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IMPACT OF REVENUE-BASED FINANCE TREND ON THE ENTREPRENEURSHIP
ECOSYSTEM

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Abstract

Revenue-based finance (RBF) is becoming increasingly popular among founders as an alternative to equity financing since a major advantage of the RBF is the dilution avoidance. In consequence, this thesis explores the impact of revenue-based financing on the entrepreneurship ecosystem highlighting the pros and cons of the quasi-equity instrument from the perspective of entrepreneurs as well as investors. It is ultimately intended to determine whether RBF has the potential to promote a more diverse, inclusive, and sustainable entrepreneurial ecosystem. The results of this study will contribute to the existing literature on alternative funding models for entrepreneurs.

Keywords: Venture Capital, Revenue-based financing, Entrepreneurship, Entrepreneurial Finance, Impact Investments.

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1.Introduction

1.1 General Overview

It is the purpose of this study to assess whether Revenue Based Financing (RBF) is creating value for entrepreneurs and promoting a more diverse and inclusive startup environment. For understanding the impact of RBF on the entrepreneurial ecosystem, it is also important to determine whether the instrument is attractive enough for investors to maintain this trend in the medium-long term, taking into account that returns are capped, which directly impacts the Power Law, which states that venture capital produces disproportionate amounts of value from a small number of firms and investments. (Gompers & Lerner 2001, 145-168)

Thus, the study is divided into four sections. Firstly, an exhaustive literature review will be conducted to understand the main drivers of the RBF trend and the specific characteristics of the quasi-equity instrument. As a second step, semi-structured interviews will be conducted with investors to identify the pros and cons of the instrument. Thirdly, the results of the survey to entrepreneurs will be analyzed, looking at how the entrepreneurs perceive the quasi-equity instrument and how they perceive its value. A final step will be to conduct a financial analysis of a Portuguese startup, whose name remains confidential in accordance with the founder's agreement, and shall therefore be referred to as Startup XYZ from now onwards. In order to demonstrate mathematically the scenarios in which Revenue-based Financing is recommended, as well as the founder's benefit from avoiding dilution, the results will be presented.

1.2 Revenue-based Financing increasing trend

Over the past few years, revenue-based financing has gained popularity as an alternative way to finance startups without dilution to founders. Proof of this is Lighter Capital's allocation of 150M to more than 300 startups in more than 500 rounds of revenue-based financing. (Lighter Capital 2019) A growing number of traditional VCs are implementing funds focused on RBFs. In addition,

since 2019, 18 startups have been founded to provide revenue-based funding by utilizing innovative business models where the loan approval process might take less than a day. As a comparison, this number is higher than the number of speedy grocery startups founded at the same time. (O'Brien 2022)

In 2019, the RBF market was valued at \$901.41M, and it is expected that it will reach \$42.3B by 2027, growing at a CAGR of 61.8% (Artig et al. 2021, 349). Focusing mainly on Ecommerce and SaaS startups that have recurring revenue and high gross margins. The founders of these startups will require RBF financing to cover increasing stock and marketing expenses (Lighter Capital 2019), avoiding rounds of equity financing and the associated dilution. Overall, RBF has grown as a result of the evolution of applications of the well-known, old quasi-equity instrument to meet specific financing needs of startups.

1.3 Hypothesis

This study aims to analyze the impact of the RBF trend on the entrepreneurship ecosystem. In spite of the increasing popularity of RBF over the last few years, its impact on the entrepreneurship ecosystem remains unclear. This study examines the viability of this trend and the potential benefits for founders, including the potential to avoid dilution as well as promoting a more inclusive and diverse ecosystem. As a result, seven main research questions will be addressed in this study.

1.3.1 RQ1: Do RBF capped returns match the Power Law VC theory? Otherwise, how can this quasi-equity instrument be profitable for Venture Capital firms?

1.3.2 RQ2: Does RBF benefit founders? In spite of the fact that they avoid dilution, will they receive the same non-monetary benefits as in equity financing?

1.3.3 RQ3: Does RBF provide an environment for investment firms to promote startups that have a positive impact on society?

1.3.4 RQ4: Does RBF foster an inclusive, gender-equal entrepreneurship ecosystem?

1.3.5 RQ5: Are there groups of founders who hold similar opinions on RBF, and what variables affect their opinions?

1.3.6 RQ6: Does the level of founder knowledge about RBF depend on the stage of the startup?

1.3.7 RQ 7: Is the Portuguese startup XYZ eligible for RBF? What effect will this have on dilution avoidance?

2. Literature Review

2.1 Revenue-based financing

For technology companies, RBF is a relatively new form of funding, but it has been used to finance entrepreneurs in other industries for more than a century. The economics of revenue-sharing agreements and royalties are quite comparable to RBF for entrepreneurs and investors. These structures were used by hydrocarbon prospectors in the early 20th century and are now widely used in the pharmaceutical, film, and music industries. The first RBF-based funds were set up in the 1990s by Arthur Fox to fund tech firms. (Lighter Capital 2019)

RBF offers several benefits, including alignment of incentives between investors and founders by emphasizing revenue growth over valuation growth alone. As the investor's return is dependent on the company's revenue, there is an incentive to assist the company in increasing its revenue. Additionally, RBF allows companies to expand without diluting their equity since RBF investors do not receive equity in the company, the proprietors retain control and ownership. (Treyger & Raney 2019)

Nevertheless, RBF may present some challenges for founders, such as requiring that the startup maintains a stable recurring revenue stream. In contrast to traditional Venture Capital Funds, which are capable of investing millions on projects that have not yet started generating revenue, RBF investors will provide capital equal to 3 or 4 months of monthly recurring revenue, limiting the

amount raised. As a final point, periodic payments are required, and the frequency will depend on the investment firm. However, it is important to note that regular cash payments will have a significant impact on the amount of cash available for implementing activities associated with the startup's growth. (Lighter Capital 2019)

2.2 Equity Financing

Equity financing, defined by Richard A. Brealey, Stewart C. Myers, and Alan J. Marcus in *Fundamentals of Corporate Finance*, is “a method of raising capital by selling ownership shares in a company. Investors who buy these shares become part owners of the company and share in its profits and losses.” (Brealey, Myers, & Marcus 2014) Due to the fact that most VC funds invest in startups through equity instruments, this study addresses the advantages and disadvantages of this approach. First, equity financing has the advantage that there is no obligation to repay the money, no additional financial burden on the business, and large investors are able to provide a wide range of business expertise, resources, direction, and contacts. (Banton 2023) However, equity financing has the disadvantage that the founder must share dividends with investors, so by selling ownership shares, the company is granting investors a portion of its future profits. In addition, investors who own a specific type of shares in the company may have decision-making rights. Further, the issuance of additional shares in order to raise capital may dilute the ownership stakes of existing shareholders. Accordingly, the original proprietors will have less control over the business and receive a smaller portion of its profits. (Wilhelm 2010)

2.3 Startup Financing

Finance for startup businesses refers to the process by which capital is obtained for the establishment of new companies. As a general rule, startup financing is used to cover costs associated with product development, marketing, and operations, as well as to support the expansion of the business. Frequently, startup financing is characterized by high risk, uncertainty,

and lack of financial history. (Kuratko, Hodgetts, and Hornsby 2017) The venture capital financing process generally consists of a series of phases, with each phase providing new funds to support the development of the company and limiting the investors' exposure to risk. (Metrick and Yasuda 2011) As a first step, we have Pre-seed funding, which is usually raised by the founding team, acquaintances, or family members before the seed round. The purpose of Pre-seed funding is usually to provide financing for the development of a proof-of-concept or prototype. (Wiltbank & Boeker 2007) Pre-seed funding is followed by Seed funding, which is the initial funding round used to finance the development of a product or service. Most often, angel investors and venture capitalists provide seed capital, which is often used to fund prototypes, hire key personnel, and develop products and services. (Wiltbank & Boeker 2007) Following Seed funding, entrepreneurs raise early-stage financing, also referred to as Series A financing, to finance the growth and development of their business. Investments of this type are often made by venture capitalists and may involve substantial equity stakes. (Metrick and Yasuda 2011) The Series B financing is used to fund the expansion of a startup after it has effectively demonstrated its viability as a business model, allowing it to scale more rapidly and expand its business model. A financing round such as this is vital for businesses that intend to go public in the future since it provides them with the capital they will need to prepare for their initial public offering. (Rogers 2014, 101)

2.4 The power law in Venture Capital

The power law explains the relevance of big hits in a Venture Capital portfolio, and it is relevant to this study given that the returns are capped on RBF, therefore, there are no significant gains. The power law states that the majority of returns are generated by a few large winners. A single winner not only pays for everything else, but also is worth more than all of them combined. (Thiel and Masters 2014, 101) As a consequence, investors should be prepared to invest in a large number of companies, with the knowledge that the majority will fail, in order to discover those uncommon

companies that will generate outsized returns. (Rose 2014) Those who are successful venture capitalists identify and invest in companies that are likely to become outliers, the top 1% or even 0.1% of performers, since these companies are responsible for the majority of venture capital returns. (Feld & Mendelson 2012)

3. Methodology

As the research aims to measure Entrepreneurships community's perception of RBF as well as determining if this instrument is appropriate for the Portuguese startup XYZ. Three different methods of data collection have been employed: semistructured interviews with investors, a survey targeting Portuguese startup founders within the public portfolios of major Portuguese venture capital firms, and finally a financial analysis to determine whether RBF can be beneficial for the Portuguese startup XYZ founders with regard to avoiding dilution.

3.1 Data Collection Methods

The first step was to conduct a survey aimed at startup founders to gather information on RBF's main advantages and disadvantages, the characteristics of startups that would be best suited for RBF, the impact of RBF on the relationship with investors, diversity and inclusion implications of RBF on the industry, startups focusing on social impact RBF implications, and previous experiences raising RBF rounds. Furthermore, 7 semi-structured interviews were conducted with partners and analysts of Venture Capital Funds located in Portugal and Latin America, two of these funds focusing exclusively on RBF, while the remaining four only focusing on equity financing. These interviews provided significant data to better understand both approaches and if they can be complementary in certain cases, as well as to understand how social impact can be promoted through RBF, since the two RBF funds are devoted to this purpose. Moreover, RBF impact on gender equality and minorities inclusion was also discussed in the interviews. Regarding the financial analysis of the Portuguese startup XYZ, the founder proportioned historical financial

information in order to determine whether this startup would qualify for RBF and its impact on dilution avoidance.

3.2 Analysis methods

Analyses of the data collected were conducted using both qualitative and quantitative approaches. In order to analyze the qualitative data, grounded theory was used, considering that the goal of grounded theory is to generate theories that account for the relationships between the concepts identified during the research process. (Charmaz 2014) Moreover, on the quantitative side, the statistical software SPSS was used in order to analyze the data coming from the surveys. In addition, the data derived from the startup's financial statements was analyzed using financial techniques based on the books Entrepreneurial Finance: Venture Capital, Deal Structure and Valuation: Measuring and Managing the Value of Companies.

4. Main Player on the RBF business

It is important to highlight the main indicators for the largest firms that focus on these instruments to better understand how the RBF market is developing. There are differences in the lending conditions among the firms, including different multiples, repayment periods, and percentages of monthly revenues; these factors are adjusted according to each firm's investment thesis. The following table presents a comparison of the major players in the RBF industry:

Table 1: RBF Global players comparison

RFB – 5 most relevant Global Players	Lighter Capital	Decathlon Capital Partners	Founders First Capital Partners	TIMIA Capital	Capchase
Foundation year	2010	2019	2015	2009	2020
Founded Amount	150M	No info Available	100M	100M	125M
# of Startups Founded	300	90	No info available	50	No info available
Minimum annual recurring revenue	200k	1M	250K	1,5M	2M

Range repayment years	1-4	1-5	3-5	2-5	1-4
% Monthly Revenue	2% to 8%	2% to 12%	2% to 8%	2% to 8%	4% to 12%
Country	USA	USA	USA	Canada	USA

Source: Web site of each firm.

It is pertinent to note that among the main players on the RBF industry, the characteristics of the lending conditions are almost standard, with a percentage of monthly revenue expected from the startup in the range of 2% to 8% per month until the startup reaches the specified multiple. Moreover, the loan can last between one and five years, indicating that these firms expect to maintain a short to middle term exposure. However, the firms differ in the required amount of annual recurring revenue for RBF loans, which ranges from 200k with Lighter Capital to 2M with Capchase, reflecting the stage of startup and implicit risk they desire. The global RBF market is highly concentrated, Lighter Capital accounted for 71.93% percent of the market in 2019, even with 18 new competitors entering the European RBF market. (Lighter Capital 2019) There is a possibility that this market concentration will end in the near future as a result of these disruptive startups focusing on providing RBF lending to other startups in an innovative manner. (O'Brien 2022)

5. Analysis and discussion

5.1 Interviews to investors

The interviews were conducted with seven investors, four in Latin America and three in Portugal. In Latin America: Justin Schwartz, Managing Partner of the impact-driven fund IMPAQTO Capital that focuses on RBF financing, Carmen de la Cerda, Managing Partner of BuenTrip Ventures, which focuses primarily on equity investments, and finally, Miguel Martinez and Juan Pablo Marichi, Investment Analysts at New Ventures Capital specializing in RBF impact startups. In Portugal: Nuno Afonso, Business Analyst at Banco de Investimento Global BIG, which

concentrates on investing in Fintech startups through equity instruments, João Henriques, Partner at Iberis Capital, a Private Equity and Venture Capital Firm that specializes in equity transactions with startups, and Carlos Silva, Partner at Faber Capital concentrating on investing in equity instruments.

The purpose of the interviews was to analyze their perceptions regarding RBF in terms of how cap returns may affect the Internal Rate of Return (IRR) of RBF funds, alignment between RBF investors and founders on non-monetary benefits, the role of RBF funds in promoting an inclusive entrepreneurship ecosystem, and its influence on impact-driven startups.

First of all, venture capital has a high failure rate, with many investments yielding little or no return. However, the relatively small number of successful investments can generate extremely high returns, making venture capital an attractive asset class for investors (Lerner 2019); therefore, the cap on the returns provided by the multiple might negatively impact the IRR of the fund. In spite of this, Justin Schwartz contends that RBF has a higher success rate than equity funds because of the different risk profiles of startups they invest in. For them to invest in a startup, the founder must demonstrate traction and stable recurring revenue, so chances of failure decrease. (Schwartz 2023) Furthermore, Nuno Afonso mentioned that RBF is less risky than equity and that RBF investors don't expect the same returns as equity investors based on the conditions startups must fulfill for access to RBF funding. (Afonso 2023) Therefore, RBF funds do not depend on one big return to cover the others' failures.

Venture capitalists, focus on equity instruments, are often able to influence the trajectory of the companies in which they invest, which increases the likelihood of success and maximizes the return on investment (Lerner 2019). According to Justin Schwartz, there is alignment between the incentives of RBF investors and founders. Investors desire to maximize their IRR for the loan, which means that if the loan is paid as quickly as possible, the investor IRR will increase. In

consequence, investors have the incentive to effectively assist the founders in growing their startups. (Schwartz 2023) As an example, Juan Pablo Marichi reports that the Mexican RBF fund New Venture intends to generate a gross IRR of 18%. This fund invests in startups in the health technology sector, as well as traditional businesses, such as clinics. Founders of these companies receive constant support from New Ventures so they can achieve the expected growth that enables New Ventures to generate that expected gross internal rate of return. (Marichi 2023)

In this study, it is important to assess whether RBF contributes to a more inclusive entrepreneurial ecosystem. Research has shown that venture capital firms are frequently biased against minority entrepreneurs, including women. A variety of factors contribute to this bias, including a lack of diversity among investors and decision-makers, a tendency to finance businesses that conform to traditional gender roles and stereotypes, and a general lack of awareness of the unique challenges faced by female entrepreneurs. As a result, women entrepreneurs may not be able to secure funding at the same rate as their male counterparts, despite having equally strong business plans and track records. (Carter, Simkins, & Simpson 2017)

While significant progress has been made in recent years, women entrepreneurs remain faced with significant barriers to venture capital funding. In 2020, just 2.3% of venture capital funding went to companies with at least one female founder, down from 2.8% in 2019. In spite of the fact that women-owned businesses account for a growing proportion of new businesses and have shown to generate substantial returns on investment, these statistics persist. (Brush, de Bruin, & Welter 2021)

According to recent studies, male-led companies received 16 times more funding than female-led companies in 2019. Furthermore, male founders from prestigious institutions have an advantage when seeking venture capital funding. It has been found that startups with a male founder who has graduated from an Ivy League school are more likely to receive funding from top-tier venture capital firms than those without such credentials. For instance, 19.8% of Ivy League male-led

startups received funding, while only 7.3% of non-Ivy League male-led startups were funded. (Etzkowitz and Kello 2021)

According to Carmen de la Cerda, one of the reasons for the gender bias in venture capital is that there are not enough female investors, since she has been approached by more female founders than her male partner. (De la Cerda 2023) As a complementary point, Miguel Martinez points out that New Ventures Capital has a Revenue-Based Finance fund in Mexico that is dedicated to women founders or startups in a wide variety of industries that solve the problems women face in a wide range of spheres in the Latam region. In his opinion, RBF funding is intended to address a latent problem in the startup ecosystem in Latam. Firstly, the startup ecosystem is lacking diversity worldwide, but in Latam, the problem is even more acute. Furthermore, underrepresented founders and women founders often face discrimination and systemic barriers when seeking funding as a result of unconscious biases that may influence investment decisions, which results in a lack of funding for them. Generally, revenue-based finance funds offer an alternative funding method that determines a company's potential for revenue generation rather than focusing solely on subjective criteria. Taking this approach helps overcome bias and systemic barriers that may have hindered underrepresented and female founders in the past. (Martinez 2023)

On the other hand, Carlos Silva mentioned that the industry needs more access to unrepresented minorities, however, he does not think RBF is a solution because founders need to raise funding in order to generate revenue, and since they already experienced that, RBF does not provide assistance when starting a company. (Silva 2023) Joao Henriques agrees with this perspective. He states that since startups must generate revenue before they can access RBF, they will need to raise equity either way, therefore RBF may not be a solution to the existing bias. (Henriques 2023) Although Carlos Silva stated that RBF is an objective method of evaluating a company, he noted that the

criteria are either generating revenue or not, or if the startup has a certain profile or not, which means that it is less about the team gender or academic background. (Silva 2023)

Revenue-based financing has emerged as an alternative paradigm of financing for startups with an emphasis on impact-driven, sustainable development. When compared to traditional equity financing, in which entrepreneurs typically surrender a portion of their ownership stake in exchange for funding, revenue-based financing allows entrepreneurs to retain control over their businesses while providing investors with a steady revenue stream over time. As a result of revenue-based financing, entrepreneurs and investors are aligned around sustainable growth and long-term impact. (Bradford, Inci, & Kotlar 2014)

According to Carmen de la Cerda, RBF is predominantly used in Impact funds, since investors typically invest in equity or RBF, whereas hybrid funds are less common. According to her, RBF is a mechanism that contributes to the ecosystem arriving at a different target than equity, since they are not compatible with one another. In her remarks, she mentioned that RBF funds have the potential to impact the ecosystem by bringing a variety of perspectives since they are not seeking huge returns. As she explains, equity investors will finance 20% of impact projects and impact RBF funds will finance the remaining 80%, but the successful investments of equity funds will have a significant impact on the society since most of these startups go global. As a result, she suggested that more equity funds as well as more RBF funds will be beneficial to the ecosystem. (De la Cerda 2023) Juan Pablo Marichi presents an example of an impact fund by mentioning that New Ventures Capital created a fund focused on impacting 2 million women and generating an 18% gross internal rate of return. According to him, since this fund is focused on making a positive impact, the limited partners are very flexible, and the negotiation includes a hurdle rate of 6%. (Marichi 2023) In addition, Justin Schwartz explains that IMPAQTO Capital is looking to

contribute to society by investing \$2 million in Latin American social and environmental issues by 2025, which will increase access to essential services for vulnerable communities. (Schwartz 2023)

5.2 Surveys to founders

5.2.1 Qualitative Analysis

A survey was conducted to assess founders' perceptions of Revenue Based Financing. Since LinkedIn is a popular method of reaching founders, once the person's relationship with a startup has been validated, the survey was sent to them via LinkedIn. As of 2022, there were approximately 2,150 startups registered in Portugal, according to the governmental platform Portugal Digital (Portugal Digital 2022). Thus, for this study to be statistically significant with a 90% level of confidence, 67 answers should be obtained. It is pertinent to emphasize that 69 answers were collected during the course of this study.

Among the 69 responses, 30% of the founders are in an MVP phase, 62% are in a seed phase, and 8% are in a Serie A phase. First of all, 75% of MVP founders who have heard about RBF believe that the relationship with the investor is less collaborative, whereas 60% of Serie A founders believe the relationship between founders and investors with RBF does not differ. It has been found that revenue-based financing provides investors with a powerful incentive to assist founders in building their businesses, since the greater the performance of the firm, the greater the return to the investor. (Arroyo, Poutziouris, & Hajidimitriou 2020)

Regarding dilution, 82% of founders who are familiar with or have heard about RBF believe that the main benefit of RBF is to avoid dilution and 49% are hesitant to give up equity but would do so for the right investor. As opposed to this, Carme de la Cerda, Managing Partner at BuenTrip Ventures, noted that founders' concerns about dilution are overestimated due to the fact that it is better to own 30% of a cake than 100% of a cookie. (De la Cerda 2023) Moreover, 59% of the founders who are familiar with or have heard about RBF consider that RBF leads to a slower but

more sustainable growth, in accordance with the research suggesting that RBF-funded startups tend to prioritize sustainable revenue generation over rapid expansion because RBF investors have no predisposition to early exits. It may result in a slower growth rate, but a more sustainable business model and possibly a higher exit valuation. (Thakor & Vora 2020)

One founder of a series A company cited limited size as a major challenge when utilizing RBF, opinion align with the research carried out of global RBF funds ([See Table 1](#)), considering that 12% of revenue is the maximum percentage that RBF funds are willing to accept, implicitly limiting the amount raised in comparison to equity instruments. However, a founder on Series A mentioned that one of the main benefits of Revenue-Based Financing is that the quasi-equity instrument allows him to retain ownership and have additional runway to optimize the terms of the following round. It is possible that the benefits of RBF may outweigh the implicit high interest rate, if the benefits ultimately result in a higher probability of startup success.

In this regard, approximately 49% of the founders who are familiar with or have heard about RBF believe that RBF increases startup success rates. Accordingly, the study Revenue-based Financing as a New Financing Model for Startups provides evidence that revenue-based financing can serve as a sustainable source of funding for startups without diluting ownership, increasing the likelihood that they will succeed. (Hwang, Lee, & Park 2019)

As a final point, it is also pertinent to examine how the entrepreneurship community perceives the social impact of revenue-based financing. Accordingly, 20% of founders who are familiar with or have heard about RBF believe that RBF is somewhat important or very important in promoting a more diverse and inclusive entrepreneurship ecosystem, and 49% believe that RBF increases the availability of funding for underrepresented communities. Meanwhile, Juan Pablo Marichi, a representative of New Ventures, stated during the interview that RBF is an important tool for promoting startups that are committed to make a positive impact on society. For this reason, one

of New Ventures' funds will not only generate a financial return, but also improve access to health for 2 million women. (Marichi 2023) According to further research complementing Juan Pablo's opinion, revenue-based financing can contribute to more inclusive entrepreneurship ecosystem by providing capital to a broader range of entrepreneurs and reducing the influence of systemic biases characteristic of traditional venture capital. (Wilson & Phillips 2020)

5.2.2 Cluster Analysis

In order to determine whether there are groups of founders with similar opinions and which variables significantly divided them, a cluster analysis was conducted among the founders who are familiar with or have heard of RBF. This study used a hierarchical cluster analysis to estimate how many clusters the data had, as well as a K-means cluster analysis for categorizing and interpreting the data. Additionally, in order to accomplish this, SPSS statistical software was used.

To obtain the dendrogram all the survey questions were considered. Moreover, the data was standardized based on Z-scores and processed it under Ward's clustering method. This study identifies two different clusters based on the dendrogram ([See Appendix Table 18](#)). Additionally, a K-means cluster analysis was conducted, this was done by incorporating the same variables as the previous analysis and adding the two clusters dendrogram outcome. The analysis resulted in two statistically significant clusters, one with 8 founders and the other with 48. (See Appendix Table 19)

It is the belief of the first group of 8 founders that revenue-based finance leads to slower, but more sustainable growth and that the main challenge startups face with revenue-based financing is the high interest rate. Regarding inclusion and diversity, they believe that RBF is neither relevant nor irrelevant in terms of promoting diversity and inclusion in the entrepreneurship ecosystem; finally, they intend to use RBF to prevent diluting existing equity. In accordance with the analysis, founders of the second cluster have a broader spectrum of opinions with regard to these variables.

5.2.3 Multinomial Logistic Regression

In order to determine if the opinion of founders concerning RBF's impact on the relationships with investors and the availability of funding in unrepresented communities is related to the stage of the startup (MVP, Seeds, or Series A), a multinomial logistic regression has been conducted with stage of the startup as an independent variable and RBF impact on underrepresented communities, RBF impact on investor relationships, and ranking as dependent variables. [\(See Appendix Table 25\)](#) Moreover, this study used multinomial logistic regression since the independent variable is categorical instead of metric, namely MVPs, Seeds, and Serie A, also it should be noted that the assumption of collinearity on the model was validated. [\(See Appendix Table 26\)](#) According to this study, with a 95% of confidence level, both variables, RBF impact on underrepresented communities and RBF impact on investor relationships, are significantly impacted by stage of the startup, meaning there might be a correlation between startup stage and a founder's opinion on these variables.

Additionally, it was intended to determine whether the founders' opinion matched what the research suggests as a proxy of RBF knowledge, and whether this was influenced by the stage of the startup, meaning if founders at later stages align more with the research. A ranking was developed for this purpose based on the variables founder-investor relationship and availability of funding for underrepresented communities, in which a compounded average was used to score each founder based on their answer. These variables were chosen after analyzing the data from the literature review and interviews in order to measure knowledge based on what research had concluded in the field on these topics. Following the computation of the ranking, this variable was inserted in the statistical model, revealing no interaction between the stage of the startup and the alignment between the founder and research. It could be that other factors like academic background play a role in determining the founders' knowledge of RBF. [\(See Appendix Table 25\)](#)

5.3 Financial analysis of the Portuguese Startup

In order to assess the financial impact of RBF, this study conducted a quantitative and qualitative analysis of the Portuguese startup XYZ, whose name and founders were kept confidential, however, the data is accurate. In the first step, a qualitative analysis of the startup's business model was conducted with the objective of determining whether it satisfies the requirements of the RBF lending firms.

The startup utilizes a B2B product-as-a-service business model, which involves a monthly subscription model for corporate clients for a physical product, resulting in a high CAPEX expenditure in advance in order to have adequate inventory to meet the high demand. Moreover, the startup expects to close 2023 with €520K of revenue and a 38% EBITDA margin. Due to the recurring revenue generated by the subscription business model, the startup is an excellent candidate for RBF.

In 2022, the startup raised €250K in exchange for 20% equity with a post-money valuation implicit of €1,25M, with the goal of investing in CAPEX to meet the increasing demand for subscriptions. In spite of this, as per the company's projections, it will need approximately an additional 400k in the next three years to finance the expected expansion of the company. The startup might consider RBF to fund this amount, thereby avoiding dilution and delaying the next equity round so it can achieve a higher valuation.

For the purpose of measuring the dilution avoidance and valuation impact, a quantitative analysis was conducted using the DCF valuation method. Based on research, DCF provides a detailed and systematic approach to valuing a company based on its expected future financial cash flows. In order to utilize this method, one must have a thorough understanding of the company's finances and operations, as well as the industry and economic factors that may affect its performance. Through the analysis of these factors and the projection of future cash flows, DCF can provide a

more comprehensive and accurate valuation of a startup than other methods, such as the multiples approach. (Gompers & Lerner 2001, 145-168)

As a first step, a 10-year projection was prepared based on the key drivers previously discussed with the founder. ([See Appendix Table 2 & 3](#)). Among the key drivers considered in the projection were the expected number of new clients, logistics and maintenance costs per product, occupation rate, number of personnel needed per client, depreciation, and marketing budget. In addition, some assumptions were made on the balance sheet regarding working capital, which was assumed to be 10% of revenue based on historical information, and financial debt was structured by developing amortization tables for each layer of debt, such as a €120k crowdfunding loan, a €50k founder loan, and a projected RBF loan. ([See Appendix Table 4](#)) Accordingly, the CAPEX projection was based on the number of new products that were required to satisfy the increasing demand. ([See Appendix Table 5](#))

Based on the sum of the negative free cash flow, it was possible to determine a funding requirement of €517k, without considering the money available from the previous round of financing. A positive NPV of €3,9M was calculated based on the 10 years of projected cash flow to determine the project's financial viability. ([See Appendix Table 5](#))

As part of the analysis, a RBF loan was simulated; based on the information obtained during the interview with Juan Pablo Marichi, investment analyst for the Mexican RBF firm New Ventures, we assume the following terms of the RBF loan, €400k of funding amount, a multiple of 1,8X, a monthly revenue share of 7%, and a repayment term of 5 years. As a result of this information, the startup will be expected to repay €720K in monthly payments corresponding to 7% of its revenue over a period of maximum 5 years. ([See Appendix Table 6](#)) If the startup fails to reach that amount, the investors may convert the debt to equity. Juan Pablo Marichi, however, noted that most of the time when a startup is unable to repay the loan, firms renegotiates the terms. (Marichi 2023)

As a result of this information and the projections in the income statement, the startup is expected to repay the loan in four years and eight months, with a total paid interest of €320k. It is expected that the RBF investor will achieve an internal rate of return of 20%. There was a sensitivity analysis conducted using the multiple of the RBF and the percentage of revenue, since these variables are likely to change among investors, and because the maximum repayment period in the market is five years, as previously stated. [\(See Table 1\)](#) The results with negative values indicate that the RBF loan was repaid until year five. [\(See Appendix Table 9\)](#) An additional sensitivity analysis was run in order to determine how the repayment will be impacted if the projected revenues don't come through as expected or if the percentage of revenue contribution changes. [\(See Appendix Table 10\)](#) Further, a DCF valuation analysis was conducted in order to obtain the data required to measure the effect of the RBF loan on dilution avoidance. Three public companies were evaluated in order to determine the unlevered beta of a startup: W.W Grainger trading on the NYSE, Cintas Corporation trading on the NasdaqGS, and The ODP Corporation trading on the NasdaqGS. [\(See Appendix Table 11\)](#) W.W Grainer distributes maintenance, repair and operating supplies through an online ecommerce platform based on a B2B product as a service business model. (Grainger Corp. 2023) Cintas specializes in renting and leasing uniforms with a B2B product as a service business model (Cintas Corp. 2023). The ODP Corporation provides office supplies, business technology, facilities products and services as well as printing and document management services through a B2B product as a service business model. (Bloomberg 2023)

Using the publicly available betas and capital structures from Yahoo Finance, an average of the three unlevered betas was computed to relever with the startup's capital structure, with a result of 1.16. The risk free rate was determined by the US T-bill yield of 3,47%. The market risk premium was determined assuming that the investor is fully diversified, so the S&P500 was used as a proxy. By using these inputs, the Capital Asset Pricing Model CAPM was used to calculate the expected

return over equity, resulting in a value of 8,94%. In light of this value, as well as the capital structure of the startup, and the Portuguese corporate tax rate of 23% (including the municipality rate), the Weighted average cost of capital raised was 8,44%. [\(See Appendix Table 11\)](#) As a point of clarification, this process of calculating the WACC was repeated for each year, taking into account the implicit changes in capital structure brought about by the RFB. [\(See Appendix Table 12\)](#)

In order to calculate the enterprise value of the startup in 2023, the unlevered Cash Flows were discounted including the perpetuity with a terminal growth of 2%, after subtracting the book value of debt, the equity value of the startup in 2023 equals €18,5 million. [\(See Appendix Table 13\)](#)

A sensitivity analysis was conducted considering the Debt to Equity ratio and the terminal growth with the objective of measuring the change in equity value in 2023 with different levels of debt taking into account that the purpose of this study is to evaluate the impact of increasing debt through RFB, which ultimately impacts the valuation. [\(See appendix Table 14\)](#)

To perform the dilution analysis for this startup, it is important to note that there are three funders, the first owns 22% of the equity, the second owns 18%, and the third owns 10%. During the previous round of equity financing, a private equity firm purchased 16% of equity, while three angel investors acquired 8% of equity. In addition, the startup maintains a talent pool equivalent to 10% of its equity.

Further, two scenarios were developed through different cap tables in order to assess the dilution avoidance associated with Revenue Based Financing, one in which the company continues raising equity to fund a seed round of €400k in 2024 and a Series A round of €1.5M in 2026, and the other in which the company receives a €400k RFB loan in 2024 and a €1.5M seed round in 2026, resulting in a delay in raising equity. As per the performed valuation, the equity value of the startup will be €23M by 2026, so in exchange for €1.5M of investment, the investor will receive 7% of the company. [\(See Appendix Table 16 & 17\)](#)

Although the startup raised €250K for 20% in 2022, investors have undervalued it, paying less than the fair value of its equity, resulting in this study assuming that, if the startup raises €400k in 2024, the investor will require at least 7% of equity, with an implicit 15X EBITDA multiple, that comes from the average multiple of the three comparable companies previously introduced (Bloomberg 2023), resulting in an implicit post-money valuation of €6.7M dollars.

Moreover, this study assumes that in 2026 investors will pay the fair value of equity. There are three primary reasons for assuming that investors will pay the fair value of equity. First, the startup will be able to demonstrate traction with a historical growth and client pool, and research has shown that companies demonstrating substantial progress during the venture creation process by developing products, acquiring customers, and generating revenue are more likely to be able to negotiate more favorable terms with investors. (Inci & Kotlar 2015) Secondly, the startup will achieve a stable state with revenues of €2.3M, which implies access to the largest pool of professional investors, because according to academic research, startups with higher revenues have greater access to investors, and investors typically require less equity ownership to obtain capital when revenues are greater. (Ruhnka, Feldman, & Dean 2018) Third, there is an implicit risk of failure that will be lower due to the state of a startup; research suggests that startups may develop strategic assets that will allow them to create a competitive advantage and enhance their chances of survival as they mature. It is possible to reduce failure risk by gaining access to complementary assets, such as financial resources, experts, and specialized knowledge. (Coviello & Joseph 2012)

In 2026, the founder will be able to obtain a better deal due to the reasons explained previously.

This study determined that with the RFB bridge round in between the two equity rounds, the founder 1 avoids a dilution of 2.4% of ownership or €544k of equity value, the founder 2 avoids a dilution of 1% of ownership or €233k of equity value, and the founder 3 avoids a dilution of 0.6% of ownership or €129k of equity value. ([See Appendix Table 17](#))

6. Conclusions

6.1 RBF Research conclusions

Based on the research questions outlined previously, this study reaches the following conclusions:

RQ1: It was found that RBF funds have a lower risk than equity investors when stable recurring revenues are a requirement for startups seeking RBF financing. Due to this, RBF funds do not follow the power law, meaning that they do not rely on a few investments that achieve outstanding results to offset those that fail. Instead, investors in RBF funds are more likely to invest in startups that have a higher success rate.

RQ2: In regard to the doubt that RBF cannot match equity financing non-monetary benefits, this study found that RBF investors are seeking the highest IRR of the loan, which means that the startup must settle as soon as possible to maximize the IRR. As a result, an investor's incentives align with those of a founder's, which means the RBF investor will assist with the enterprise's commercial strategy, network, and hire of employees in the same manner as an equity investor.

RQ3: After conducting research on RBF's influence on promoting impact startups, it was concluded that RBF was a common instrument among funds that promote impact startups. Since RBF investors do not have to worry about exit options or subsequent rounds because of its characteristics, they can focus on startups whose business model makes a positive contribution to society even if it doesn't achieve exponential growth. This can be seen in the Mexican RBF impact fund New Ventures and the Ecuadorian impact fund IMPAQTO Capital, both of which seek a financial return, but also maintain impact metrics, such as improving health access to two million women, in the New Ventures Capital case.

RQ4: Although RBF financing provides investors with a clear objective criteria for determining whether or not to invest in a startup based on recurring revenue, it does not foster a more inclusive

gender-equal entrepreneurship ecosystem, as a founder must still raise equity financing to achieve recurring revenue stability necessary to access RBF. In this regard, because equity financing can lead to gender bias, RBF financing will invest in startups that have already been filtered to include that bias.

RQ5: In order to determine if there are groups of founders with similar opinions, a cluster analysis was conducted. As a result of the inputs of this analysis, it can be concluded that there are two groups of founders. The variables that were significant to drive this conclusion with a 95% confidence level were: stage of the startup, challenges startups face when using RBF, impact of RBF on the relationship between founders and investors, relevance of RBF to promoting diversity and inclusion, the importance of revenue based financing over equity financing, and which instrument is best for promoting social impact startups. ([See Appendix Table 20](#))

RQ6: Developing an approach to measure knowledge was necessary in order to determine if there is a correlation between the stage of the startup and the level of RBF knowledge of the founder. This study considered alignment between academic research with the founders' opinion as a proxy for knowledge. In order to achieve this, the founders' answers were compared with the research conclusions on the variables: RBF impact on the relationship between investors and founders as well as the impact of RBF on funding availability for underrepresented communities. A ranking was built based on the results of this analysis. Afterwards, the ranking was inserted as a dependent variable in the multinomial logistic regression model in order to determine whether there is a correlation between the stage of a startup and the knowledge of the Founders' about RBF. With 95% confidence level, this study concludes that there is no interaction between the stage of the startup and the level of RBF knowledge of the founder. ([See Appendix Table 25](#))

RQ 7: Lastly, this study found that RBF offers founders benefits when used in between two equity rounds, as it avoids dilution and enables them to negotiate better terms for the next round. Specifically, the Portuguese startup XYZ that took part in this research is suitable for RBF, since it satisfies the business model requirements, and according to the financial analysis, it will be able to repay the RBF loan during its expected repayment period. With RBF, the founders of this startup avoid dilution of their equity by a total of 3.9% or €0.9M, demonstrating the benefits of this type of financing. ([See Appendix Table 17](#))

6.2 Further research and Limitations

Since this study indicated that the RBF knowledge of the founders is not related to the stage of the startup, analyzing other factors like academic background and professional experience will be relevant. Further, this study is limited by a small sample size of 69 surveys, which makes the results significant with 90% confidence level, limiting the margin of error to 10%. The main reason is that after reaching the founders of the startups in the portfolio of the largest Portuguese VCs, the same startups are repeated in other portfolios, resulting in less information available to reach more founders and increase answers.

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APPENDIX

Financial Analysis Tables

Table 2: Drivers of the projection

CAPEX DRIVERS										
Year	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Revenue per booth Monthly	150 €	150 €	150 €	150 €	150 €	150 €	150 €	150 €	150 €	150 €
Revenue per booth Yearly	1.800 €	1.800 €	1.800 €	1.800 €	1.800 €	1.800 €	1.800 €	1.800 €	1.800 €	1.800 €
Capital expenditure per Booth	2.100 €	2.000 €	1.950 €	1.900 €	1.900 €	1.850 €	1.850 €	1.850 €	1.850 €	1.850 €
Depreciation Years	5	5	5	5	5	5	5	5	5	5
Total Depreciation of the CAPEX of the Year	84.000 €	120.000 €	117.000 €	171.000 €	153.900 €	129.870 €	77.922 €	42.857 €	27.000 €	18.540 €
Total Depreciation of the Year	84.000 €	204.000 €	321.000 €	492.000 €	645.900 €	691.770 €	649.692 €	575.549 €	431.549 €	296.189 €
# booths	300	600	900	1.350	1.755	2.106	2.317	2.432	2.505	2.556
<i>Growth</i>		2	1,5	1,5	1,3	1,2	1,1	1,05	1,03	1,02
New booths	200	300	300	450	405	351	211	116	73	50
Investment (CAPEX)	420.000 €	600.000 €	585.000 €	855.000 €	769.500 €	649.350 €	389.610 €	214.286 €	135.000 €	92.700 €
REVENUE DRIVERS										
Year	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Revenue / Booth	1.800 €	1.800 €	1.800 €	1.800 €	1.800 €	1.800 €	1.800 €	1.800 €	1.800 €	1.800 €
Logistic and Maintenance Cost / Booth	75 €	75 €	75 €	75 €	75 €	75 €	75 €	75 €	75 €	75 €
Fleet Occupation Rate	98%	97%	96%	95%	95%	95%	95%	95%	95%	95%
COST DRIVERS										
Year	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
# FTE's	10	15	17	19	21	26	27	27	26	25
# Booths Per Clients	30	40	51	70	80	80	85	90	95	100
Overheads per Person	2.250 €	2.750 €	3.000 €	3.250 €	3.500 €	3.500 €	4.000 €	4.000 €	4.000 €	4.000 €
Total Overheads	292.500 €	536.250 €	663.000 €	802.750 €	955.500 €	1.183.000 €	1.404.000 €	1.404.000 €	1.352.000 €	1.300.000 €
Marketing Budget	10.000 €	35.000 €	80.000 €	150.000 €	200.000 €	250.000 €	300.000 €	350.000 €	400.000 €	425.000 €

Table 3: Income Statement Projection

Year	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Revenue	529.200 €	1.047.600 €	1.555.200 €	2.308.500 €	3.001.050 €	3.601.260 €	3.961.386 €	4.159.455 €	4.284.239 €	4.369.924 €
COGS	22.500 €	45.000 €	67.500 €	101.250 €	131.625 €	157.950 €	173.745 €	182.432 €	187.905 €	191.663 €
Gross Margin	506.700 €	1.002.600 €	1.487.700 €	2.207.250 €	2.869.425 €	3.443.310 €	3.787.641 €	3.977.023 €	4.096.334 €	4.178.260 €
S&A Costs	302.500 €	571.250 €	743.000 €	952.750 €	1.155.500 €	1.433.000 €	1.704.000 €	1.754.000 €	1.752.000 €	1.725.000 €
EBITDA	204.200 €	431.350 €	744.700 €	1.254.500 €	1.713.925 €	2.010.310 €	2.083.641 €	2.223.023 €	2.344.334 €	2.453.260 €
Total Depreciation of the CAPEX of the Year	84.000 €	204.000 €	321.000 €	492.000 €	645.900 €	691.770 €	649.692 €	575.549 €	431.549 €	296.189 €
EBIT	120.200 €	227.350 €	423.700 €	762.500 €	1.068.025 €	1.318.540 €	1.433.949 €	1.647.474 €	1.912.785 €	2.157.071 €
Interest	7.935 €	85.276 €	84.285 €	76.283 €	57.718 €	62.880 €	31.438 €	25.428 €	20.428 €	16.998 €
EBT	112.265 €	142.074 €	339.415 €	686.217 €	1.010.307 €	1.255.660 €	1.402.511 €	1.622.046 €	1.892.356 €	2.140.073 €
Tax	25.933 €	32.819 €	78.405 €	158.516 €	233.381 €	290.057 €	323.980 €	374.693 €	437.134 €	494.357 €
Net Profit	86.332 €	109.255 €	261.010 €	527.701 €	776.926 €	965.603 €	1.078.531 €	1.247.353 €	1.455.222 €	1.645.717 €

Table 4: Balance Sheet Projection

Year	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Tangible assets	546.000 €	942.000 €	1.206.000 €	1.569.000 €	1.692.600 €	1.650.180 €	1.390.098 €	1.028.834 €	732.285 €	528.796 €
Working Capital	52.920 €	104.760 €	155.520 €	230.850 €	300.105 €	360.126 €	396.139 €	415.946 €	428.424 €	436.992 €
Total Invested Capital	598.920 €	1.046.760 €	1.361.520 €	1.799.850 €	1.992.705 €	2.010.306 €	1.786.237 €	1.444.780 €	1.160.709 €	965.788 €
Financial Debt	137.435 €	511.466 €	449.142 €	326.269 €	537.178 €	402.061 €	357.247 €	288.956 €	232.142 €	193.158 €
Equity	461.485 €	535.294 €	912.378 €	1.473.581 €	1.455.527 €	1.608.245 €	1.428.989 €	1.155.824 €	928.567 €	772.631 €
Total Liabilities & Equity	598.920 €	1.046.760 €	1.361.520 €	1.799.850 €	1.992.705 €	2.010.306 €	1.786.237 €	1.444.780 €	1.160.709 €	965.788 €

Table 5: Cash Flow Statement

Year	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
CAPEX	420.000 €	600.000 €	585.000 €	855.000 €	769.500 €	649.350 €	389.610 €	214.286 €	135.000 €	92.700 €
NWC		51.840 €	50.760 €	75.330 €	69.255 €	60.021 €	36.013 €	19.807 €	12.478 €	8.568 €
Free Cash Flow	-243.566 €	-273.008 €	11.065 €	148.033 €	628.456 €	996.356 €	1.326.776 €	1.608.364 €	1.755.002 €	1.853.709 €
Funding Needed	-516.574 €									
IRR	20%									
NPV without perpetuity	33.956.007									

Table 6: Revenue-based financing loan terms

RBF Information	
Funding Amount	400.000 €
Multiple RBF	1,8
T	5
Monthly revenue share	7%
Return	720.000 €

Table 7: Revenue-based financing loan repayment

	2023	2024	2025	2026	2027	2028	Total
Revenue	€ 1.047.600	€ 1.555.200	€ 2.308.500	€ 3.001.050	€ 3.601.260	€ 3.601.260	
% Revenues	€ (73.332)	€ (108.864)	€ (161.595)	€ (210.074)	€ (252.088)	€ (252.088)	
Debt Payments	€ 400.000	€ (73.332)	€ (108.864)	€ (161.595)	€ (210.074)	€ (166.136)	€ (720.000)
IRR	20%						
Outstanding Debt	€ 400.000	€ 406.008	€ 377.675	€ 290.992	€ 138.637	€ -	
Implicit Interest	€ (79.340)	€ (80.532)	€ (74.912)	€ (57.718)	€ (27.499)	€ (320.000)	
Implicit Reimbursement	€ 6.008	€ (28.332)	€ (86.683)	€ (152.355)	€ (138.637)	€ (400.000)	

Table 8: Startup XYZ debt structure

DEBT OFFCOSTIC	2023	2024	2025	2026
CROWDFUNDING	€ 98.268	€ 76.291	€ 52.300	€ 26.110
PARTNERS	€ 39.167	€ 29.167	€ 19.167	€ 9.167

Crowdfunding Loan Summary			
	Payment	Interest	Principal
Y1	\$29.752,45	\$9.766,67	\$19.985,78
Y2	\$29.752,45	\$7.935,22	\$21.817,23
Y3	\$29.752,45	\$5.935,94	\$23.816,51
Y4	\$29.752,45	\$3.753,45	\$25.999,00
Y5	\$29.752,45	\$1.370,97	\$28.381,48

Partners Loan Summary			
	Payment	Interest	Principal
Y1	\$10.000	\$0	\$10.000
Y2	\$10.000	\$0	\$10.000
Y3	\$10.000	\$0	\$10.000
Y4	\$10.000	\$0	\$10.000
Y5	\$10.000	\$0	\$10.000

Table 9: RBF Sensitivity Analysis percentage of revenue and multiple of the loan

Sensitivity Analysis RBF		Multiple						
		1,30	1,50	1,70	1,90	2,10	2,30	2,50
% of Revenue	2%	€ 289.728	€ 369.728	€ 449.728	€ 529.728	€ 609.728	€ 689.728	€ 769.728
	3%	€ 174.592	€ 254.592	€ 334.592	€ 414.592	€ 494.592	€ 574.592	€ 654.592
	4%	€ 59.456	€ 139.456	€ 219.456	€ 299.456	€ 379.456	€ 459.456	€ 539.456
	5%	€ (55.681)	€ 24.320	€ 104.320	€ 184.320	€ 264.320	€ 344.320	€ 424.320
	6%	€ (170.817)	€ (90.817)	€ (10.817)	€ 69.183	€ 149.183	€ 229.183	€ 309.183
	7%	€ (285.953)	€ (205.953)	€ (125.953)	€ (45.953)	€ 34.047	€ 114.047	€ 194.047
	8%	€ (401.089)	€ (321.089)	€ (241.089)	€ (161.089)	€ (81.089)	€ (1.089)	€ 78.911
	9%	€ (516.225)	€ (436.225)	€ (356.225)	€ (276.225)	€ (196.225)	€ (116.225)	€ (36.225)

Table 10: Sensitivity Analysis Revenue projection and multiple of the loan

Sensitivity Analysis		Multiple of the RBF			
		1,5	1,8	2	2,4
Revenue Projection Multiple	0,6	€ 483.572	€ 483.572	€ 483.572	€ 483.572
	0,8	€ 600.000	€ 644.762	€ 644.762	€ 644.762
	1	€ 600.000	€ 720.000	€ 800.000	€ 805.953
	1,2	€ 600.000	€ 720.000	€ 800.000	€ 960.000
	1,4	€ 600.000	€ 720.000	€ 800.000	€ 960.000

Table 11: DCF Comparable companies, CAPM and WACC

CAPM	Comparable Companies					
	B2C			B2B		
Stock Exchange	NYSE	NYSE	NYSE	NYSE	NasdaqGS	NasdaqGS
Company Name	Blue Apron Holdings	Stitch Fix Inc	Bark Inc	W.W Grainger. Inc	Cintas Corporation	The ODP Corporation
Levered Beta	-2,94	2,24	1,54	1,19	1,33	1,79
Comperable D/E	1,77	0,52	0,507	0,989	0,817	0,684
Comparable Tax Rate	35%	35%	35%	35%	35%	35%
Unlevered Beta	-1,37	1,67	1,16	0,72	0,87	1,24
Average - Unlevered Beta	0,49			0,94		
Debt / Equity Offcoustic	30%			30%		
Tax rate Offcoustic	23%			23%		
Re-levered Beta	0,60			1,16		
RF 10Y US Bond	3,47%			3,47%		
Market Premium - S&P 500 (Diversified Investor)	8,18%			8,18%		
MRP	4,71%			4,71%		
rE - Expected Return Over Equity	6,30%			8,93%		
rD	8,8%			8,8%		
Debt / Book Value Offcoustic	23%			23%		
WACC	6,405%			8,437%		
Terminal g	2%					

Table 12: WACC according different levels of D/E

WACC TABLE	2023	2024	2025	2026	2027	2028	2029	2030	2031
Debt / Book Value	30%	49%	33%	18%	27%	20%	20%	20%	20%
WACC	8,4%	7,9%	8,2%	8,5%	8,4%	8,5%	8,5%	8,5%	8,5%

Table 13: DCF Valuation

Valuation	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032 - Perpetuity
Unlevered FCF	-243.566 €	-273.008 €	11.065 €	148.033 €	628.456 €	996.356 €	1.326.776 €	1.608.364 €	1.755.002 €	1.853.709 €
Enterprise Value	18.656.633 €	20.503.769 €	22.107.509 €	23.776.651 €	25.179.156 €	26.285.371 €	27.193.179 €	27.896.574 €	28.513.128 €	
Debt	137.435 €	511.466 €	449.142 €	326.269 €	537.178 €	402.061 €	357.247 €	288.956 €	232.142 €	
Equity Value	18.519.198 €	19.992.303 €	21.658.367 €	23.450.382 €	24.641.978 €	25.883.310 €	26.835.932 €	27.607.618 €	28.280.986 €	

Table 14: Sensitivity analysis of the valuation

Sensitivity Analysis Valuation		Terminal Growth				
		1%	2%	3%	4%	5%
Debt/Equity	2%	18.910.892 €	21.563.541 €	25.335.141 €	31.122.934 €	41.133.378 €
	5%	18.626.242 €	21.195.576 €	24.830.279 €	30.366.289 €	39.823.857 €
	10%	18.167.201 €	20.605.322 €	24.026.529 €	29.175.554 €	37.803.479 €
	20%	17.302.834 €	19.504.301 €	22.547.036 €	27.027.163 €	34.278.196 €
	30%	16.503.535 €	18.498.094 €	21.216.995 €	25.142.357 €	31.306.154 €
	40%	15.762.409 €	17.575.193 €	20.015.152 €	23.475.849 €	28.767.223 €
	50%	15.073.498 €	16.725.872 €	18.924.096 €	21.992.158 €	26.573.695 €

Table 15: Cap Tables – Financing rounds terms

Pre-Seed Round 2022	
Equity Stake	20%
Total Amount Raised	250.000 €
Seed 2024 - Scenario 1	
Equity Stake	6%
Total Amount Raised	400.000 €
Seed or Serie A 2026 - Scenario 2	
Equity Stake	7%
Total Amount Raised	1.500.000 €

Table 16: Cap Tables – Scenario 1 No RBF

	€ 600.000		€ 1.000.000		€ 6.266.667		21.576.923 €	
	Ownership	Value	Ownership	Value	Ownership	Value	Ownership	Value
Pre-Money			€ 1.250.000		€ 6.666.667		23.076.923 €	
Post-Money								
Founders								
Founder 1	52,50%	€ 315.000	42,00%	€ 525.000	39,5%	€ 2.632.000	36,9%	8.518.569 €
Founder 2	22,50%	€ 135.000	18,00%	€ 225.000	16,9%	€ 1.128.000	15,8%	3.650.815 €
Founder 3	12,50%	€ 75.000	10,00%	€ 125.000	9,4%	€ 626.667	8,8%	2.028.231 €
Talent Pool	12,50%	€ 75.000	10,00%	€ 125.000	9,4%	€ 626.667	8,8%	2.028.231 €
Pre-Seed investors								
Angel 1			4,00%	€ 50.000	3,8%	€ 250.667	3,5%	811.292 €
Angel 2			2,00%	€ 25.000	1,9%	€ 125.333	1,8%	405.646 €
Angel 3			2,00%	€ 25.000	1,9%	€ 125.333	1,8%	405.646 €
PE 1			12,00%	€ 150.000	11,3%	€ 752.000	10,5%	2.433.877 €
Seed Investors								
PE 2					3,0%	€ 200.000	2,8%	647.308 €
PE 3					3,0%	€ 200.000	2,8%	647.308 €
Seria A Investors								
PE 4							3,5%	807.692 €
PE 5							3,0%	692.308 €

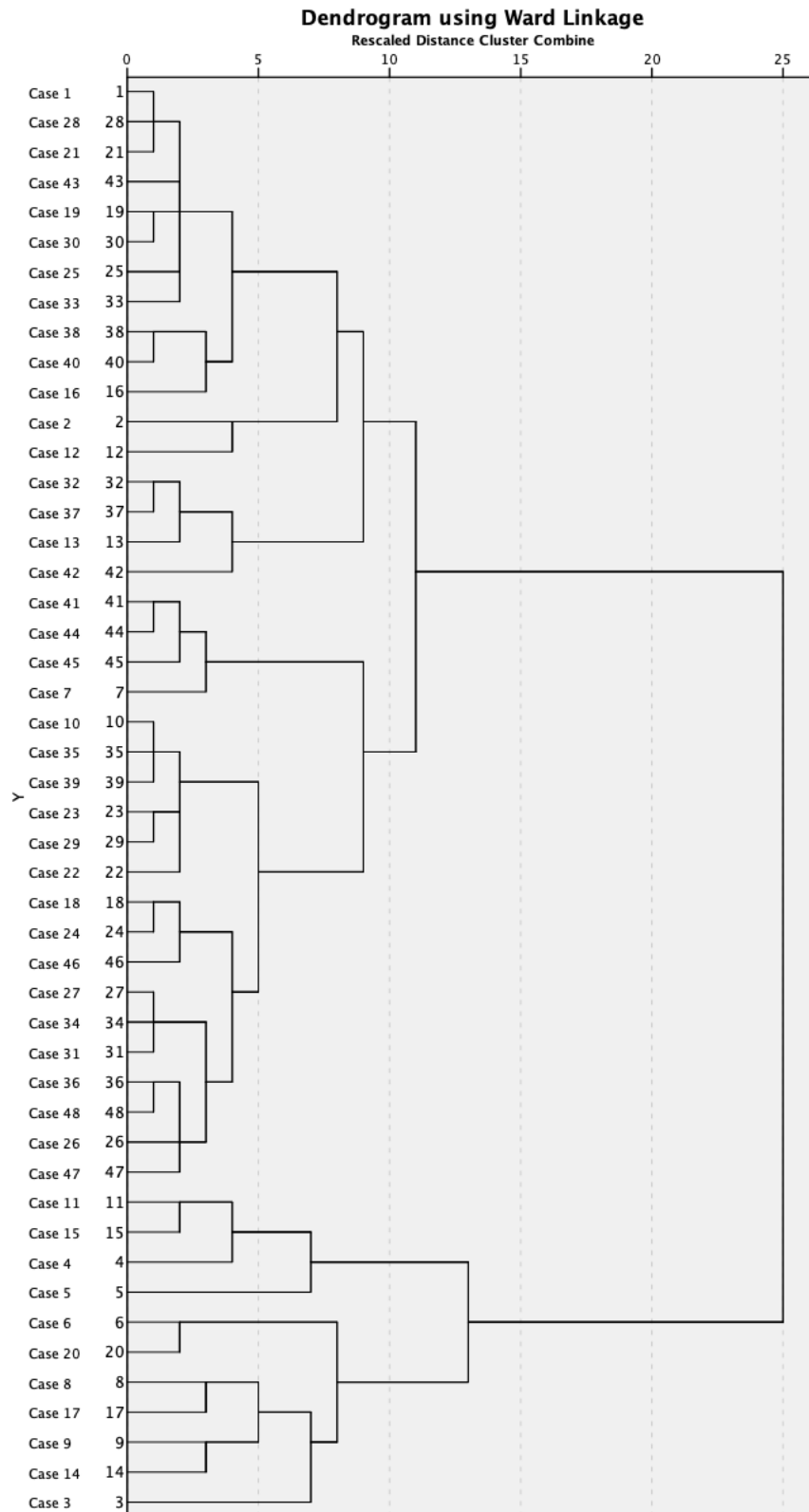
Table 17: Cap Table – Scenario 2 RBF Bridge Round

	€ 600.000		€ 1.000.000		€ 400.000		€ 21.576.923	
	Ownership	Value	Ownership	Value	Ownership	Value	Ownership	Value
Pre-Money			€ 1.250.000				€ 23.076.923	
Post-Money								
RBF Amount								
Founders								
Founder 1	52,50%	€ 315.000	42,00%	€ 525.000			39,3%	€ 9.062.308
Founder 2	22,50%	€ 135.000	18,00%	€ 225.000			16,8%	€ 3.883.846
Founder 3	12,50%	€ 75.000	10,00%	€ 125.000			9,4%	€ 2.157.692
Talent Pool	12,50%	€ 75.000	10,00%	€ 125.000			9,4%	€ 2.157.692
Pre-Seed investors								
Angel 1			4,00%	€ 50.000			3,7%	€ 863.077
Angel 2			2,00%	€ 25.000			1,9%	€ 431.538
Angel 3			2,00%	€ 25.000			1,9%	€ 431.538
PE 1			12,00%	€ 150.000			11,2%	€ 2.589.231
Seed Investors								
PE 2							3,5%	€ 807.692
PE 3							3,0%	€ 692.308

Dilution Avoidance Summary - RBF bridge round	Founder 1	Founder 2	Founder 3
Dilution Difference	€ 543.738	€ 233.031	€ 129.462
Ownership Difference	2,4%	1,0%	0,6%

SPSS - Hierarchical Cluster Analysis

Table 18: Dendrogram – Hierarchical Cluster



K-Means Cluster Analysis

Table 19: K-Means Cluster

Number of Cases in each Cluster		
Cluster	1	8.000
	2	40.000
Valid		48.000
Missing		.000

Table 20: Anova

	ANOVA					
	Cluster		Error		F	Sig.
	Mean Square	df	Mean Square	df		
Stage of your Startup	1.504	1	.315	46	4.780	.034
Position inside the Startup	.104	1	.356	46	.293	.591
Have you heard of revenue-based financing before	.338	1	.217	46	1.556	.219
What are the main benefits of revenue based financing for startups	.817	1	.328	46	2.488	.122
How does revenue-based financing impact the growth trajectory of startups compared to traditional venture capital financing	5.104	1	1.552	46	3.290	.076

In your experience, what types of startups are best suited for revenue-based financing	.004	1	.695	46	.006	.939
What are the main challenges that startups face when using revenue-based financing as a funding source	41.667	1	1.261	46	33.046	<.001
How does revenue-based financing impact the relationship between startup founders and investors	4.004	1	.673	46	5.946	.019
How important is revenue-based financing in promoting diversity and inclusion in the entrepreneurship ecosystem	2.817	1	.633	46	4.452	.040
In your opinion, how does revenue-based financing impact the success rate of startups	1.204	1	1.582	46	.761	.388
How does revenue-based financing impact the availability of funding for startups in underrepresented communities	3.038	1	1.484	46	2.047	.159
Why would you choose revenue-based financing over equity-based financing	7.704	1	.789	46	9.770	.003
How do you feel about giving up equity in your company	.417	1	.332	46	1.257	.268

How do you balance financial performance with social impact goals when seeking revenue-based financing	.150	1	.540	46	.278	.601
In your opinion, which financing model is better suited for promoting startups that make a positive impact on society	24.067	1	1.432	46	16.812	<.001
In your opinion, does revenue-based financing have a positive impact on the overall landscape of startup financing	.004	1	.097	46	.043	.837
Have you received investment using revenue-based financing as instrument in the transaction	.067	1	.078	46	.852	.361

The F tests should be used only for descriptive purposes because the clusters have been chosen to maximize the differences among cases in different clusters. The observed significance levels are not corrected for this and thus cannot be interpreted as tests of the hypothesis that the cluster means are equal.

Table 21: Final Cluster Centers

	Cluster	
	1	2
Stage of your Startup	2	2
Position inside the Startup	2	2
Have you heard of revenue-based financing before	2	2
What are the main benefits of revenue based financing for startups	2	2

How does revenue-based financing impact the growth trajectory of startups compared to traditional venture capital financing	3	2
In your experience, what types of startups are best suited for revenue-based financing	3	3
What are the main challenges that startups face when using revenue-based financing as a funding source	5	2
How does revenue-based financing impact the relationship between startup founders and investors	3	2
How important is revenue-based financing in promoting diversity and inclusion in the entrepreneurship ecosystem	4	3
In your opinion, how does revenue-based financing impact the success rate of startups	3	2
How does revenue-based financing impact the availability of funding for startups in underrepresented communities	3	2
Why would you choose revenue-based financing over equity-based financing	3	2
How do you feel about giving up equity in your company	1	2

How do you balance financial performance with social impact goals when seeking revenue-based financing	3	3
In your opinion, which financing model is better suited for promoting startups that make a positive impact on society	4	2
In your opinion, does revenue-based financing have a positive impact on the overall landscape of startup financing	1	1
Have you received investment using revenue-based financing as instrument in the transaction	2	2

Multinomial Logistic Regression Model

Table 22: Model Fitting Information

Model	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC	BIC	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	67.846	71.588	63.846			
Final	65.389	95.328	33.389	30.457	14	.007

Table 23: Goodness-of-fit

	Goodness-of-Fit		
	Chi-Square	df	Sig.
Pearson	18.109	34	.988
Deviance	20.350	34	.969

Table 24: Pseudo R-Square

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	18.109	34	.988
Deviance	20.350	34	.969

Table 25: Likelihood Ratio Test

Effect	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC of Reduced Model	BIC of Reduced Model	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	65.389	95.328	33.389 ^a	.000	0	.
Ranking	63.016	89.213	35.016	1.628	2	.443
How does revenue-based financing impact the relationship between startup founders and investors	68.155	86.867	48.155	14.766	6	.022
How does revenue-based financing impact the availability of funding for startups in underrepresented communities	68.462	87.174	48.462	15.073	6	.020

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

a. This reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.

Table 26: Assumptions check – Correlation

Correlations

		How does revenue-based financing impact the availability of funding for startups in underrepresented communities	How does revenue-based financing impact the relationship between startup founders and investors	Ranking
How does revenue-based financing impact the availability of funding for startups in underrepresented communities	Pearson Correlation	1	-.114	.033
	Sig. (2-tailed)		.441	.823
	N	48	48	48
How does revenue-based financing impact the relationship between startup founders and investors	Pearson Correlation	-.114	1	-.119
	Sig. (2-tailed)	.441		.420
	N	48	48	48
Ranking	Pearson Correlation	.033	-.119	1
	Sig. (2-tailed)	.823	.420	
	N	48	48	48

- Taking the correlation coefficients and associated p-values into account, it is concluded that there is no significant correlation between any of the three independent variables.
 - Correlation between A and B: Pearson correlation coefficient is -0.114, and the p-value is 0.441. A statistically significant correlation does not exist between variables A and B because the p-value is greater than the conventional significance level of 0.05.

- Correlation between A and C: Pearson correlation coefficient is 0.33, and the p-value is 0.823. As in the previous case, the p-value is greater than 0.05, indicating that variables A and C do not show a statistically significant correlation.
- Correlation between B and A: Pearson correlation coefficient is -0.114, and the p-value is 0.441. As in the first case, variables B and A do not demonstrate a statistically significant correlation.
- Correlation between B and C: Pearson correlation coefficient is -0.119, and the p-value is 0.420. A p-value greater than 0.05 indicates that variables B and C do not have a statistically significant correlation.
- Correlation between C and A: Pearson correlation coefficient is 0.33, and the p-value is 0.823. There is no statistically significant relationship between variables C and A, as previously observed by the p-value exceeding the significance level.
- Correlation between C and B: Pearson correlation coefficient is -0.119, and the p-value is 0.420. It is evident from these results that variables C and B do not exhibit a statistically significant relationship.

Interview Guide Investors

1. Have you heard of revenue-based financing (RBF) before?
2. In your opinion, how does RBF differ from traditional forms of financing? do you think RBF affects the entrepreneurial ecosystem in terms of encouraging new businesses to launch?
3. What types of startups do you think are best suited for revenue-based financing?
4. Do you think RBF is more suitable for certain types of businesses or industries compared to others? If so, which ones and why?
5. What are the risks associated with revenue-based financing compared to equity-based financing for startups?
6. How does revenue-based financing impact the valuation of startups compared to equity-based financing?
7. How does RBF impact the decision-making process for entrepreneurs when it comes to financing their business?

8. What do you think are the advantages of RBF over other types of financing, such as equity or bank loans? do you think RBF can help entrepreneurs maintain ownership and control of their businesses compared to traditional forms of financing?
9. Do you think RBF can help to bridge the funding gap for underrepresented groups, such as women and minorities, in the entrepreneurial ecosystem?
10. How does RBF impact the relationship between entrepreneurs and investors, compared to other forms of financing?
11. In your experience, how have investors viewed RBF as a financing option for startups? Have you observed any specific challenges that arise when using RBF as a financing option?
12. Considering that RBFs are predominantly used to fund startups with positive social impacts, do you think a cap on RBFs negatively impacts the investment's attractiveness? The success rate of VC investments is low, therefore, if the successful investments are capped, the investor won't compensate for the unsuccessful ones, or the IRR won't be as high as expected, thus fewer investors will decide to invest in social impact startups.

Questions survey to founders

Stage of your Startup

- a) Idea
- b) MVP
- c) Seeds Round
- d) Serie A
- e) Serie B onwards

Have you heard of revenue-based financing before?

- a) Yes, I am familiar with it
- b) I have heard of it, but don't know much about it
- c) No, I am not familiar with it
- d) Not sure

What are the main benefits of revenue-based financing for startups, in your opinion?

- a) Lower cost of capital
- b) No dilution of equity
- c) More flexible repayment terms
- d) Reduced financial risk
- e) Other (please specify)

How does revenue-based financing impact the growth trajectory of startups compared to traditional venture capital financing?

- a) Revenue-based financing leads to slower but more sustainable growth
- b) Revenue-based financing and traditional venture capital financing have similar impacts on growth
- c) Revenue-based financing leads to faster growth than traditional venture capital financing
- d) Not sure

In your experience, what types of startups are best suited for revenue-based financing?

- a) Early-stage startups
- b) Established startups
- c) Startups with steady revenue streams
- d) Startups in certain industries (please specify)
- e) Other (please specify)

What are the main challenges that startups face when using revenue-based financing as a funding source?

- a) High interest rates
- b) Lack of investor interest
- c) Difficulty finding suitable investors
- d) Repayment terms that are too onerous
- e) Other (please specify)

How does revenue-based financing impact the relationship between startup founders and investors?

- a) More collaborative
- b) Less collaborative
- c) No difference
- d) Not sure

How important is revenue-based financing in promoting diversity and inclusion in the entrepreneurship ecosystem?

- a) Very important
- b) Somewhat important
- c) Neutral
- d) Not very important
- e) Not at all important

In your opinion, how does revenue-based financing impact the success rate of startups?

- a) Increases the success rate
- b) Decreases the success rate
- c) No impact on the success rate
- d) Not sure

How does revenue-based financing impact the availability of funding for startups in underrepresented communities?

- a) Increases the availability of funding
- b) Decreases the availability of funding
- c) No impact on the availability of funding
- d) Not sure

Why would you choose revenue-based financing over equity-based financing?

- a. I wanted to retain ownership of the company
- b. I wanted to avoid diluting existing equity
- c. I wanted to avoid the pressure to achieve high growth rates
- d. I had difficulty attracting equity investors
- e. Other (please specify)

How do you feel about giving up equity in your company?

- a. I am comfortable with giving up equity if it means accessing necessary capital
- b. I am hesitant to give up equity, but would do so for the right investor
- c. I strongly prefer not to give up equity in my company
- d. I am indifferent to giving up equity
- e. Other (please specify)

How do you balance financial performance with social impact goals when seeking revenue-based financing?

- a. We prioritize social impact goals over financial performance
- b. We prioritize financial performance over social impact goals
- c. We strive to balance both financial performance and social impact goals

- d. We do not consider social impact goals when seeking revenue-based financing
- e. Other (please specify)

In your opinion, which financing model is better suited for social impact entrepreneurship?

- a. Revenue-based financing
- b. Equity-based financing
- c. Both financing models are equally suited for social impact entrepreneurship
- d. It depends on the specific social impact business and its goals
- e. Other (please specify)

In your opinion, does revenue-based financing have a positive impact on the overall landscape of startup funding?

- a. Yes, it creates a more diverse and sustainable ecosystem
- b. No, it limits the potential for growth and the number of investors available

Have you received investment using revenue-based financing as instrument in the transaction?

- a. Yes
- b. No

What motivated you to seek revenue-based financing for your business?

- a. Lack of collateral for traditional loans
- b. Desire for flexibility in repayment terms
- c. Need for capital to scale the business
- d. Avoidance of giving up equity in the company
- e. Other (please specify)

How has revenue-based financing impacted your company's ability to attract future funding?

- a. It has improved our ability to attract funding
- b. It has had no impact on our ability to attract funding
- c. It has made it more difficult to attract funding
- d. It has made it easier to attract funding
- e. Other (please specify)

How has revenue-based financing impacted your company's decision-making process?

- a. It has made decision-making more difficult
- b. It has made decision-making easier
- c. It has had no impact on our decision-making process
- d. It has made decision-making more collaborative
- e. Other (please specify)

How has revenue-based financing impacted your company's relationship with investors?

- a. It has strengthened our relationship with investors

- b. It has had no impact on our relationship with investors
- c. It has strained our relationship with investors
- d. It has improved our ability to attract new investors
- e. Other (please specify)

How has revenue-based financing impacted your company's ability to attract and retain talent?

- a. It has made it easier to attract and retain talent
- b. It has had no impact on our ability to attract and retain talent
- c. It has made it more difficult to attract and retain talent
- d. It has allowed us to offer more competitive compensation packages
- e. Other (please specify)

How has revenue-based financing impacted your company's ability to exit?

- a. It has made it more difficult to exit
- b. It has had no impact on our ability to exit
- c. It has made it easier to exit
- d. It has increased the value of our company for potential acquirers
- e. Other (please specify)