital that was sought on the platform amounts to £1,848,715.15.

The concern of direct strong linear relationships in-between variables has been addressed. In accordance with table below (table 2), only age and size relationships are moderate along with company size of the board with age and company size. Other variables used indicate lesser extent linear dependency.

Table 2

Correlation matrix of the sample

	CSP	SIC	LBoard	Non_exe	Patent	LAge	API	OS	Size	SH	OF
CSP	1.0000	-	-	-	-	-	-	-	-	-	-
SIC	0.1003	1.0000	-	-	-	-	-	-	-	-	-
LBoard	0.2075*	0.1066	1.0000	-	-	-	-	-	-	-	-
Non_exe	0.0835	0.0001	0.0984	1.0000	-	-	-	-	-	-	-
Patent	0.1891*	0.0980	0.2702*	0.0391	1.0000	-	-	-	-	-	-
LAge	-0.0147	0.1604*	0.3572*	0.0626	0.2633*	1.0000	-	-	-	-	-
API	0.1286*	-0.0049	0.1900*	-0.0415	0.1297*	0.0605	1.0000	-	-	-	-
OS	-0.0409	0.0412	-0.0623	0.0083	-0.0772	-0.0819	0.0378	1.0000	-	-	-
Size	0.0403	0.1215*	0.4261*	0.0282	0.1788*	0.3467*	0.0899	0.0007	1.0000	-	-
SH	0.1908*	-0.0450	0.2412*	0.0862	-0.0315	0.1695*	-0.1540*	-0.0301	0.0707	1.0000	-
OF	0.0192	-0.0613	0.1844*	-0.0107	0.1598*	0.2362*	0.0901	-0.0400	0.2123*	0.0185	1.0000

Note: *, ** and *** represent significance levels at $\alpha = 0.1$, $\alpha = 0.05$ and $\alpha = 0.01$

3.3. Empirical results and discussion

Aim of this research is, to conduct a performance analysis of crowdfunding investments. And as the result to identify variables that affect success chances for investments to grow within a year of investment in equity crowdfunding campaign. For hypothesis testing, ordinal probit regression analysis has been chosen. Therefore, the results of probability regression would show the positive or negative relationship between variable and chances of contributors welfare increase. Whereas, marginal effects would determine the probability effects of each variable towards attributing the success label to an investment.

Single predictor model was built first, using Patent variable as an independent variable. This was followed by a full model regression. The log likelihood ratio test was used to compare two models. Null model produced an LR $x^2_{(9)}$ = 35.48, with p-value < 0.001 In contrast full model produced LR $x^2_{(10)}$ = 49.90 and p-value < 0.001. This indicates that full model better fit the data. Therefore, we can now continue with results discussion.

Table 3

Regression results

Variable	Regression Coefficients	Marginal Effects (Outcome 3, CSP > 0)
SIC	0.313070*	0.110991*
LBoard	0.195033**	0.069144**
Non_exe	2.734535	0.969460
Patent	0.247533***	0.087756***
LAge	- 0.209998 ***	-0.074450***
API	0.000118**	0.000042**
OS	- 0.348204	-0.123447
Size	- 0.022056	-0.007819
SH	0.665515***	0.235942***
OF_Num	0.000018	0,00000648
Pseudo R^2	0.085	
p-value	0.000	

Note: *, ** and *** represent significance levels at $\alpha = 0.1$, $\alpha = 0.05$ and $\alpha = 0.01$

In the table above (table 3), regression results are presented along with marginal effects. As it can be seen patent, log of age and indication of equity motivation for CEO is significant at 1% threshold. Meanwhile, Average contribution per investor and logarithm of a board size is significant at 5%. Diversification variable, SIC, representation the number of industries of operation, is significant only at 10%.

The overall model is significant at 1% threshold. Therefore, further discussion is possible. Despite the fact, that interpretation of coefficients of probability regression model makes no sense, they could still be seen as indicative of variables' relationships to the outcome, despite that, marginal effects could be analyzed for identification of extent of influence in accordance with predictors' marginal effects coefficients. However, from the table above, it could be determined, that coefficients of non-executive directors in the company, ordinary share fraction within a company's equity structure, size and overfunding are not statistically significant, with their p-values being above 10% threshold, thus no comments regarding the results of insignificant coefficients would be given.

With regards to SIC coefficient, which is 0.111, each point increase in number of SIC codes, increases the probability of investment value rising within a year from crowdfunding campaign by about 11.1%. However, due to the variable being significant only at 10% threshold, further research would be required to continue the discussion.

Board size coefficient, on the other hand, equals to 0.069. However, each point of increase in LBoard value corresponds to an 171.828% increase in real value, since the variable was log-transformed. Thus, an 171.828% increase in nominal number of directors within a company's board will correspond with increase in appreciation chance of an investment in equity crowdfunded company by 6.9% after a year from equity crowdfunding campaign.

Further, patent variable coefficient has been identified to be equal to 0.087756. Increase in number of patents held by a firm by 1 corresponds to increase in probability of firm's share price increase in year time period after equity crowdfunding campaign by 8.78%.

LAge coefficient settled at a point of negative 0.074450. Since this variable was also transformed using log transformation, each point increase in LAge will correspond to 2.718282 times increase in nominal age of the firms conducting equity crowdfunding campaign. This aging results in a decreased probability by 7.45% of share value appreciation within a year from the crowdfunding campaign.

Average contribution per investor coefficient was found to be equal to 0.000042. Therefore, it could be said that, each £1 increase in average contribution per investor, during the equity crowdfunding campaign, increases the probability of share price increase by 0.0042% within a year from conducted equity crowdfunding campaign.

For the shareholder predictor, coefficient equals to 0.235942, which is corresponding to an increase in probability of an increase in share price, better financial performance, if CEO of a target company has a shareholder characteristic associated, by 23.59% in contrast with CEOs not possessing such characteristic, while holding other predictors constant.

In accordance with the above results, it is possible to address stated hypotheses. With **hypothesis 1** it has been expected that the non-executive directors positively affects the probabilities of appreciation of value of the investment made into the company is rejected, as the results indicate absence of relationship towards of portion of non-executive directors within a company with its share price changes within a year after the ECF investment.

On the contrary, size of a Board, on average, matters; as the regression indicate that there is a positive correlation of size of the company's board and its chances of share price fluctuations. Moreover, marginal effects indicate, that even though, non-executives in particular does not pose significance in terms of facilitation of share price changes within a year for equity crowdfunded companies, as non-executive directors are a part of the board of a firm, increase in their number might, on average, indirectly influence the share price within 1 year from equity crowdfunding campaing, given also that non-executive directors do increase chances for firms survival on the market. Furthermore, coefficient suggests that, on average an increase of more than two times of the initial amount of directors results in higher chances of investment value appreciation for contributing equity crowdfunding investors. Also, that finding does not contradict findings of previous research (Signori A. and Vismara S. 2016) as the significance of variable was determined in context of raising additional capital. Therefore, it could be stated, that in case of initial campaign scenario companies with non-executive directors would have higher chances of engaging in post campaign outcomes, thus increasing the chances of an exit opportunity or valuation instances allowing to track investment performance. Therefore, with regards to positive effects non-executive directors provide along with importance of management quality for private professional investors (Block J. et al 2019) in conjunction with notion that there is an effect on reporting quality (Chen C. and Jaggi B. 2000), it could possibly require more research, in order to identify the role of non-executive directors in equity crowdfunding environment.

Regarding **hypothesis 2** that stated: there is no relationship with investment performance within a year and overfunding occurred during the ECF campaign is accepted. Analysis indicates that there is indeed, on average no relationship between share price change and overfunding. Thus expressed concerns are regarding this variable could be held true, however, further research would be required in order to proceed with a statement. That signifies the fact of possibility of investor herding dispersion, reduction of average investment contributed, or campaign success, as projects may fall into overfunding due to herding occurrence, as has been indicated previously (Ihi C. and Wick J. 2018), is in fact persists. Additionally, it cannot be distinguished accordingly, if there is an experienced investor caused herding or factors of the campaign that aligned with preferences of general crowd. Therefore, it would require further research in order to identify the naïve herding within equity crowdfunding practice and distinguish it from rational counterpart. However, since variable is insignificant it could be argued, that investors do not diminish the risks associated with investments in equity crowdfunding, which is contradictory to prior findings (Decarre M. and Wetterhag E. 2014), as it did not indicate identifiable effect on future value of the investment.

Addressing the **hypothesis 3**, which implied, that the motivation of CEOs in a form of equity issuance has positive effect on the probability of ECF investment value appreciation is accepted. As regression result demonstrate, there is, in fact, direct correlation of CEO being a shareholder of a company and firm's share price change within a year after ECF campaign. That aligns with prior discoveries (Huang H. et al 2009), that CEOs are more likely to fulfill their traditional theoretical function - increase shareholder value. Therefore, motivating CEOs with equity issuance for private companies might prove useful tool for increasing the probabilities of firm growth and shareholder wealth appreciation as well as potentially higher expectations, thus increasing the share price of the firm. However, manipulations (Alsin A. 2017) could impose concern, as within an illiquid investment environment it is hard to manipulate share prices with immediate effects, but with an increase in liquidity, attempted by Government (AIM initiative) and Seeders (Secondary market) it becomes less evident, that CEOs would refrain from law disobedience.

Proceeding to **hypothesis 4**: diversification of a firm that participated in an equity crowdfunding campaign has a positive impact on probability of ECF investment value appreciation, within a year from equity crowdfunding campaign is rejected. However, despite the results indicate a direct correlation between diversification fact and fact of share price changes, however, its significance at 10% threshold poses some concerns. Even though, the variable is significant in affecting chances of SEO (Signori A. and Vismara S. 2016), it could not be regarded as significant, thus would require further investigation, in order to identify a more evident impact of diversification on the firms and investment performance in ECF, thus no further comments are possible.

Finally, **hypothesis 5**, which implies patents having positive effects on probability of an increase in share price within a year of equity crowdfunding campaign, is accepted. Patents variable represents significance at 1% threshold.. This leads to the notion, that the patents indeed have positive effect on share price changes within a year period after equity crowdfunding campaign. Therefore, it is accepted, as coefficient's sign indicates the direct relationship of number of patents present at the ECF campaign and share price a year after. It could be indicated, that firms might want to pursue patents, regardless of financial and time constrains associated with it. Additionally, it does deviate from previously found results, as the firms with patents are more likely to raise capital in seasoned earnings. Moreover, it is not a campaign success indicators (Ahlers et al 2015) or does it increase the likelihood of successful campaign on Crowdcube platform (Signory A. and Vismara S. 2016), however, obtained results are still in line with findings regarding the importance differentiation from competitors (Rajan 2012). Partly, it is arguable, that firms that experience share price increase might be more willing to participate in further SEO, to take advantage of an up-round campaign, thus removing the contradiction of a SEO (Signory A. and Vismara S. 2016) instances driver.

Additionally, results indicate direct relationship of average contribution per investor and rise of a share price within 1 year period. This could be due to the threshold for investment for certified restricted investors (Kennedy H. 2016). Moreover, as it has been discussed, if average investment figure indicates an investment of higher than £10,000 it is more likely that experienced types of investors are participating. This, in turn, could lead to a more potent investment, as experienced investors, such as BA and VC do require some assurances in order to contribute to a company (Block J. et al 2019).

Managerial implications

Appliances of crowdfunding are vast, ranging from simple quality of life products, i.e. Pebble watch, towards more global agenda, such as virtual reality development, i.e. Oculus Rift. It could be for profit, equity crowdfunding, crowd lending, royalty crowdfunding and etc. Or it could be charity based, i.e. donation based crowdfunding campaigns.

Meanwhile, despite the riskiness of investments in equity crowdfunding being high, it could get more attention as COVID-19 pandemic unfolds. Legal recognition of such terms as platform and alternative source of finance developments are already seen in Russian Federation, with its 259-FZ (LegalActs.ru 2020). Additionally, some of the variations of crowdfunding platforms are already present within Russian market: “Potok” a peer-to-peer lending platform that is functioning from year 2015 (Alfa Bank 2019), AKTIVIO - a real estate equity crowdfunding platform that functions from year 2015 (AKTIVIO 2020). Moreover, in such circumstances of self-isolation, some refer to it a “safety vest” for small and medium enterprises in Russia (Kadyrova L. 2020).

Furthermore, investor protection is required which. On one hand, is necessary to contribute to survival and benefits of crowdfunding, as it has been argued (Hornuf and Schwienbacher 2017), that raising barriers for entry so that general investors would not be able to participate, ending up obstructing the very core mechanism of crowdfunding, the creation of opportunity for businesses to attract capital from general crowd, thus appropriate level of protection should be found. On the contrary, some of the regulatory frameworks have been identified (Schilz M. and Blohm I. 2013), that have a positive effects in crowdfunding practices, it has been argued that different regulations could be suitable for different types of crowdfunding campaigns.

Research provides valuable information for investors, as to what factors to pay attention to in order to have, on average, a higher probability of investment value appreciation within a year from equity crowdfunding campaign. Investors that do not possess the access to all of the required information, might be able to determine the more attractive investments opportunities within a platform using the suggested criteria as a base line, when comparing several companies of interest:

1) Enterprise’s size of the board
2) Average contribution during the campaign

3) CEO’s shareholder characteristic
4) Company’s acquired patents

As it has been found, companies in possession of higher values in presented characteristics are, apart from CEO being a shareholder, on average, have higher probability of generating potential returns for equity crowdfunding investors. With regards to CEO criteria, when holding other values constant, instances when CEO is a shareholder within the company, will, on average, signal of a more potent investment.

It should be pointed out, however, that these criteria has been identified for the United Kingdom, however, if legislation parallels could be identified, it would also be possible to pay attention toward these factors, as regional differences could also influence the result. Additionally, outbreak of COVID-19 virus has hindered the global economy, thus generated cash flows have declined, therefore, accessible through internet possibility to generate capital would be indeed useful, as has been pointed out by Egor Elchin (Kadyrova L. 2020), crowdfunding school curator. In addition, it has to be kept in mind that investors will want to generate realizable returns, regardless of operations focus of the company that is subject to investment (Inc. Russia 2020).

Further, with regards to academic literature, the focus was on the business side of ECF, as what characteristics of companies indicate the success (raising the target amount of capital) of ECF campaign, what are the factors that interest investors. The campaigns themselves were studied extensively, but investment outcome aspects were more or less neglected. It is clear, that asymmetry of information might be the main cause of lack in academic research attempts, however, the legislation is developing, additional sources of information appear: Crunchbase – data base for crowdfunded companies; Seedrs’ secondary market, UK’s crowdfunding association and etc. however, platforms are likely to provide data sets for researchers, thus providing valuable information, not available elsewhere, that would give the possibility of a thorough financial analysis using different techniques and measurements.

To conclude this section, some of the initiatives conducted by the UK’s government and associated ministries, could be used as a reference for development legal requirements and code of conduct development for emerging equity crowdfunding markets. Additionally, since earlier literature indicate the financing gap affecting the survival rate of small and medium business and their productivity, ECF could be beneficial as a tool to close or at least narrow the capital raising gap.

Conclusions

This research has addressed the issue of investment performance in equity crowdfunding investments. The research goals have been achieved. Firstly, an equity crowdfunding phenomenon has been reviewed and specifics have been outlined. Over the course of this work, different types of crowdfunding have been addressed and focus established, campaign scenario discussed, as well as, post-campaign outcomes specified. Additionally, concept of revaluation and when it occurs has been indicated along with factors that investors pay attention to when choosing the business to invest in.

Secondly, campaign scenario has been addressed. Additionally, potential for investors' exits has been outlined. Problems with identification of performance of SMEs, asymmetry of information and lack of set periodic valuations have been discussed. With regards to equity crowdfunding investments, company should conduct a successful campaign in order for the investment to potentially generate returns. Private investors, which do not necessarily participate in crowdfunding, put an emphasis on potential returns that business is capable to generate. Additionally, quality of management is payed close attention to. General investors however, do require governance and financial documents in order to make investment decisions. As it has been outlined, equity crowdfunding market behaves in a rational manner (Ahlers et al 2015), therefore, quality of such documentation is emphasized. Moreover, quality of reporting could be attributed to management capacity of a business's board, which is further justified by increases in survival rates for firms with non-executive directors, which are also believed to impact the reporting quality of a business.

On the other hand, the exit opportunities, although, have been outlined, do not change the fact of illiquidity of a private equity market, as they only create a possibility of an outcome, but presence of professional investor, business angel or a venture capital fund might indicate potentially eminent exit opportunity for investors, as all three categories are likely to require such reassurance (Fried V. and Hisrich R. 1994). Factors that are emphasized with regards to post-campaign scenarios have been addressed. Patents, even though are found to be disregarded during the funding campaign, have an impact on subsequent financing of a firm (Ahlers et al 2015). However, the significance of an acquired patent could be debated (Signori A. and Vismara S. 2016). Further, professional investors pay a significant part in SMEs' survival rate, through their advisory capacity and experience exchange.

Furthermore, despite being insignificant non-executive directors are still proven to affect survival rates of the firm, in conjunction with reporting quality, thus increasing the possibility of professional investor participation. Therefore, it could be believed, that future research might pay closer attention to such variable.

Third, ROI metric has been picked for the performance analysis of equity crowdfunding investments. Due to the lack of information, it is possible to analyze firms that have disclosed any changes to their share price. Additionally, NPV and IRR metrics are not applicable towards the current situation with SMEs' reporting as some of the information is not present in filed documents that are disclosed by Companies' House body, regardless of similarities of reporting requirements for both public and private companies. Thus, in order to produce replicable (Whatson K. 2010) a more simplistic financial performance indicator was in preference, additionally emphasized by the companies' data requirements.

Fourthly, data has been gathered and empirical analysis conducted to identify factors that could influence performance of equity crowdfunding investments. The sample of 292 campaigns has been formed in correspondence to UK based companies for a period of 8 years, from 2011 to 2019 to examine the potential relationship of identified factors that are sought at different stages of an equity crowdfunding investment until revaluation instance. Sample assured the correspondence of previous claims, that equity crowdfunding is for SMEs, and that larger companies are at the start of consideration of potential of such platforms for their financial needs. Further, results were obtained through ordinal probability regression with 3 possible outcomes: increase in investment value, stagnation and decrease in value.

Results have shown, that companies that possess certain characteristic are on average have higher probability of share price appreciation in time period of 1 year from the equity crowdfunding campaign. Board size of a target firm has relation to changes in share price within a year from equity crowdfunding campaign. In fact, the larger the firm's board, during the equity crowdfunding campaigns, higher the probability of share price increase within a year after the campaign. Additionally, investors might want to pay more attention towards average contribution per investor during the campaign. Despite it being applicable only under United Kingdom's regulation regarding investor classification, it has a direct relationship, leading to an increase in probability of a share price the larger the average contribution. Firms, whose CEO is also a shareholder within a firm of operation, on average, have higher probability of appreciation of investment value for company's contributors, as opposed to those that do not issue equity for their CEOs, while holding other values constant. Patents, also have an impact on the share price of equity crowdfunded enterprises, thus have an influence over investment value of contributors. In contrast, age of firms has an inverse relationship with share price changes in a year from funding campaign, leading to decrease in probability of a share prices increase for older firms.

Further, it might be beneficial for government to protect investors to an extent. As it has been outlined, investor protection might harm such initiatives as crowdfunding, if overdone (Hornuf l. and Schwienbacher A. 2017), the opposite is also true, as unregulated financial incentives may harm investors, in particular crowdfunding initiatives (Psychosynthesis 2020). Therefore, it might considered, to establish an association body that will monitor and explore the changes that regulation might need to the crowdfunding area, with an official financial regulatory body overseeing the operations, much like in the United Kingdom. This would cause opportunity creation for SMEs and might bring solution to other problems such as lack of funding for mentioned firms and foster growth.

Finally, despite the presented findings, the research might still be expanded in a number of ways. Further findings in relation to diversification (SIC) are needed in order to confidently determine the effects it might have on investment performance in equity crowdfunding campaigns. Additionally, with changes in disclosure practices as well as developments in secondary market for equity crowdfunding shares might change the relationship of certain variables, through making other information available.

Moreover, developments within equity crowdfunding and associated areas are rapid: within less than decade from legal recognition and appearance of equity crowdfunding, secondary market initiative was open for access to investors. These factors could be regarded as opportunities, especially with regards to possibility of a more strict disclosure rules, so that more financial information is available with a more constant frequency, providing researchers with a possibility of a deeper analysis of investment performance in equity crowdfunding, for instance: business specialization diversification impacts on investment performance, possibility of application of more complex financial performance factors using publicly available data, direct effects of professional investors on the financial performance of the firm, equity crowdfunding investment performance with an imminent exit opportunity, whether non-executive directors have an effect on potential of an exit opportunity and etc. Even though, some questions are still due to be answered, developments in information disclosure and investor protection might affect the prospects of future research possibilities making it easier to address the issues present in equity crowdfunding investments.

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