Path Dependence in Equity-Crowdfunded Startup Financing

An Exploratory Study

Master Thesis Report

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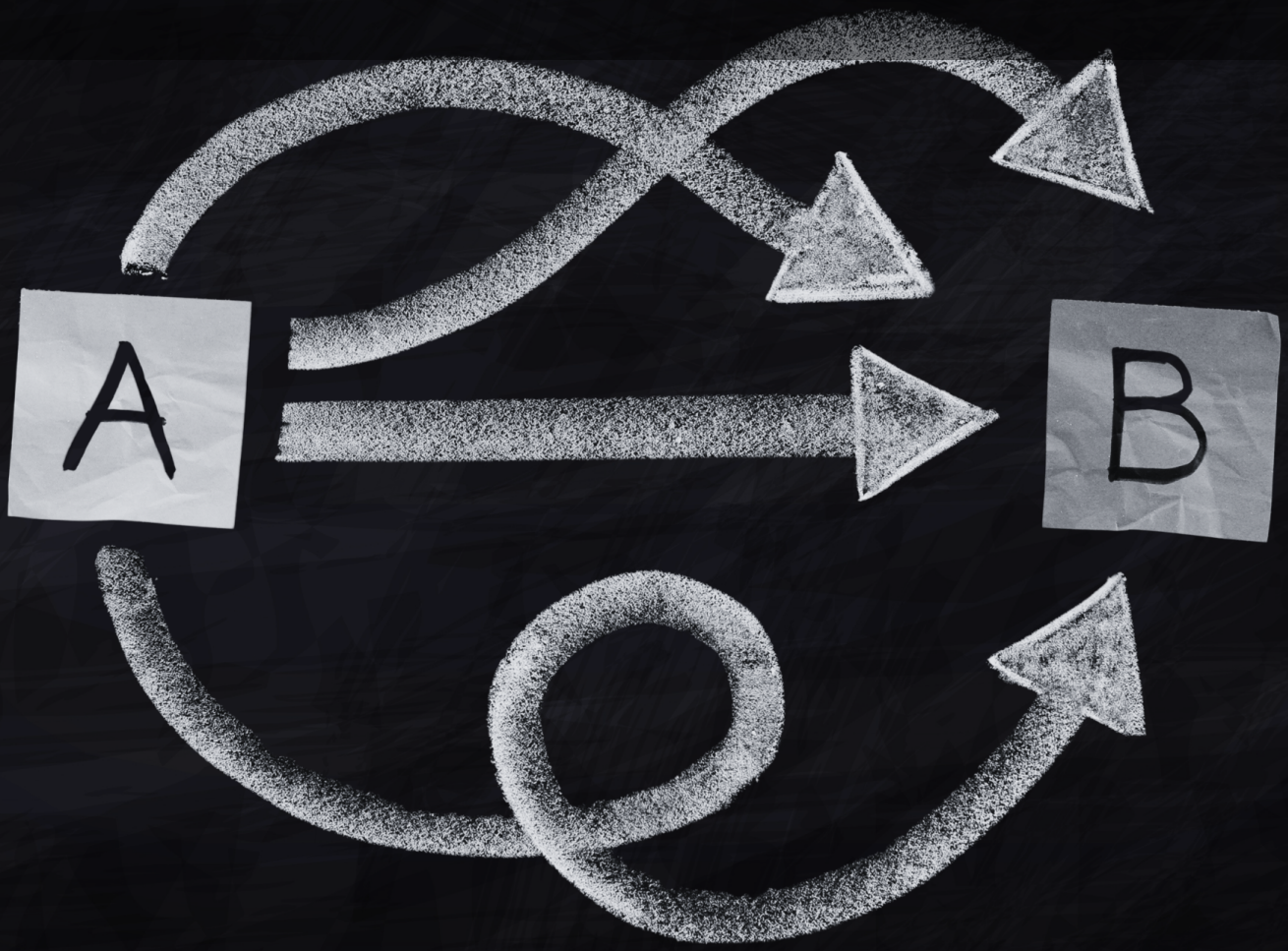

Delft University of Technology

TU Delft

Path Dependence in Equity-Crowdfunded Startup Financing

An Exploratory Study

by

Irvan Arif

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TU Delft

Preface

The experience of pursuing a master's degree at Delft University of Technology is a cherished memory that will stay with me for life. I am immensely grateful to the Indonesia Endowment Fund for Education (LPDP) for granting me a fully-funded scholarship and fulfilling my dream of pursuing higher education at Delft University of Technology, in the Netherlands. I want to express my sincere appreciation to my supervisor, Dr. A. A. Ralcheva, for imparting her knowledge and expertise, which greatly contributed to my deeper understanding of my research topic and completing my master's thesis in good shape. I also extend my gratitude to the committee chair and my second supervisor, Dr. Ing. V. E. Scholten, for his invaluable feedback, which helped enhance the quality of my master's thesis. I am also thankful to my close friends for their unwavering support and motivation as I navigated the challenges of studying at the university. Lastly, I am deeply grateful to my parents, who, despite being geographically distant, have always provided endless support to strengthen me in striving for my dreams. I hope that this master's thesis will contribute to advancing scientific knowledge, particularly in the area of this study.

Irvan Arif

Delft, August 2024

Executive Summary

Path dependence occurs when a company excessively rely on its historical strategies, inhibiting its ability to adapt to new circumstances. Kodak's failure to embrace digital photography is a notable example of this phenomenon. The company's entrenched success in film-based photography led to a reliance on outdated strategies, ultimately contributing to its bankruptcy when digital technology disrupted the analogue photography industry. Similarly, startups that heavily rely on equity crowdfunding as their primary source of financing may encounter challenges due to path dependence. While equity crowdfunding has the advantage of attracting capital from a wide range of investors, overreliance on this method can lead startups to overlook alternative funding sources that may better suit their financing needs, such as venture capital firms. Venture capital firms support startups beyond capital funds. They also provide strategic support, expertise, and valuable networks necessary for a startup's long-term growth. Thus, highly dependent on a single funding source, such as equity crowdfunding, may result in suboptimal outcomes and increase the risk of organizational failure.

This study aims to explore whether startups' initial external financing from equity crowdfunding leads to path dependence in their subsequent financing. The main research question of this study is, "Does startups' initial external financing from equity crowdfunding lead to path dependence in their subsequent financing?". This study is particularly relevant to entrepreneurs and investors, providing valuable insight into the potential path dependence in equity-crowdfunded startup financing.

To achieve the research objective, this study employs an exploratory research approach to investigate path dependence in equity-crowdfunded startup financing within the institutional context of British startups. The research utilizes secondary data from Crowdcube, Crunchbase, and the UK Company House, encompassing equity crowdfunding campaign characteristics, startup financing features, and startup profile data. The choice of the British institutional context is justified by the prevalence of equity crowdfunding among British startups, supported by favorable regulatory and tax environments. This study focuses on 74 British startups that received initial external financing from equity crowdfunding via the Crowdcube platform between 2013 and 2018. By examining the financing paths of these startups across three funding rounds, the research aims to identify patterns of path dependence characterized by a consistent reliance on external funding from equity crowdfunding.

Through the exploratory analysis, this study reveals that the 74 startups that initially received external financing from equity crowdfunding followed 20 different combinations of financing paths across three funding rounds. A total of 27 startups (36.49%) persisted in obtaining external funding from equity crowdfunding across three funding rounds, and this was the most dominant funding path among these startups. Meanwhile, the other 47 startups followed 19 other funding paths with a wide distribution. These findings suggest that startups that initially received external financing from equity crowdfunding tend to seek external funding from equity crowdfunding in their subsequent financing rounds, implying a potential path dependence on equity-crowdfunded startup financing.

This study contributes to the limited literature on path dependence in startup financing, particularly in the context of equity crowdfunding. It builds on previous research that examined path dependence in Swedish startup financing, where equity financing had a strong path effect but did not focus on equity crowdfunding. By focusing on British startups, where equity crowdfunding is prevalent, this study provides initial insights into potential path dependence in this context, laying the groundwork for future research. Future studies should conduct empirical investigations into path dependence in equity-crowdfunded startup financing and examine the impact of high reliance on equity crowdfunding on startup performance to provide deeper insights into this topic.

This study offers valuable recommendations for entrepreneurs and investors. Entrepreneurs are advised to carefully evaluate the choice of initial external financing source for their startup, as it has long-term implications on their startup's financing path. Entrepreneurs should remain open to diverse external funding sources and not overly rely on one funding source, such as equity crowdfunding. They should comprehensively understand their startup funding needs to sustainably grow the business and make informed decisions regarding external funding sources that best align with their startup's funding needs. Thus, their startup financing activity could lead to optimal outcomes for the startup.

Furthermore, investors should take into account the phenomenon of path dependence in startup financing when making investment decisions in addition to evaluating the business and human capital aspects of startups. This process involves examining the historical financing activities of the startups and determining whether there is a recognizable pattern of path dependence in their funding. Although, to the best of our knowledge, there has been no research on the impact of path dependence in startup financing on startup performance, considering this phenomenon is crucial. According to organizational path dependence theory, path dependence could lead to inefficiencies and an increased risk of organizational failure. Therefore, it is paramount for investors to consider this factor in order to make well-informed investment decisions.

In conclusion, this exploratory study provides valuable initial findings on the potential path dependence in equity-crowdfunded startup financing. It emphasizes the need for entrepreneurs and investors to carefully consider initial financing decisions and calls for further research to better understand path dependence in equity-crowdfunded startup financing.

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1

Introduction

1.1. Problem Statement

Path dependence, a phenomenon in which a company excessively relies on its historical strategies or solutions, can hinder its ability to adapt and thrive in rapidly changing circumstances (Lucas & Goh, 2009; Sydow et al., 2009, 2020). An illustrative example of path dependence causing issues for a company is the case of Kodak, an American technology company. Kodak's failure to embrace the digital photography revolution can be attributed to its overreliance on its early success in film-based photography (Munir & Phillips, 2005). The initial success of the company's strategy triggered self-reinforcing mechanisms (e.g., learning, adaptive expectation, coordination, and complementarity effects) (Sydow et al., 2009, 2020). These mechanisms entrenched the company's dependence on its early strategy, causing it to overlook alternative strategies that could have been more conducive to its competitiveness and long-term survival (Sydow et al., 2009, 2020). Despite being a pioneer in digital photography, Kodak's organizational inertia and rigidity due to path dependence prevented it from capitalizing on the potential of digital photography (Munir & Phillips, 2005). Consequently, Kodak persisted with its inefficient strategy until it was ultimately disrupted by digital photography technology, leading to its eventual bankruptcy (Lucas & Goh, 2009). This case shows how path dependence leads a company to persist in inefficient strategy, increasing the risk of organizational failure (Sydow et al., 2009, 2020).

As seen in the case above, path dependence can pose challenges for companies that overly depend on their initial business strategy. It is conceivable that startups heavily reliant on their financing strategy may also experience similar challenges posed by path dependence. Equity crowdfunding, a modern funding source, enables startups to secure capital from a broad base of individual investors via digital platforms by offering a percentage of equity in return (Belleflamme et al., 2014). Initially, startups turned to equity crowdfunding as a last resort. They had run out of internal financial resources but could not access conventional funding sources such as venture capital firms (J. H. Block et al., 2018; Walthoff-Borm et al., 2018). While initially treated as a last resort, the success of startups in procuring external funding through an equity crowdfunding campaign may trigger self-reinforcing mechanisms, leading to reliance on this external financing method (Sydow et al., 2009, 2020; Walthoff-Borm et al.,

2018). This dependency on their initial financing option may cause them to overlook alternative funding sources available to them, some of which may offer superior benefits compared to equity crowdfunding. It is crucial for startups to remain open to these alternatives, as venture capital firms, for instance, offer more than just funding, providing strategic support, expertise, and essential networks crucial for the long-term growth and success of startups (Butticè et al., 2020). Although venture capital firms can also invest through equity crowdfunding platforms, the investment dynamics differ from direct investment in startups. Equity crowdfunding often results in a broader distribution of smaller equity stakes, diminishing the impact of individual investors (Belleflamme et al., 2014; J. H. Block et al., 2018). By heavily depending on equity crowdfunding and dismissing superior alternative funding sources, startups may risk achieving suboptimal outcomes and may increase the likelihood of organizational failure (Sydow et al., 2009, 2020).

Research on path dependence in startup financing is increasingly attracting the attention of scholars (Hirsch & Walz, 2011; Samuelsson et al., 2021; Vanacker et al., 2014). Hirsch and Walz (2011) investigated the life-cycle patterns of a firm's financing decisions and their interaction with its growth and development. They revealed that initial financing decisions have long-term implications on a company's future financing and strategy choice. Vanacker et al. (2014) explored the differences between path-dependent evolution and intentional management of investment ties in science-based firms, particularly focusing on Flemish biotech startups. They found that firms backed by experienced investors are more likely to enter a cycle of accumulating advantages due to professional management's social competence, which enhances their ability to raise capital. Recently, Samuelsson et al. (2021) investigated how path dependence influences the capital structures of new ventures, particularly focusing on the three most common external funding sources: subsidies, debt, and equity. They found strong evidence of path dependence across all three funding sources, with ventures tending to continue using their initial funding source. The effect of path dependence was strongest for equity funding. These studies highlight the important role of initial funding in influencing subsequent financing.

However, while Samuelsson et al. (2021) have offered valuable insights on path dependence in startup financing, they have also recognized a limitation in their research. Specifically, their data sample lacked startups that initially received funding from equity crowdfunding, highlighting a prominent research gap in the literature regarding path dependence in startup financing, particularly for startups that initially received funding from equity crowdfunding. Given the potential challenges faced by startups heavily reliant on equity crowdfunding as an external funding source, coupled with the growing prevalence of equity crowdfunding as a funding source for startups (Ahlers et al., 2015; Ralcheva & Roosenboom, 2016), it is imperative to undertake research that explores whether startups' initial external financing from equity crowdfunding leads to path dependence in their subsequent financing. Failing to understand this dynamic could lead to missed opportunities or missteps for researchers, entrepreneurs, and investors navigating the startup financing landscape. Therefore, this study is essential for advancing our understanding of the potential long-term implications of initial external financing from equity crowdfunding on the startup financing path, which may have further implications on startup growth and sustainability.

1.2. Research Objectives and Questions

This study aims to explore whether startups' initial external financing from equity crowdfunding leads to path dependence in their subsequent financing. This study seeks to build a foundation for further research within this topic. The following main research question is formulated:

Does startups' initial external financing from equity crowdfunding lead to path dependence in their subsequent financing?

In order to answer the main research question, this study defined some sub-research questions (SRQs), as follows:

SRQ 1: What self-reinforcing mechanisms that are relevant in the path dependence process in equity-crowdfunded startup financing?

SRQ 2: How does the startups' initial external financing from equity crowdfunding lead to path dependence in their subsequent financing?

SRQ 3: How does the pattern of path dependence in equity-crowdfunded startup financing?

1.3. Research Relevance and Contributions

This study directly addresses a gap in the body of literature by expanding the application of Organizational Path Dependence Theory to the domain of equity-crowdfunded startup financing (Sydow et al., 2009). While path dependence has been extensively studied in other organizational contexts, and previous studies have investigated it in startup financing, its influence on the financing path of equity-crowdfunded startups remains underexplored. By applying this theory to the context of equity-crowdfunded startup financing, this research contributes to a more comprehensive understanding of how early external financing can shape the financing path of startups as they grow. To the best of our knowledge, this study is the first to explore the phenomenon of path dependence within the context of equity-crowdfunded startup financing. Thus, this research fills a critical gap in the existing literature and opens up new avenues for future research. By demonstrating the relevance and applicability of Organizational Path Dependence theory in this topic, this study lays the groundwork for further investigations into the long-term implications of initial external financing from equity crowdfunding on startup financing path and performance.

1.4. Research Approach

This study aims to address the main research question and achieve the research objective using an exploratory approach. Exploratory studies are particularly useful for investigating new or under-researched topics with limited information in the existing literature (Stebbins, 2001). To the best of our knowledge, this study is the first to explore the topic of path dependence in equity-crowdfunded startup financing. Therefore, an exploratory approach is suitable for obtaining initial findings, identifying patterns, and forming hypotheses for further research on this topic (Stebbins, 2001). Moreover, this study analyzes secondary data covering equity crowdfunding campaign characteristics, startup financing characteristics, and startup profiles collected from three platforms (i.e., Crowdcube, Crunchbase, and the UK Company House). Then, this study will address sub-research questions (SRQs) through a literature review, which will be presented in the summary section of Chapter 2.

This study, which focuses on path dependence in equity-crowdfunded startup financing, is set within the institutional context of British startups. The rationale behind this choice is the prevalence of equity crowdfunding among British startups and the accessibility of data. Equity crowdfunding has become a significant part of the entrepreneurial financial ecosystem in the United Kingdom, supported by a favorable regulatory and tax environment, which has certainly contributed to its widespread adoption among British startups (Estrin et al., 2018). This institutional setting provides a rich and relevant context for this study. This study explores the financing paths of 74 British startups that initially received external financing from equity crowdfunding via Crowdcube platform between 2013 and 2018. Specifically, this study analyzes the financing paths of these startups across three funding rounds to determine if there is a discernible pattern of path dependence characterized by a consistent reliance on external funding from equity crowdfunding throughout their financing journey (Sydow et al., 2009, 2020).

1.5. Research Findings

This exploratory study finds that the 74 startups that initially received external financing from equity crowdfunding followed 20 different financing paths. A total of 27 startups (36.49%) persisted in obtaining external financing from equity crowdfunding in their subsequent funding rounds, and this was the most dominant financing path among these startups. Meanwhile, the other 47 startups followed 19 other financing paths with a wide frequency distribution. These findings suggest that startups initially receiving external financing from equity crowdfunding tend to seek external financing from equity crowdfunding in subsequent financing rounds, implying a potential path dependence on equity-crowdfunded startup financing.

2

Literature Background

The previous chapter provides an overview of the practical issues and gaps in the academic literature that inspired this master's thesis project. Then, this chapter proceeds with a literature review related to the topic and context of this study, serving as a foundation for shaping this research. It commences by explaining equity crowdfunding to offer an understanding of this relatively recent form of financing among startups. Additionally, it elaborates on the theory of organizational path dependence, the primary underpinning of this study, employed to analyze the research findings. It also explains how a startup's initial external financing from equity crowdfunding leads to path dependence in its subsequent financing from the organizational path dependence theory perspective, identifying relevant self-reinforcing mechanisms in equity-crowdfunded startups. Finally, this chapter's summary section addresses this study's sub-research questions.

2.1. Equity Crowdfunding

Equity crowdfunding is an innovative form of startup financing where startups, through online platforms, can raise additional funds by giving up some equity stakes to crowd investors. Unlike traditional venture capital or angel investing, equity crowdfunding democratizes access to investment opportunities by allowing a larger, more diverse pool of investors to participate, often with lower minimum investment thresholds. This process broadens the investor base and potentially mitigates geographical and socioeconomic barriers traditionally associated with venture financing (D. Cumming et al., 2021; Vulkan et al., 2016). Equity crowdfunding platforms streamline the investment process by providing standardized contracts and reducing due diligence complexity, making it more accessible for investors and entrepreneurs. The platforms also leverage social networks and digital communication to facilitate information sharing and trust-building between startups and investors (Estrin et al., 2018). This democratization effect is particularly significant in contexts where traditional funding routes may overlook innovative ventures due to a lack of networks (D. Cumming et al., 2021; Hornuf & Schwienbacher, 2018).

Furthermore, unlike other types of crowdfunding, where backers receive perks or pre-purchase products, equity crowdfunding investors receive a stake in the company's future profits (Hornuf & Schwienbacher, 2018). The process typically begins with the startup preparing a comprehensive business plan and financial forecast, which is then reviewed by the crowdfunding portal before the campaign goes live (Hornuf & Schwienbacher, 2018). Investors can participate in the campaign by pledging funds in exchange for equity shares (Hornuf & Schwienbacher, 2018). The allocation of these securities can follow different mechanisms, including first-come, first-served (FCFS) or auction-based systems, each influencing investor behavior and campaign dynamics differently (Belleflamme et al., 2015; Hornuf & Schwienbacher, 2018). Under an all-or-nothing model, campaigns must reach a predefined funding target to be considered successful. If the startups fail to meet the predefined target, the pledged funds will be returned to investors (D. J. Cumming et al., 2020). This model ensures that only sufficiently funded projects move forward, mitigating the risk of underfunded ventures (D. J. Cumming et al., 2020).

Equity crowdfunding has attracted a diverse array of investors characterized by varying motivations and investment behaviors. Investors in equity crowdfunding platforms can range from small-scale, non-professional backers driven by non-financial motivations, such as supporting innovative ideas, to more sophisticated investors seeking financial returns (Belleflamme et al., 2015). While non-professional investors often contribute smaller amounts, their collective impact can rival institutional investors. However, the influence of individual investors on startups' strategic decisions is often diminished in this type of financing. Equity crowdfunding engages a larger pool of investors with a wider distribution of smaller equity stakes, typically leads to a lower degree of direct involvement in business decisions than the direct investment of traditional venture capitalists or angel investors, who might demand significant control and oversight in exchange for their investment (Belleflamme et al., 2015). This allows startups greater autonomy in their operational and strategic choices, fostering an environment where entrepreneurial creativity and flexibility can thrive (J. H. Block et al., 2018).

2.2. Organizational Path Dependece Theory

Organizational path dependence theory explains how historical decisions and actions can shape and constrain the future development of an organization. Path dependence in an organization involves a process where initial choices or events set off a self-reinforcing mechanism that leads to the development of a particular path, which becomes increasingly difficult to deviate from over time (Sydow et al., 2009). Additionally, Sydow et al. (2009) subdivides the path dependence processes into three phases: preformation, formation, and lock-in. Initially, the Preformation Phase features various options and unpredictable outcomes, influenced by existing routines and institutional heritage. The transition to the Formation Phase occurs when a critical event or decision triggers self-reinforcing processes (e.g., coordination effects, complementarity effects, learning effects, adaptive expectation effects, and network tie effects), leading to the gradual dominance of a specific action pattern and narrowing of alternatives. Finally, the Lock-in Phase is marked by the entrenchment of this dominant pattern, making altering to alternative solutions economically infeasible, potentially leading to inefficiencies due to neglecting better solutions (Sydow et al., 2009), and increasing organizational inertia, potentially making it difficult to adapt to new circumstances or challenges (Koch, 2011).

The organizational path dependence theory emphasizes the significance of historical factors and the presence of self-reinforcing mechanisms that significantly influence the development of a particular organizational path. Sydow has identified five self-reinforcing mechanisms that are relevant in organizational path dependence. Coordination effects emerge when the widespread adoption of specific rules or routines among organizational members enhances efficiency, thereby reducing coordination costs and promoting predictable interaction (North, 1990). Complementarity effects occur when the synergistic combination of interrelated resources or practices results in greater benefits than their separate utilization, creating a reinforcing pattern of interdependent activities (Pierson, 2000; Stieglitz & Heine, 2007). Learning effects suggest that repeating actions increases efficiency and skill, making the initially chosen solutions more appealing over time and discouraging the shift to new alternatives (Argote, 1999; March, 2006). Additionally, adaptive expectations effects establish a self-reinforcing feedback loop wherein anticipated future behaviors based on past experiences influence current decisions. As expectations and behaviors continue to align, the organization becomes increasingly committed to the existing path (Sydow et al., 2020).

2.3. Path Dependence in Equity-Crowdfunded Startups' Financing

This study uses the framework of organizational path dependence to explore the path dependence in equity-crowdfunded startup financing. As explained in the previous section, the framework states that the path dependence process can be seen as three phases (Sydow et al., 2009). In the preformation phase, startups face a broad spectrum of potential external financing sources such as angel investors, venture capital firms, crowdfunding, grants, subsidies, incubators, and accelerators (Eisenmann, 2020). However, some startups may not have access to all these financing sources. Investors often struggle to accurately assess the quality of startups, which can lead them to avoid investing in some startups perceived as high risk or low quality (Hirsch & Walz, 2019). Therefore, these startups, which require additional external financing but cannot access sophisticated investors, eventually seek external financing through equity crowdfunding as a last option (Walthoff-Borm et al., 2018). Although influenced by immediate constraints, this initial funding choice, perceived as a critical juncture, marks the end of the preformation phase and sets off self-reinforcing processes that play a crucial role in the financing path development in equity-crowdfunded startups (Sydow et al., 2009).

During the formation phase, self-reinforcing mechanisms begin to narrow the startup's financing option, driving them towards a specific financing path (Sydow et al., 2009). In his research, Samuelsson et al. (2021) outlined three self-reinforcing mechanisms contributing to financing path development in equity-funded startups: learning, adaptive expectations, and network-tie effects (Samuelsson et al., 2021). While equity crowdfunding falls under equity financing, this study identifies that network-tie effects are irrelevant in the financing path development of equity-crowdfunded startups. As previously discussed in Section 2.1, equity crowdfunding involves a larger and more diverse group of investors, each holding only a small percentage of shares (Belleflamme et al., 2015). Consequently, the influence of individual investors on the startup's strategic and financing decisions is minimal. Therefore, network-tie effects are deemed irrelevant in the financing path development of equity-crowdfunded startups. This study identifies two self-reinforcing mechanisms in relation to this context: learning effects and adaptive expectation effects.

Learning effects suggest that repeated engagement in an activity leads to accumulating knowledge and expertise within an organization, and the organization can do the activity more efficiently and effectively (Argote, 1999; March, 2006). This is particularly relevant in startups choosing equity crowdfunding as their funding source in the first financing round. By engaging in equity crowdfunding campaigns, startups accumulate experience and insights that enable them to attract crowd investors efficiently and effectively. Under the all-or-nothing model, startups must secure capital pledged by investors of at least a predetermined funding target to receive funding (D. J. Cumming et al., 2020). Achieving this entails crafting compelling campaigns and leveraging credible signals, such as human capital and detailed financial information (Ahlers et al., 2015; J. Block et al., 2018; Ralcheva & Roosenboom, 2020). Through repeated participation in equity crowdfunding, startups gain the competence to create engaging campaigns that capture investor interest. Consequently, alternative funding sources become less appealing, as pursuing them would necessitate starting anew in terms of knowledge accumulation - an economically infeasible prospect for startups (Sydow et al., 2009).

Entrepreneurs base their expectations of future events on past experiences and observed outcomes (Shane & Venkataraman, 2000). For example, they choose equity crowdfunding as their first external funding source in the first funding round as a last resort due to the inability to access other funding sources, and they see that other startups can secure external financing from this source of financing (Mollick, 2014; Walthoff-Borm et al., 2018). Their initial expectation and decision to pursue external funding through equity crowdfunding inadvertently shape their expectations of success in obtaining funding through this source (Agrawal et al., 2015). If they successfully secure funding through equity crowdfunding, it validates their previous expectations and positively influences their future outlook on equity crowdfunding (D. J. Cumming et al., 2020).

Furthermore, entrepreneurs examine the composition of investors who have contributed to their startup through equity crowdfunding investment, particularly whether large investors are involved. The presence of large investors negatively impacts their expectations of equity crowdfunding, leading them to believe that the financing source may be irrelevant since they can attract sophisticated investors (Ralcheva, 2023; Vismara, 2016). Consequently, they may seek backing from more sophisticated investors in subsequent funding rounds. On the other hand, if their startup attracts small and unsophisticated investors, this outcome will contribute positively to their expectations of equity crowdfunding (Ahlers et al., 2015). Over time, these adaptive expectations act as a self-reinforcing mechanism, significantly shaping the financing path of equity-crowdfunded startups. Consequently, this phenomenon leads to path dependence, reducing the likelihood of deviations from an established financing path on equity crowdfunding and limiting consideration of alternative financing sources (Sydow et al., 2009, 2020).

During the lock-in phase, equity-crowdfunded startups are effectively restricted to the equity crowdfunding path, which makes deviating increasingly difficult. The costs and risks of switching to other financing methods become prohibitively high. The startup's accumulated experience with equity crowdfunding platforms and their reinforced expectation of equity crowdfunding make alternative financing sources less attractive and uncertain. As a result, the startup continues to raise the required additional capital through equity crowdfunding platforms.

2.4. Summary

In this summary section, all sub-research questions in this study will be addressed based on the literature review presented in this chapter. Regarding the first sub-research question (SRQ 1), this study identified that learning effects and adaptive expectation effects are relevant self-reinforcing mechanisms to the path dependence process in equity-crowdfunded startup financing (Belleflamme et al., 2014; Samuelsson et al., 2021; Sydow et al., 2009, 2020). Moreover, in response to the second sub-research question (SRQ 2), startups choose equity crowdfunding as a last resort in their initial external funding round. This decision triggers self-reinforcing mechanisms, specifically learning and adaptive expectation effects. Subsequently, these mechanisms generate a positive feedback loop influencing the development of the financing path of the startups, reducing the attractiveness of other external financing sources over time and limiting the selection of equity crowdfunding as a viable financing source due to the high switching costs associated with other options (Samuelsson et al., 2021; Sydow et al., 2009, 2020; Walthoff-Borm et al., 2018). Lastly, addressing the third sub-research question (SRQ 3), this study has identified that the pattern of path dependence in the financing path of equity-crowdfunded startups is that there is a persistent pattern of acquiring external financing from equity crowdfunding along their financing path (Sydow et al., 2009, 2020).

3

Research Methodology

This chapter presents how this research achieved the research objectives by elaborating on the research approach, data collection method, selection criteria, and analysis method. The explanation in this chapter provides an understanding to the reader about how this study obtained research results to answer the main research question, provide additional insight into this topic, and achieve the research objectives. At the end of this chapter, a summary section summarizes important information to make it easier for readers to understand the research approach of this study in a short time.

3.1. Research Approach

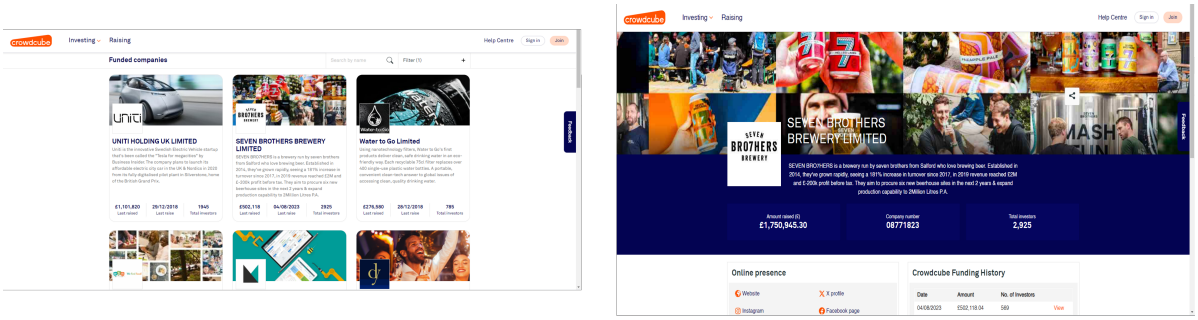
In order to achieve the research objective of exploring whether startups' initial external financing from equity crowdfunding leads to path dependence in their subsequent financing, this study used an exploratory approach based on secondary quantitative data. Adopting an exploratory approach is deemed suitable for this research as path dependence in equity-crowdfunded startup financing remains underexplored. As a result, there is a lack of knowledge in this area. This method enables the study to gain valuable insights, identify patterns, and formulate hypotheses for future investigations (Stebbins, 2001). Furthermore, this study chose British startups as the institutional setting because equity crowdfunding has become a common source of external funding among British startups, and the data is accessible. Equity crowdfunding has become an important part of the entrepreneurial financial ecosystem in the United Kingdom, supported by a favorable regulatory and tax environment, which has certainly contributed to widespread adoption among British startups (Estrin et al., 2018).

3.2. Data Collection

This section explains the data collection carried out by this study to achieve the objectives of this research. This study, to answer the main research question, required data on British startups that have received external funding from equity crowdfunding along with data on equity crowdfunding campaign characteristics and historical financing characteristics. This study required data about equity crowdfunding campaign characteristics to see whether there are patterns from the campaign related to path

dependence in these equity-crowdfunded startup financing. Moreover, historical financing characteristics data from these startups is very important because, with these data, this study could see the pattern of external funding that these startups have carried out. Thus, this study collected the necessary data from three different databases that complement each other: Crowdcube (equity crowdfunding platform), Crunchbase (business insight platform), and the UK Company House (British government platform).

Considering that the institutional setting of this study is British startups, there is a choice of 30 equity crowdfunding platforms operating in the United Kingdom as data sources. However, of these platforms, only three platforms hold a European Crowdfunding Service Provider (ECSP) license from the European Union (EU), namely Crowdcube, Seedrs, and Engel & Völkers Digital Invest (CrowdSpace, 2024). This study eventually chose Crowdcube as the data source because it is easy to access the data, and creating an account on the platform is unnecessary. Besides that, Crowdcube is also a prominent equity crowdfunding platform that has helped hundreds of startups in the United Kingdom raise funds successfully. In 2021 alone, Crowdcube facilitated 234 equity crowdfunding campaigns with a total volume amount raised of 198 million pounds, while Seedrs only had 126 million pounds (Beauhurst, 2022).



(a) (b)

Figure 3.1: Crowdcube interface: (a) page showing a list of funded companies in a particular year (b) page showing campaign details of a funded company

This study obtained a list of British startups that have conducted equity crowdfunding campaigns from the Crowdcube platform. Moreover, this study only collected a list of startups that carried out equity crowdfunding campaigns from 2013 to 2018 because it was taken into account that there was sufficient time for these startups to obtain further funding after the equity crowdfunding round. Data collection from this platform is carried out manually for each startup, starting from funding in 2013 and continuing to 2018. Data from this platform includes the names of startups, registration numbers registered on the UK Company House platform, industry of the startup and equity crowdfunding campaign characteristics data, including funding date, funding target, funding raised, equity issued, number of investors, and pre-money valuation. Throughout this data collection, this study gathered a list of 495 startups that have conducted equity crowdfunding campaigns on Crowdcube between 2013 and 2018. Figure 3.1 shows an example of the interface of the Crowdcube platform where this study took this data.

Furthermore, this study required additional data in the form of historical financing characteristics of each startup to complement the data previously collected from the Crowdcube platform. There are two platforms that could be used as data sources to obtain this data: Crunchbase and Pitchbook. Both platforms can be relied on to provide information about startups, funding, and investors. However,

compared to Pitchbook, Crunchbase has two main advantages: more user-friendly and cost-effective subscription options, making Crunchbase more accessible. Thus, this study chose Crunchbase as the data source to obtain the data needed. Additionally, researchers frequently rely on Crunchbase data to analyze investment behaviors. The financing data on this platform is self-reported by companies and their representatives. However, Crunchbase also employs a data verification team and leverages automated data collection methods to enhance the accuracy and completeness of its database.

The process of collecting data from the Crunchbase platform involved manual work. Through the data collection process from the Crowdcube platform, this study obtained a list of the names of startups and their registration numbers on the UK Company House platform. These data are important for looking for additional data from the Crunchbase platform and the UK Company House. However, Crunchbase does not record company registration number data, so to get additional data from this platform, this study could only use the startup's name as a keyword in data searching process. Unfortunately, this study found slight differences in the startup names recorded on Crowdcube and Crunchbase. Therefore, in searching for startups on Crunchbase, this study was very careful, looking at each company individually. To confirm the accuracy of the startup being sought, this study determines whether an equity crowdfunding round is recorded on Crowdcube in the startup's historical financing data recorded on Crunchbase. If this has been confirmed, then this study will be confident regarding the accuracy of the search. Then, this study collected data such as the type of investor in each financing round and the date of the financing round. Figure 3.2 shows the interface of Crunchbase, where this study obtained this data.

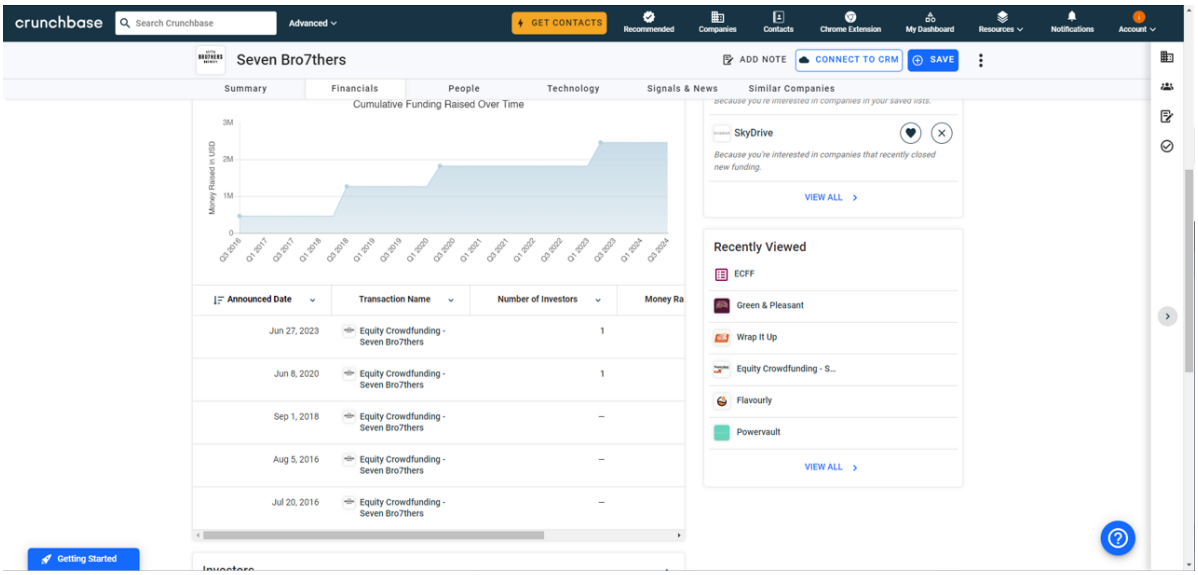


Figure 3.2: Crunchbase financial information interafce

Furthermore, the final part of the data collection process for this study was collecting data from the UK Company House platform. The UK Company House is a British government agency structurally under the Department for Business and Trade. This institution provides a platform to maintain the UK's Register of Companies and the Register of Overseas Entities. This study used this platform to obtain data on the company status and the incorporation date of British startups because this platform provides precise and accurate data. Similar to the data collection process from the two previous platforms,

the data collection process on this platform is also carried out manually. The process of searching for startups on this platform was by using the registration number of the startup obtained from the Crowdcube platform. Figure 3.3 shows an example of the interface from the UK Company House platform.

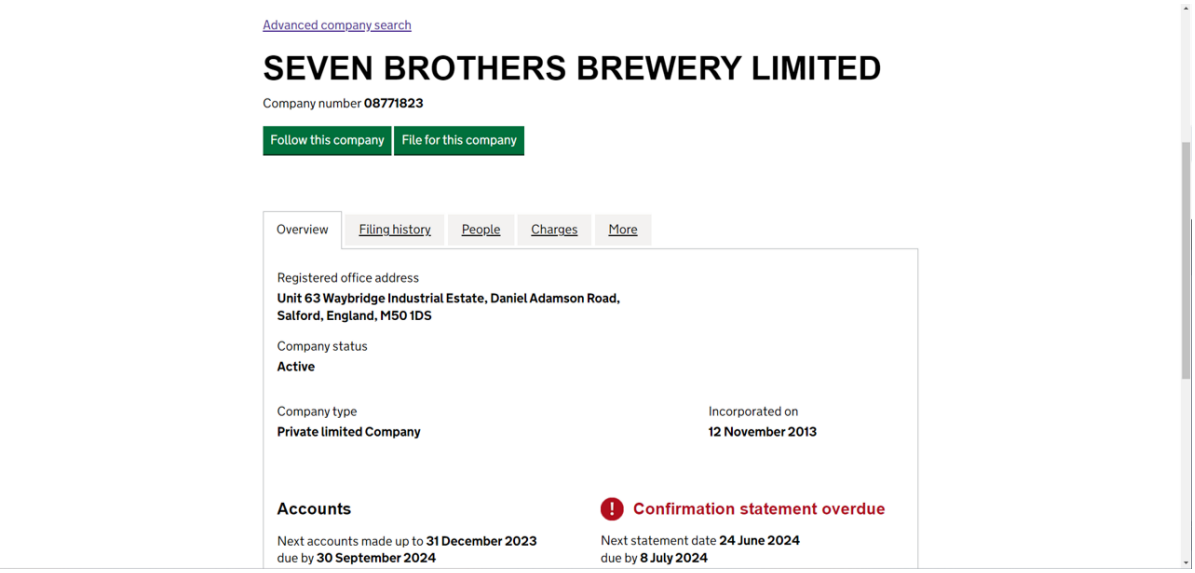


Figure 3.3: The interface of the UK Company House platform

After the explanation above regarding the data collection methods carried out by this study, Table 3.1 summarizes what kind of data was collected during the data collection process of this study.

Table 3.1: The summary of data collected

Platform	Data
Crowdcube	Startup Name
	Company Registration Number
	Startup Industry
	Equity Crowdfunding Campaign Characteristic (i.e., funding date, funding target, funding raised, number of investors, equity issued, pre-money valuation)
Crunchbase	Historical Financing Characteristics (i.e., financing round dates and investor types)
The UK Company House	Incorporation Date
	Company Status

3.3. Selection Criteria

Furthermore, throughout the data collection process explained in the previous section, this study collected data on 495 startups that received funding from equity crowdfunding via the Crowdcube platform from 2013 to 2018. However, most of these startups have less than three funding rounds. Then, this study chose selection criteria, one of which is that the startup has at least three funding rounds. This

criterion is the most optimal because there are a sufficient number of startups to be analyzed and adequate to provide an insight of the financing path of these startups. In addition, the terms often used to describe startup financing rounds are pre-seed, seed, series A, series B, etc. However, this study found it difficult to obtain such detailed information. Therefore, this study simplified the terminology of funding rounds into the first, second, and third rounds, where the first round is the funding round where the startup obtains external funding for the first time, followed by the second and third rounds. Therefore, to answer the main research question and achieve the objectives of this research, this study selected data from raw data previously collected to support the main analysis of this study. In addition, this study also wants to provide additional insight through additional analysis. Thus, this section explains how this study created three subsets of data to support these two analyses and explains the selection criteria used.

The first data subset included startups that have experienced at least three funding rounds regardless the financing source in the first round. There were 137 startups out of 495 startups that meet this criteria and are included in the first data subset. Table 3.2 below shows a snapshot of the first 10 data from this second data subset.

Table 3.2: The snapshot of the first 10 data from the second data subset

Startups	First Round	Second Round	Third Round
Seven Bro7thers	ECF	ECF	ECF
Homefans	ECF	ECF	Eccelerator
Daily Dose	ECF	ECF	VC
Cocoon	ECF	Accelerator	VC
Le Col	ECF	PE	PE
GoHenry	BA	ECF	ECF
Rise Art	BA	ECF	BA
Zero Carbon Farms	VC	ECF	ECF
Chirp	VC	VC	BA
Molecular Warehouse	VC	Grant	ECF

Note: First Round, Second Round, and Third Round shows investor type of this startups recived funds from in a particular financing round. ECF stands for Equity Crowdfunding, BA stands for Business Angels, PE stands for Private Equity Firms, and VC stands for Venture Capital Firms.

Furthermore, the second data subset is subset of the first data subset. The additional selection criteria used was only including startups that received external funding from equity crowdfunding in their first funding round. There were 74 startups out of a total of 137 startups that met this selection criteria. Table 3.3 below shows a snapshot of the first 10 data from this first data subset.

Table 3.3: The snapshot of the first 10 data from the first data subset

Startups	First Round	Second Round	Third Round
Seven Bro7thers	**ECF**	ECF	ECF
Doctaly	**ECF**	ECF	Accelerator
Cocoon	**ECF**	Accelerator	VC
Clippings	**ECF**	VC	VC
Gunna Drinks	**ECF**	ECF	ECF
Vita Mojo	**ECF**	Accelerator	VC
Le Col	**ECF**	PE	PE
Classlist.com	**ECF**	BA	BA
Renovagen	**ECF**	Grant	ECF
Lux Rewards	**ECF**	Incubator	ECF

Note: First Round, Second Round, and Third Round shows investor type of this startups recived funds from in a particular financing round. ECF stands for Equity Crowdfunding, BA stands for Business Angels, PE stands for Private Equity Firms, and VC stands for Venture Capital Firms.

Lastly, The third data subset is the subset of the second data subset. The additional selection criteria was including startups that persistent on ECF across three funding rounds. There are 27 startups of 74 startups that met these criteria and were included in the third data subset. Table 3.3 below shows a snapshot of the first 10 data from this third data subset.

Table 3.4: The snapshot of the first 10 data from the second data subset

Startups	First Round	Second Round	Third Round
Seven Bro7thers	**ECF**	**ECF**	**ECF**
ioLight	**ECF**	**ECF**	**ECF**
London Doctors Clinic	**ECF**	**ECF**	**ECF**
Chip	**ECF**	**ECF**	**ECF**
nHouse	**ECF**	**ECF**	**ECF**
Stem + Glory	**ECF**	**ECF**	**ECF**
Fullgreen	**ECF**	**ECF**	**ECF**
Wombat	**ECF**	**ECF**	**ECF**
The Small Robot Company	**ECF**	**ECF**	**ECF**
NOVELTEA	**ECF**	**ECF**	**ECF**

Note: First Round, Second Round, and Third Round shows investor type of this startups recived funds from in a particular financing round. ECF stands for Equity Crowdfunding.

3.4. Analysis Method

The previous section explained how this study created three data subsets from the collected data for analysis purposes. Then, this section describes how this study analyzed the three data subsets to gain relevant insight for answering the main research question and gain additional insight into this topic. There were two analyses in this study, the main analysis and the additional analysis, which will be explained further in the subsections of this section. Additionally, all statistical tests in this study used JASP software version 0.18.3.0. This statistical software program was first developed at the University of Amsterdam and is open-source. This study chose this software because it has an intuitive graphical user interface, making it easy to use and interpret the results. In addition, this software has been used widely and by at least 290 universities across 67 different countries (JASP, 2024).

3.4.1. Main Analysis

The main analysis of this study aimed to obtain insights to answer the main research question. This analysis incorporated the first and second data subsets. Moreover, there were two types of analysis in this main analysis: last resort and financing path analyses. In this subsection, these two analyses will be explained in more detail.

Last Resort Analysis

The first main analysis in this study is the last resort analysis. This analysis explored whether startups choose equity crowdfunding as a last resort in their first funding round. This study used startup age as a proxy to see whether startups choose equity crowdfunding as a last resort. As discussed in Chapter 2, according to Walthoff-Borm et al. (2018), startups choose equity crowdfunding after trying to get funding from other sources but were unsuccessful. That way, these startups need a longer time to get their external funding until they finally get their first external funding from equity crowdfunding. Therefore, this study considered startup age relevant as a proxy for the analysis. The variable ”Age” measures the age of the startup at the time of the first funding round in days by subtracting the incorporation date from the first financing round date.

Furthermore, the analysis method used was comparative, where this study compared the ”Age” variable between groups of startups that received their first external funding from equity crowdfunding and groups of startups that received their first external funding from other funding sources. This analysis used the first data subset, which included 137 startups with at least three funding rounds regardless of financing sources in their first round. In carrying out this comparative analysis, this study used the independent samples Student’s T-Test to see the difference in mean of the variable ”Age” between these two groups. This test assumes that the data follows a normal distribution and homogeneity of variance between these two groups. Therefore, for the variable ”Age” to meet these assumptions, this study carried out a natural logarithmic transformation on this variable.

Financing Path Analysis

The second main analysis is financing path analysis. This analysis explored the financing path patterns of startups that received external financing from equity crowdfunding in their first funding round. This analysis incorporated the second data subset, which included 74 startups that received external financing from equity crowdfunding in their first funding round and had at least three funding rounds, to analyze the financing path pattern followed by these startups. As discussed in Chapter 2, the pattern

of path dependence can be seen from the repeated use of past solutions in the subsequent conditions, even when the new circumstances are not the same as when the solution was first used (Sydow et al., 2009). In this context, the pattern considered path dependence was when startups, after receiving external financing from equity crowdfunding in their first funding round, then these startups persisted in equity crowdfunding in their subsequent funding rounds. This study explored the financing path patterns of these startups using a simple statistical method, descriptive statistics. By doing so, this study could see which financing path patterns are predominant among these startups.

3.4.2. Additional Analysis

The additional analysis of this study aimed to obtain additional insight on this topic. This analysis consists of company status analysis, industry analysis, and equity crowdfunding campaign characteristics analysis, which will be described in more detail in this subsection. The additional analyses used the third data subset, which included 27 startups that received external financing from equity crowdfunding across three funding rounds. However, one startup in the third data subset had incomplete equity crowdfunding campaign characteristics data, so this startup was excluded from the equity crowdfunding campaign characteristics analysis. Thus, this analysis only includes 26 out of 27 startups from the third data subset. However, the startup was still included in the company status and industry analysis because the company status and industry data for this startup were complete.

Company Status Analysis

The first additional analysis was the company status analysis. This analysis explored the company status of startups that showed a path dependence pattern in equity crowdfunding across three consecutive funding rounds. As explained in the data collection method section, the company status data comes from the UK Company House. Table 3.5 shows company statuses and their definitions for the company statuses found in the third data subset only. In addition, This analysis used a simple statistical method, descriptive statistics, to see the company status patterns of these startups.

Table 3.5: The company statuses provided by the UK Company House

Company Status	Description
Active	The company is currently operational and compliant with filing requirements.
Liquidation	The company is in the process of being liquidated. This can be due to insolvency or voluntary liquidation by the company's member.
In Administration	The company is under the control of an administrator who is managing the company to repay creditors.
Dissolved	The company has been officially closed and removed from the UK Company House register.

Note: This table includes definitions of company status found in the subset of data used in additional analysis only.

Industry Analysis

The second additional analysis was the industry analysis. This analysis explored the industry of startups that showed a path dependence pattern in equity crowdfunding across three consecutive funding

rounds. As explained in the data collection method section, the industry of the startup comes from the Crowdcube platform. This analysis used descriptive statistics to see the industry pattern of these startups. Crowdcube uses 18 industry categories to categorize equity crowdfunding campaigns as follows:

1. Advertising, marketing & promotion
2. Analytics, Ai, data, Bi, automation and robotics
3. Apparel & accessories, home, personal
4. Automotive, transport and mobility
5. Building, property & land management
6. Business Services, IT & Telecoms
7. Education and training
8. Energy and renewables
9. Entertainment & media
10. Financial services & payments
11. Fitness & sports
12. Food & beverage (FMCG)
13. Healthtech & healthcare
14. Legal, compliance and security
15. Leisure, hospitality & tourism
16. Lifesciences & biotech
17. Manufacturing/R&D
18. Restaurants, cafes and bars

Equity Crowdfunding Campaign Analysis

The third additional analysis was the equity crowdfunding campaign characteristics analysis. This analysis explored significant differences in means of the campaign characteristics of startups that showed a path dependence pattern in equity crowdfunding across three funding rounds between campaigns in the first and second rounds. Table 3.6 below shows the variables of equity crowdfunding campaign characteristics used in this analysis.

Table 3.6: The variables of equirty crowdfunding campaign characteristics

Variables	Description
Funding Target (£)	Funding target is a variable that measures the amount of funds in Pounds that the startup targets to obtain in an equity crowdfunding campaign.
Funding Raised (£)	Funding raised measures the amount of funds in Pounds obtained by a startup from crowd investors in an equity crowdfunding campaign.
Number of Investors	Number of investors measures the number of crowd investors who participate in investing their funds in a startup in an equity crowdfunding campaign.
Equity Issued (%)	Equity issued measures the percentage of shares issued by a startup to investors in an equity crowdfunding campaign.
Pre-Money Valuations (£)	Pre-money valuation measures the valuation of a startup before an equity crowdfunding campaign begins.
Average Investment (£)	Average investment measures the average amount of pounds investors invest in a startup in an equity crowdfunding campaign. This variable is obtained by dividing the funding raised variable by the number of investors variable.

This analysis incorporated a comparative analysis. This analysis compared the variables mentioned above in the first and second funding rounds of startups that show a path dependence pattern in equity crowdfunding across three consecutive financing rounds. This analysis incorporated the paired sample Student T-Test as the statistical testing method to see the difference in means. The testing method assumes the data follows a normal distribution and has equal variances between groups. Thus, this study transformed these variables using natural logarithmic transformation before statistical testing. This transformation could help normalize the data distribution and make variances more consistent. However, the ”Equity Issued” variable was not subjected to this transformation because this variable met both of the test's assumptions.

3.5. Summary

This study used an exploratory approach to achieve the objective of this research, which is to explore whether startups' initial external financing from equity crowdfunding leads to path dependence in their subsequent financing rounds. This approach was chosen due to limited research on path dependence in equity-crowdfunded startup financing. So, this study can identify patterns and create hypotheses for further research (Stebbins, 2001). This study focused on the institutional context of British startups, as equity crowdfunding is a prevalent and accessible source of external financing in the United Kingdom (Estrin et al., 2018). This study collected data on 495 British startups that have received external funding from equity crowdfunding via the Crowdcube platform from 2013 to 2018. This study collected data from three databases (i.e., Crowdcube, Crunchbase, and the UK Company House), encompassing the equity crowdfunding campaign characteristics, historical financing characteristics, and company data such as incorporation date, company status, and industry category.

Furthermore, this study found that it was difficult to obtain detailed information about the funding rounds of these startups. Therefore, instead of using general terms such as pre-seed, seed, Series A, and Series B, this study simplified the funding rounds with the first, second, and third rounds. Then, this study created three subsets of data to support the analyses in this study. The first subset of data used selection criteria, which only included startups that have three funding rounds, regardless of external funding sources in the first funding round. There were 137 startups out of 495 startups included in the first data subset. The second data subset was a data subset of the first data subset with additional selection criteria, which only included startups that received external funding from equity crowdfunding in their first funding round. 74 of the 137 startups were included in the second data subset. Moreover, the third data subset was a data subset of the second data subset with additional selection criteria, which only included startups that received external funding from equity crowdfunding in their three funding rounds. 27 out of 74 startups met these criteria and were included in the third data subset.

This study divided the analysis into two parts: main analysis and additional analysis. The main analysis aimed to obtain insight to answer the main research question; While the additional analysis aimed to get additional insight into this topic. Additionally, all statistical tests in this study used JASP software version 0.18.3.0, the latest software version. This statistical software program was first developed at the University of Amsterdam and is open-source. This study chose this software because it has an intuitive graphical user interface, making it easy to use and interpret the results. In addition, this software has been used widely and by at least 290 universities across 67 different countries (JASP, 2024).

Moreover, there were two main analyses: the last resort analysis and the financing path analysis. The first main analysis was the last resort analysis, which used the first subset of data. This analysis explored whether startups chose equity crowdfunding as a last resort in their first funding round. This study used the variable ”Age,” which measures the age of the startup at the first funding round, as a proxy in this analysis. This analysis used a comparative method that compares the ”Age” variable between startups that received their first external funding from equity crowdfunding and startups that received it from other external funding sources using the independent samples Student T-Test statistical testing method. This testing method assumes that the data follows a normal distribution and homogeneity of variance between these two groups. Thus, this study transformed the variable ”Age” using natural logarithmic transformation so that this variable met these assumptions.

Moreover, the second main analysis was the financing path analysis, which used the second data subset. This analysis explored the financing path patterns of startups that received external financing from equity crowdfunding in their first funding round. In the context of this analysis, the pattern considered path dependence was when startups, after receiving external funding from equity crowdfunding in their first round, then these startups persisted in equity crowdfunding in their subsequent funding rounds (Sydow et al., 2009, 2020). The analytical method used in this analysis was descriptive statistics to see the financing path patterns of these startups.

This study had three additional analyses: the company status, industry, and equity crowdfunding campaign characteristic analyses. All of these additional analyses use the third data subset. The company status and industry analyses explored the company status and industry of startups that showed a pattern of path dependence on equity crowdfunding in their financing path. These analyses used descriptive statistics to explore a pattern in the analysis. Then the third additional analysis was equity crowdfunding campaign characteristics analysis. By incorporating the paired sample Student T-Test, this analysis explored significant differences in means of the campaign characteristics of startups that showed a path dependence pattern in equity crowdfunding in their financing path between campaigns in the first and second rounds. This statistical test assumes that the data follows a normal distribution and has equal variances. Thus, this study transformed the campaign characteristic variables, except for ”Equity Issued,” which had already satisfied these assumptions, using natural logarithmic transformation before statistical testing so the variables met these assumptions.

4

Results

The previous chapter detailed the study's methodology. This chapter focuses on presenting the research results, which are one of the most compelling aspects of this research. The results are presented in two main parts. The first section showcases the main analysis results, followed by the second section, which presents the additional analysis results. The final part of this chapter, the summary section, briefly summarizes the research results for the convenience of the readers.

4.1. Main Results

This section presents the results of the main analysis. As explained in section 3.4, this study has two main analyses: the last resort and financing path analyses. The results of this analysis are further presented in sub-sections below.

4.1.1. Last Resort Analysis

This subsection presents the results of the last resort analysis. This analysis explored whether startups choose equity crowdfunding as their external funding source in their first funding round as a last resort. This analysis is useful to confirm the assumption used in this study that startups choose equity crowdfunding in their first funding round as a last resort. This analysis used the variable "Age" as a proxy. This variable measures the age of the startup at its first funding round. This analysis used the first dataset consisting of 137 startups that have undergone at least three funding rounds regardless of their external funding source in the first funding round. Of the 137 startups, 74 startups received their first external funding from equity crowdfunding. The remaining 63 startups received their first external funding from other external funding sources such as venture capital firms, business angels, private equity firms, etc.

Furthermore, this analysis used a comparative method to compare the variable "Age" between the group of startups that obtained their first external funding from equity crowdfunding and those from other external funding sources. This analysis showed that startups that raised their first external funding from

equity crowdfunding were, on average, older than startups that raised their first external funding from other funding sources, with an average age of about 904 days or approximately 2.5 years, while those with other sources had an average age of about 544 days or approximately 1.5 years. This age difference was also confirmed through the independent samples Student's T-Test on the log-transformed variable "Age," which showed significant test results ($t = 3.727$, $p<0.001$).

4.1.2. Financing Path Analysis

This subsection presents the findings of the financing path analysis. This analysis examined the external funding sources taken across three funding rounds by startups that initially received external financing from equity crowdfunding in their first funding rounds. This analysis explored the financing path followed by these startups and observed whether there is a pattern of path dependence on the financing paths of these startups. This analysis is important to gain useful insights to answer the main research questions of this study. This analysis used a second dataset consisting of 74 startups that have at least three funding rounds and received external funding from equity crowdfunding in their first funding round. The descriptive statistics are detailed in Table 4.1, outlining the number of startups and the percentage distribution across various financing paths.

This analysis revealed that 74 startups that received external funding from equity crowdfunding in their initial funding round followed 20 different financing paths. Of these, 27 startups (36.49%) followed the financing path of persistently obtaining external funding from equity crowdfunding in subsequent funding rounds, and this was the most dominant financing path observed. Meanwhile, the other 47 startups followed 19 other financing paths with a wide frequency distribution.

Furthermore, 74 startups that received external funding from equity crowdfunding in their first funding round showed a tendency to continuously obtain external funding from equity crowdfunding in subsequent funding rounds. Most of these startups (43 startups or 58.11%) continued to rely on equity crowdfunding as their external funding source in their second funding round. Then, the majority of startups that continued to rely on equity crowdfunding in their second funding round (27 startups or 62.79%) again relied on equity crowdfunding as their external funding source in their third funding round.

Table 4.1: The descriptive statistics of the pattern of financing path taken by startups received equity crowdfunding in their first funding round

First Round	Second Round	Third Round	Financing Path	Number of Startups	%
ECF (74 Startups) 100%	ECF (43 Startups) 58.11%	ECF (27 Startups) 62.79%	**ECF → ECF → ECF**	**27**	**36.49**
		VC (6 Startups) 13.95%	ECF → ECF → VC	6	8.11
		ACCELERATOR (5 Startups) 11.63%	ECF → ECF → ACCELERATOR	5	6.76
		PE (4 Startups) 9.30%	ECF → ECF → PE	4	5.41
		BA (1 Startup) 2.33%	ECF → ECF → BA	1	1.35
	VC (15 Startups) 20.27%	VC (9 Startups) 60.00%	ECF → VC → VC	9	12.16
		ACCELERATOR (3 Startups) 20.00%	ECF → VC → ACCELERATOR	3	4.05
		ECF (1 Startup) 6.67%	ECF → VC → ECF	1	1.35
		BA (1 Startup) 6.67%	ECF → VC → BA	1	1.35
		PE (1 Startup) 6.67%	ECF → VC → PE	1	1.35
	BA (7 Startups) 9.46%	ECF (1 Startup) 14.29%	ECF → BA → ECF	1	1.35
		VC (1 Startup) 14.29%	ECF → BA → VC	1	1.35
		BA (3 Startups) 42.86%	ECF → BA → BA	3	4.06
		PE (1 Startup) 14.29%	ECF → BA → PE	1	1.35
		ACCELERATOR (1 Startup) 14.29%	ECF → BA → ACCELERATOR	1	1.35
	PE (4 Startups) 5.41%	ECF (1 Startup) 25.00%	ECF → PE → ECF	1	1.35
		PE (3 Startups) 75.00%	ECF → PE → PE	3	4.06
	ACCELERATOR (2 Startups) 2.70%	VC (2 Startups) 100.00%	ECF → ACCELERATOR → VC	2	2.70
	INCUBATOR (1 Startup) 1.35%	ECF (1 Startup) 100.00%	ECF → INCUBATOR → ECF	1	1.35
	GRANT (2 Startups) 2.70%	ECF (2 Startups) 100.00%	ECF → GRANT → ECF	2	2.70
Total				**74**	**100.00**

Note: First Round, Second Round, and Third Round shows investor type of this startups recived funds from in a particular financing round. ECF stands for Equity Crowdfunding, PE stands for Private Equity Firms, and VC stands for Venture Capital Firms.

4.2. Additional Results

This section presents the results of the additional analysis of this study. This study has three additional analyses: the company status, industry, and equity crowdfunding campaign characteristics analyses. All additional analyses used the third data subset, which is a subset of data from the second data subset; see Section 3.3. This dataset comprised 27 startups that persisted in equity crowdfunding across three funding rounds. However, one startup in this data subset had incomplete equity crowdfunding campaign characteristics data; Thus, this startup was excluded from the equity crowdfunding campaign characteristics analysis. The results of this analysis are further presented in sub-sections below.

4.2.1. Company Status Analysis

This subsection presents the results of the company status analysis. The analysis explored the company status of 27 startups that followed the financing path that persistently obtained external funding from equity crowdfunding. The analysis is useful to see if there were any interesting patterns in the company status of these startups. The analysis attempted to gain additional useful insights for further research on this topic. The pie chart in Figure 4.1 illustrates the company status of the startups. The pie chart shows that most of these startups (18 startups or 66.67%) remain active, continuing their business operations. Meanwhile, three startups (11.11%) entered liquidation, and another three (11.11%) went into administration; in other words, they experienced financial difficulties. In addition, the remaining three startups (11.11%) have even been dissolved, closing their business operations. This analysis reveals that although most startups that persistently obtain external funding from equity crowdfunding are still actively running their business operations, some of these startups are experiencing financial constraints. Some have even stopped their business operations.

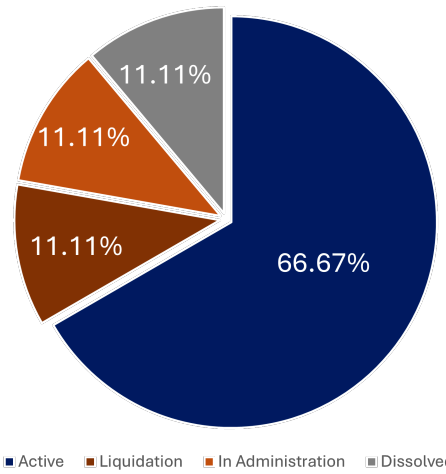


Figure 4.1: The company status of startups that persisted in equity crowdfunding across three funding rounds

4.2.2. Industry Analysis

This subsection presents the results of the industry analysis. This analysis explored the industry distribution of the 27 startups that persisted in equity crowdfunding across three funding rounds. The pie chart in Figure 4.2 presents the industry distribution of the startups. Among these startups, 11 startups (40.74%) belong to the Food & Beverage (FMCG) sector; It is the majority among these startups. The

Energy and Renewables sector startups comprised 11.11% of the startups, while the Financial Services & Payments, Lifesciences & Biotech, and Manufacturing/R&D sectors each represented 7.41% of the startups. The remaining 25.93% of the startups fall under various other industries. While it has a large proportion, this other industry consists of seven different industries, with each sector having only one startup; see Table A.4 in Appendix A.

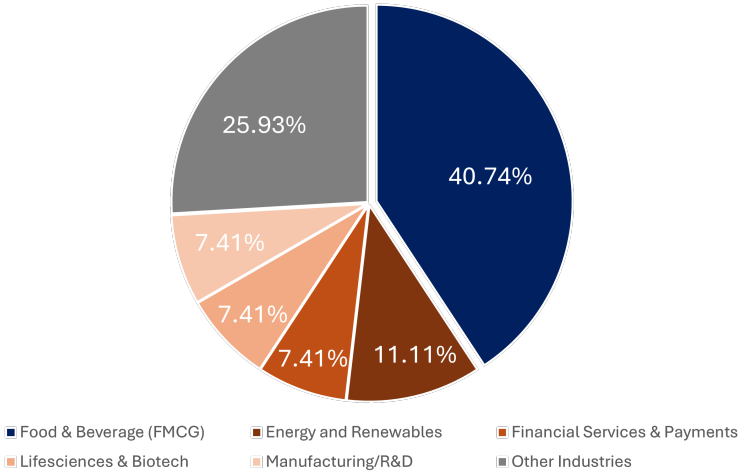


Figure 4.2: The industry of startups that persisted in equity crowdfunding across three funding rounds

4.2.3. Equity Crowdfunding Campaign Characteristics Analysis

This subsection presents the results of the analysis of the characteristics of the equity crowdfunding campaign. This analysis explored differences between the campaign characteristics (campaign characteristic variables explained in Section 3.4) of two consecutive equity crowdfunding campaigns (first and second rounds) of startups that persisted in equity crowdfunding across three funding rounds. However, among 27 startups in the subset data used in this analysis, one startup had incomplete campaign characteristics data, so this startup was excluded from this analysis. Table 4.2 shows the significant differences in mean between campaign characteristics at the first and second rounds of these startups. On average, these startups attracted a larger pool of crowd investors in their second round of equity crowdfunding campaigns ($t = -2.207$, $p < 0.05$). Then, these startups' pre-money valuation rose significantly in their second campaigns ($t = -6.185$, $p < 0.001$). In addition, these startups issued substantially lower equity percentages in their second campaign ($t = 4.136$, $p < 0.001$). Table A.7 in Appendix A shows complete comparisons of all campaign characteristics in this analysis.

Table 4.2: The significant differences in mean between campaign characteristics at the first and second rounds of Startups that Persistent in Equity Crowdfunding Across Three Consecutive Funding Rounds

	First Round (N=26)	Second Round (N=26)	Difference in means
Number of Investors (ln)	5.741	6.175	-2.207*
Pre-Money Valuation (ln)	14.177	15.179	-6.185***
Equity Issued (%)	20.138	12.452	4.136***

Notes: The Variable Number of Investors and Pre-Money Valuation in this table have been transformed using natural logarithmic transformation, as explained in the previous chapter. ***, **, and * denote statistical significance at the 0.1%, 1%, and 5% levels, respectively.

4.3. Summary

The last resort analysis revealed that startups initially receiving external financing from equity crowdfunding were significantly older than those funded through other sources at their first funding round. The financing path analysis revealed that the 74 startups that initially received external financing from equity crowdfunding followed 20 different financing paths. A total of 27 startups (36.49%) persisted in obtaining external funding from equity crowdfunding in their subsequent rounds, and this was the most dominant funding path among these startups. Furthermore, the additional analysis found that 66.67% of startups following this financing path remained active in business operations, while another 22.22% experienced financial difficulties, and 11.11% had been dissolved. Moreover, the majority of these startups (40.74%) belong to the Food & Beverage (FMCG) sector. Finally, regarding their equity crowdfunding campaign characteristics, the additional analysis found that startups that followed the financing path of persisting in equity crowdfunding attracted a significantly larger pool of crowd investors, had significantly higher pre-money valuations, and issued a substantially lower percentage of equity in their second successful equity crowdfunding campaign than the previous successful equity crowdfunding round.

5

Discussion and Conclusion

5.1. Discussion of Results

This study aims to explore whether startups' initial external financing from equity crowdfunding leads to path dependence in their subsequent financing. To achieve the research objective, this study conducted the financing path analysis on 74 startups that received external financing from equity crowdfunding in their first funding round. This analysis observed the startups' external funding sources across the first three funding rounds to explore the financing path followed by the startups after initially receiving external financing from equity crowdfunding and observing whether there was a pattern of path dependence in their financing path. This analysis revealed that the startups followed 20 different financing paths. A total of 27 startups (36.49%) persisted in obtaining external financing from equity crowdfunding in their subsequent funding rounds, and this was the most dominant financing path among these startups. Meanwhile, the other 47 startups followed 19 other financing paths with a wide frequency distribution. These findings suggest that startups initially receiving external financing from equity crowdfunding tend to seek external financing from equity crowdfunding in subsequent financing rounds. According to Sydow et al. (2009), path dependence refers to an organization repeatedly using its initial solution over time (Sydow et al., 2009). Thus, these findings reveals a potential path dependence in equity-crowdfunded startup financing. However, it is important to note that this study is exploratory and based on descriptive statistics. This study does not establish a relationship between initial external financing from equity crowdfunding and the subsequent financing path. Further research is needed to investigate the path dependence in equity-crowdfunded startup financing and, if applicable, establish a relationship between initial external financing from equity crowdfunding and the subsequent financing path through empirical study.

Based on existing literature, this study assumes that startups choose equity crowdfunding as their first external financing source as a last resort (Walthoff-Borm et al., 2018). Then, this study explores whether these startups chose equity crowdfunding as a last resort. This study used startup age at the first funding round as a proxy in the analysis. This study finds that startups that received external financing from equity crowdfunding were significantly older than those obtained from other external

financing sources at their first financing round. This result may indicate that the startups have previously attempted to obtain funding from other external funding sources, such as venture capital firms and business angels, but have not succeeded. This condition caused these startups to take longer time than startups obtaining funding from other external sources to successfully raise their first external financing until they finally decided to choose equity crowdfunding as their final option. Hence, they were older than startups that received funding from other external sources at the first funding round. This finding confirms the assumption used in this study and aligns with Walthoff-Borm et al. (2018) finding that startups turn to equity crowdfunding as a last resort.

This study argues that after a startup chooses equity crowdfunding as a last resort, the decision sets off self-reinforcing mechanisms and begins financing path development (Sydow et al., 2009; Walthoff-Borm et al., 2018). In addition, this study also argues that the self-reinforcing mechanisms that are in play during the path dependence process of startups that highly rely on equity crowdfunding as their source of external funding are learning effects and adaptive expectation effects (Belleflamme et al., 2015; Samuelsson et al., 2021; Sydow et al., 2009, 2020). Through additional analysis, this study finds patterns that may indicate the existence of these self-reinforcing mechanisms in 27 startups that took the financing path persistent on equity crowdfunding. However, because there was one startup with incomplete equity crowdfunding campaign data, only 26 startups were analyzed. This study finds that these startups, on average, attracted a larger pool of crowd investors in their second successful equity crowdfunding campaign than the previous successful campaign. This result may suggest that these startups experienced learning effects. As they repeatedly use equity crowdfunding as a financing solution, they gain more knowledge about it (Argote, 1999; March, 2006). So, they can compose more effective and attractive campaigns by using credible signals (e.g., human capital and equity retention), eventually attracting more crowd investors (Ahlers et al., 2015; Ralcheva & Roosenboom, 2020; Spence, 1973). This result aligns with the assumption used in this study that learning effects act as a self-reinforcing mechanism in the path dependence process in equity-crowdfunded startups. However, since it is an early indication, further investigation is needed.

Furthermore, this study finds that these 26 startups, on average, had a higher pre-money valuation and issued a substantially lower percentage of equity in their second successful equity crowdfunding campaign than in the previous successful campaign. Crowdcube provides guidance to startups in determining pre-money valuation before the campaign goes live. However, it is the startup's decision to price their investment offer, and eventually, the crowd then decides if they are willing to invest at that price (Bretschneider & Leimeister, 2017; Brown et al., 2015; Crowdcube, 2024). These startups increase their pre-money valuation (investment price) significantly higher than the previous campaign, and the crowd responds to this increase positively by investing their money in the startups, so the predetermined funding target is achieved. This condition may positively affect the startup's expectations of equity crowdfunding as a reliable financing source. Moreover, by successfully increasing the valuation significantly, these startups can issue a smaller percentage of equity, which is what entrepreneurs are looking for because they can maintain control within their startups. This condition may also positively impact their expectations of equity crowdfunding as a reliable funding source. Hence, these results may suggest that these startups experienced positive adaptive expectation effects, which aligns with the assumption used in his study that adaptive expectation effects act as self-reinforcing mechanisms in the path dependence process in equity crowdfunded startups (J. H. Block et al., 2018; Samuelsson

et al., 2021; Sydow et al., 2020). However, since it is an early indication, further investigation is needed.

This study further analyzes the company status of 27 startups that show path dependence on equity crowdfunding. This study finds that of these 27 startups, 18 (66.67%) startups are still actively running their business operations. Even though the majority of these startups are still actively carrying out business activities, this study also finds that six (22.22%) other startups are experiencing financial problems (in administration and liquidation), and another three startups (11.11%) have been dissolved. Although, based on existing literature, path dependence can result in inefficiency problems and increase the risk of organizational failure (Koch, 2011; Sydow et al., 2009), the problems experienced by these startups are not necessarily caused by path dependence. There are other factors, such as lack of market need and product-market fit, capital and funding issues, team and management problems, external economic factors, and operational and strategic missteps, which can also engender financial problems in startups and increase the risk of failure (Santisteban et al., 2023; Triebel et al., 2018). Therefore, further investigation is necessary to investigate whether path dependence poses such problems in startups relying on equity crowdfunding.

Furthermore, this study finds that of the 27 startups that persisted in equity crowdfunding in their subsequent financing rounds, the majority of these startups (40.74%) belong to the Food & Beverage (FMCG) sector. Startups from the food and beverage sector are often found on equity crowdfunding platforms in the United Kingdom (J. H. Block et al., 2021). Food and beverage products are typically easier for unsophisticated crowd investors to understand and relate to than high-tech or highly specialized products. This relatability can increase confidence and engagement from crowd investors (J. H. Block et al., 2021). Equity crowdfunding also benefits startups in this industry, such as carrying out market validation to immediately assess demand for their products and get initial feedback from prospective customers (J. H. Block et al., 2021; Mollick, 2014). This benefit might be another factor that encourages startups from this industry to participate in equity crowdfunding. Therefore, the large number of startups in the industry participating in equity crowdfunding may increase the proportion of startups dependent on equity crowdfunding coming from this industry.

5.2. Theoretical Contributions and Practical Implications

5.2.1. Theoretical Contributions

This exploratory study provides early insight into path dependence in equity-crowdfunded startup financing. This topic is new or under-researched, so the knowledge available in the literature regarding this topic still needs to be improved. Previously, Samuelsson et al. (2021) investigated path dependence in Swedish startup financing in general. The author suggests that Swedish startups' initial financing leads to path dependence in their subsequent capital structures, and equity financing has the strongest path effect. However, equity crowdfunding was not prevalent among Swedish startups at that time (Samuelsson et al., 2021). Then, this study attempts to fill this gap with an exploratory approach to explore path dependence in British startups that initially received external funding from equity crowdfunding. This study focuses on British startups because equity crowdfunding is a prevalent funding source among these startups (Estrin et al., 2018). This study provides initial findings indicating a potential path dependence in equity-crowdfunded startup financing in which startups that initially receive external financing from equity crowdfunding tend to obtain external financing from equity crowdfunding in their subsequent financing rounds. Since the nature of this study is exploratory, its findings become the foundation for

further investigation into this topic. Therefore, this study contributes to the organizational path dependence and entrepreneurial finance literature.

5.2.2. Practical Implications

This study has important practical implications for entrepreneurs and investors. This study reveals a potential path dependence in equity-crowdfunded startup financing in which startups that initially receive external financing from equity-crowdfunding tend to obtain external financing from equity crowdfunding in their subsequent financing rounds. So, entrepreneurs should think carefully before choosing equity crowdfunding as their first source of external financing because this choice may have a lasting impact on their further financing path. Then, investors should be aware of the potential path dependence in equity-crowdfunded startup financing. They should consider the possibility of path dependence in such startup financing, particularly regarding the long-term sustainability and growth prospects of the startups, before investing in equity crowdfunded startups. Existing literature on organizational path dependence suggests that path dependence can lead to organizational inefficiencies and increase the risk of organizational failure (Koch, 2011; Lucas & Goh, 2009; Munir & Phillips, 2005; Sydow et al., 2009, 2020). However, the impact of path dependence in this context remains ambiguous. Until more clarity is achieved on this matter, entrepreneurs and investors should prudently consider their initial external financing sources and investment decisions, respectively, by taking the potential path dependence into account.

5.3. Limitations and Future Research

The previous section discussed the results of this research and its contribution to the literature in the field of organizational path dependence and entrepreneurial finance, as well as practical implications for entrepreneurs and investors. Then, this section discusses the limitations of this study that certainly provide opportunities for further research on this topic.

5.3.1. Limitations

While this exploratory study provides valuable insight into path dependence in equity-crowdfunded startup financing, several limitations should be acknowledged. First, the generalizability of this study's findings is limited. This study was conducted in specific institutional settings of British startups that obtained external financing from equity crowdfunding via the Crowdcube platform, so the findings of this study may not be applicable in different settings. Second, there may be data reliability issues. This study used startup financing characteristics data obtained from the Crunchbase database, where financing data on this platform is self-reported by startups. Although Crunchbase employs a special team that verifies the data to improve its accuracy, there may still be issues related to data reliability. Third, this study observed the financing path of equity-crowdfunded startups limited to only the first three funding rounds. The more funding rounds observed, the better the pattern of the path dependence can be discerned. Finally, the methodology used in this study does not allow it to confirm the self-reinforcing mechanisms in play in the path dependence process in equity-crowdfunded startup financing.

5.3.2. Future Research

This study offers recommendations for future research to address these limitations and further advance our understanding of path dependence in equity-crowdfunded startup financing. First, to enhance the generalizability of this study's findings, future studies should conduct similar studies in different institutional and geographic settings to determine if the findings hold true across various environments (Sekaran & Bougie, 2016). This could involve analyzing startups from multiple countries where equity crowdfunding is prevalent and using different crowdfunding platforms to see if similar patterns of path dependence are discerned. Second, to enhance data reliability, future studies should utilize multiple data sources to cross-verify the financing information, combining data from Crunchbase with other databases (e.g., PitchBook). In addition, future studies could also implement methodologies to validate self-reported data, such as surveys or interviews with startup founders, to triangulate the data accuracy (Sekaran & Bougie, 2016). Third, future studies should increase the observation period beyond the first three funding rounds to capture a more detailed and comprehensive pattern of path dependence. Fourth, future studies should apply methodologies that can examine the presence of self-reinforcing mechanisms in the path dependence process in equity-crowdfunded startup financing. This might include qualitative research methods such as comparative case studies or in-depth interviews with stakeholders of equity-crowdfunded startups to understand the underlying mechanisms driving path dependence in this context (Dobusch & Kapeller, 2017). Fifth, further study could explore the impact of high reliance on equity crowdfunding as an external financing source (path dependence) on the startups' performance. Finally, future studies could further investigate path dependence in equity-crowdfunded startup financing through an empirical study. This study offers hypotheses for future study as follows:

Hypothesis 1: Startups that initially receive external financing from equity crowdfunding are more likely to persist in obtaining external financing from equity crowdfunding in subsequent financing rounds.

Hypothesis 2: Learning effects in initial equity crowdfunding rounds create a positive feedback loop that reinforces the startups' reliance on equity crowdfunding.

Hypothesis 3: Positive experiences in initial equity crowdfunding rounds create a positive feedback loop that reinforces the startups' reliance on equity crowdfunding.

5.4. Conclusion

This study aims to explore whether startups' initial external financing from equity crowdfunding leads to path dependence in their subsequent financing. This study finds that the 74 startups that initially received external financing from equity crowdfunding followed 20 different financing paths. A total of 27 startups (36.49%) persisted in obtaining external funding from equity crowdfunding in their subsequent financing rounds, and this was the most dominant funding path among these startups. Meanwhile, the other 47 startups followed 19 other funding paths with a wide distribution. These findings suggest that startups that initially received external financing from equity crowdfunding tend to seek external funding from equity crowdfunding in their subsequent financing, implying a potential path dependence on equity-crowdfunded startup financing.

This study contributes to the organizational path dependence and entrepreneurial finance literature by providing an initial indication of potential path dependence in equity-crowdfunded startup financing.

From a practical perspective, this study has important implications for entrepreneurs and investors since the impact of path dependence on startups' performance is still unclear. Entrepreneurs should carefully consider the long-term consequences of choosing equity crowdfunding as their initial external financing source, as this choice may shape their future financing path. Investors should be mindful of the potential path dependence in equity-crowdfunded startups and assess the long-term sustainability and growth prospects of such startups before making investment decisions.

This study highlights several limitations. First, the findings may not be generalizable beyond the specific institutional settings of British startups that utilized the Crowdcube platform for equity crowdfunding. Additionally, there are concerns regarding the reliability of the data, as it was obtained from a self-reported database and may have issues related to accuracy. Moreover, the study's observation of only the first three funding rounds limited the comprehensive understanding of path dependence. Furthermore, the methodology used in the study did not address self-reinforcing mechanisms in the path dependence process. Recommendations for future research include conducting similar studies in different institutional and geographic settings to enhance generalizability, utilizing multiple data sources and validation methods to improve data reliability, extending the observation period to capture a more detailed pattern of path dependence, and applying methodologies to examine the presence of self-reinforcing mechanisms. Additionally, future studies could explore the impact of high reliance on equity crowdfunding on startups' performance and further investigate path dependence through an empirical study.

In conclusion, this study highlights the potential for path dependence in equity-crowdfunded startup financing, emphasizing the importance of initial external funding from equity crowdfunding and its long-term implications for the startup financing path. This study paves the way for further research to deepen our understanding of this phenomenon and its impact on entrepreneurial finance.

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A

Additional Tables

Table A.1: The complete descriptive statistics of the pattern of financing path taken by startups received equity crowdfunding in their first funding round

Financing Path			Descriptive Statistics	
First Round	Second Round	Third Round	Number of Startups	%
ECF	ECF	ECF	27	36.49
ECF	VC	VC	9	12.16
ECF	ECF	VC	6	8.11
ECF	ECF	Accelerator	5	6.76
ECF	ECF	PE	4	5.41
ECF	BA	BA	3	4.05
ECF	VC	Accelerator	3	4.05
ECF	PE	PE	3	4.05
ECF	Accelerator	VC	2	2.70
ECF	Grant	ECF	2	2.70
ECF	ECF	BA	1	1.35
ECF	BA	ECF	1	1.35
ECF	BA	VC	1	1.35
ECF	BA	Accelerator	1	1.35
ECF	BA	PE	1	1.35
ECF	VC	ECF	1	1.35
ECF	VC	BA	1	1.35
ECF	VC	PE	1	1.35
ECF	Incubator	ECF	1	1.35
ECF	PE	ECF	1	1.35
	Total		**74**	**100**

Note: First Round, Second Round, and Third Round shows investor type of this startups recived funds from in a particular financing round. ECF stands for Equity Crowdfunding, PE stands for Private Equity Firms, BA stands for Business Angels, and VC stands for Venture Capital Firms.

Table A.2: The age difference in means at the first financing round between startups that received external financing from equity crowdfunding in the first round and those that received from other sources

	First Round ECF (N=74)	First Round Others (N=63)	Difference in means
Age (days)	904.824	544.238	
Age (ln)	6.385	5.634	3.727***

*p<0.05, **p<0.01, ***p<0.001

Table A.3: The frequency of company status of 27 startups that persist in equity crowdfunding across three consecutive funding rounds

Company Status	Number of Startups	%
Active	18	66.67
Liquidation	3	11.11
In Administration	3	11.11
Dissolved	3	11.11
Total	**27**	**100**

Table A.4: The frequency of industry of 27 startups that persist in equity crowdfunding across three consecutive funding rounds

Company Status	Number of Startups	%
Food & Beverage (FMCG)	11	40.74
Energy and Reneables	3	11.11
Financial Services & Payments	2	7.41
Lifesciences & Biotech	2	7.41
Manufacturing/R&D	2	7.41
Analytics, Ai, data, Bi, automation and robotics	1	3.70
Apparel & accessories, home, personal	1	3.70
Automotive, transport and mobility	1	3.70
Building, property & land management	1	3.70
Entertainment & media	1	3.70
Healthtech & healthcare	1	3.70
Legal, compliance and security	1	3.70
Total	**27**	**100**

Table A.5: The descriptive statistics of first equity crowdfunding campaign characteristics of 74 startups that initially received external financing from equity crowdfunding

Variables	N	Mean	Median	S.D.	Min	Max
Funding Target (£)	74	373,712.838	180,000.000	393,831.547	50,000	2,000,000
Funding Raised (£)	74	577,723.243	275,400.000	621,050.743	58,120	3,200,000
Number of Investors	74	430.108	256.000	523.861	19	2,873
Equity Issued (%)	74	17.938	17.330	8.050	3.200	40.360
Pre-Money Valuation (£)	74	3,978,916.716	1,934,902.456	7,910,276.847	108,556.226	49,209,601.300
Average Investment (£)	74	1,749.457	1,247.923	1,500.851	337.118	7,894.737

Notes: For variable definitions see Table 3.6

Table A.6: The descriptive statistics of two consecutive equity crowdfunding campaign characteristics of 26 startups that initially received external financing from equity crowdfunding and then persisted in equity crowdfunding in their subsequent financing round

Variables	N	Mean	Median	S.D.	Min	Max
Funding Target (£)						
First Round	26	311,923.077	150,000.000	333,922.377	50,000	1,500,000
Second Round	26	381,461.538	250,000.000	352,745.714	18,000	1,500,000
Funding Raised (£)						
First Round	26	508,896.923	265,340.000	511,604.054	58,120	1,996,000
Second Round	26	704,421.654	427,675.000	822,903.509	88,488	3,804,000
Number of Investors						
First Round	26	502.269	283.000	607.164	19	2,873
Second Round	26	780.269	398.000	1,237.943	42	6,535
Equity Issued (%)						
First Round	26	20.138	20.665	8.582	5.230	40.360
Second Round	26	12.452	11.390	8.115	1.790	41.440
Pre-Money Valuation (£)						
First Round	26	2,266,409.331	1,499,949.430	2,464,611.707	108,556.226	11,998,789.900
Second Round	26	5,113,729.860	3,783,277.463	4,076,587.158	999,914.826	17,494,253.720
Average Investment (£)						
First Round	26	1,435.339	899.288	1,546.326	337.118	7,894.737
Second Round	26	1,133.507	916.729	685.287	327.509	2,795.837

Notes: For variable definitions see Table 3.6

Table A.7: The mean comparison between campaign characteristics at the first and second rounds of Startups that Persistent in Equity Crowdfunding Across Three Consecutive Funding Rounds

	First Round (N=26)	Second Round (N=26)	Difference in means
Number of Investors (ln)	5.741	6.175	-2.207*
Pre-Money Valuation (ln)	14.177	15.179	-6.185***
Equity Issued (%)	20.138	12.452	4.136***
Funding Target (ln)	12.216	12.424	-1.011
Funding Raised (ln)	12.698	13.032	-1.745
Average Investment (ln)	6.958	6.857	0.926

Notes: The Variable Number of Investors, Pre-Money Valuation, Funding Target, Funding Raised, and Average Investment in this table have been transformed using natural logarithmic transformation, as explained in the previous chapter. ***, **, and * denote statistical significance at the 0.1%, 1%, and 5% levels, respectively.