SCORECARD VALUATION FOR EARLY-STAGE PRE-REVENUE START-UP COMPANIES

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF SOCIAL SCIENCES
OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY

OLCAY ALPTUĞ AKDAĞ

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION
IN
THE DEPARTMENT OF BUSINESS ADMINISTRATION

SEPTEMBER 2017

Approval of the Graduate School of Social Sciences

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ABSTRACT

SCORECARD VALUATION FOR EARLY-STAGE PRE-REVENUE START-UP COMPANIES

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September 2017, 134 pages

This master's thesis aims to value early-stage pre-revenue start-ups with scorecard method. Discount cash flow method is applied to model so as to construct projection and calculate present value as a benchmark company while qualitative questionnaire is scored by an angel investor in order to associate firm specific risks. Financials and scores are gathered from authorities and interviews with investor and investee. The thesis also investigates whether method is applicable in practical manner or not. Final consideration is negotiation of both parties on percentage of company.

Keywords: Start-up, Angel Investor, Valuation, Scorecard, Early-stage

ÖZ

SATIŞ GERÇEKLEŞTİRMEMİŞ ERKEN AŞAMA YENİ GİRİŞİMLERİN PUAN KARTI METODU İLE DEĞERLEMESİ

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Eylül 2017, 134 sayfa

Bu yüksek lisans tezi Türkiye'deki satış gerçekleştirmemiş erken aşama yeni girişimlerin anket yöntemi ile değerlemesi yöntemini araştırmaktadır. Geleneksel nakit indirgeme tekniği ile şirketin nakit akımları modellenirken, anket tekniği ile de girişime özgü riskler ortaya çıkarılmakta ve şirketin değeri bu risklerin büyüklüğü ile ölçeklenmektedir. Bir sonraki yatırım dönemine kadar ihtiyaç duyulacak işletme sermayesinin, anket sonucunda çıkan değere bölünmesi ile de yatırımcının şirketten ne kadar oran alacağı bulunmaktadır. Model, hali hazırda yatırım süreci devam eden bir yazılım şirketine uygulanmış ve anket şirkete yatırım yapma sürecinde olan melek yatırımcı tarafından doldurulmuştur. Miktar ve oran olarak bir değere ulaşılmıştır.

Anahtar Kelimeler: Erken Aşama, Start-up, Anket, Değerleme, Melek Yatırımcı

TO MOM

ACKNOWLEDGMENTS

I would like to signify my greatest appreciation to my supervisor Assist. Prof. Dr. Seza Danışoğlu for her counseling, leadership, supervision, judgment and assistance throughout the research.

I am grateful to Nuray Güner who is considerate and supported me during though times.

Beliz Bediz Sinan, who is an associate at Venture Company in the Metu Technopolis, helped me to conduct case study and complete thesis in practical manner.

I wish to thank my mom, Satı Ban for her limitless patience and sincere contribution. I would not complete MBA degree without her infinite love.

I would also like to express my grateful to Taha Türkkan and Pınar Türkkan who are my friends and life coaches. Furthermore, I am thankful to my friends, Orhun Pınar, Yusuf Çetinkaya, Can Akgül and Leyla Boy for their never-ending support.

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CHAPTER 1

INTRODUCTION

"I'm convinced that about half of what separates the successful entrepreneurs from the non-successful one is pure perseverance" said Steve Jobs. Setting sails into new, and unknown, horizon enforces entrepreneurs' limits by compelling ventures to shoulder all burdens what mature organizations distribute to employees. Entrepreneurs, further, suffer from having insufficient cash inflow and low financial power. These are main reasons why entrepreneurs give up the idea and prefer a career in more stable jobs.

Bank credits usually require steady cash flows, this is why founders are not able to reach debt financing easily. They, therefore, are forced to sell some of their equity in firm to other investors who expect return on investment. For both parties, it is difficult to state fair value of start-ups due to high uncertainty. Mostly, the younger the start-up it is the more difficult to value a company due to lack of historical data and high uncertainty about many aspects that have effect on future financial performance.

There are several financial rounds for start-ups. Each round is another benchmark for them. These rounds determine the phase and maturity of the venture. The very first phase is valley of death in which start-ups are funded by either angel investor or three F; Family, friends and fools. They are most risk takers among the money suppliers. The 3F's provide cash for the emotional commitment thus they expect less or nothing for the exit stage. While business angels and seed funders are professional

business people who are seeking best opportunity to generate higher return on investment. Their risk is the highest compared with other ecosystem funders. Therefore, their criteria are more different than others and they seek best alternatives for their limited sources. In addition to business relation, they also enclose the team and bring mentoring sessions in order to increase the pace of the project and create high growth rate. In this stage, the investment cannot be seen as only money support but also business support and consulting. In this stage start-ups have usually an idea without tangible product. This stage ends when the enterprise reaches break even and shows evidences of survival. Next stages are usually called early-stages in which 1st and 2nd stage financing rounds are happened. In this period, the firm has substantial growth rate with final products and significant market share. During these two stages, usually venture capitals and mature companies are interested in funding. They are professional venture investors whose ROI expectation is relatively low compared to business angels. It is mostly due to the reason that after break-even point, the risk is relatively low. Before IPO, there are 3rd and mezzanine stages in which growth rate lessens and start-ups become to be grown up. Venture capitals, mature companies and private equity firms are money providers in this term. The revenue growth for this stage is relatively low compared to former first and second stages and revenue growth expectation become more conservative since the company reaches nearly mature stage. The risk turn into stabile position and more risk-averse investors are interested in companies on the later stages.

In this study, only initial stage of start-up is discussed in detail. It is started with analyzing what other researchers do for valuing early-stage pre revenue start-ups which are in the Death Valley. Four essential approaches come forward among researchers; discounted cash flow, comparable, real option valuation and Berkus approaches. The study continues with suggesting a hypothesis for the early-stage start-up

valuation. In this model, scorecard method is attached to conventional discounted cash flow methods for the qualitative conditions. The aim is to separate firm specific risks from discount rate of DCF approach. By doing so, biased results become more evitable and firm specific conditions become more assessable. At the end of the study, in order to justify the hypothesis, a case study is conducted and results are examined. Luckily, selected start-up and investor are in negotiation for pre-revenue financing round.

This thesis aims to guide entrepreneurs about the maze of calculating intrinsic value of their start-ups during early-stage investment round. A hypothetical model with extended scorecard method is established to reach above suggested intention.

The thesis is constructed as follows; Chapter 1 is an introductory chapter that summarizes what this study consists of. Chapter 2 comprises literature review of early-stage pre-revenue start-up valuation. The next chapter clarifies a method to value same kind of start-ups. The Method is extended Berkus approach with discounted cash flow methods. Chapter 4 conducts a case study with a start-up and evaluates findings. Chapter 5 is a conclusion part that summarizes all study.

CHAPTER 2

LITERATURE REVIEW

This chapter consists of academic studies, written methods and applied models for start-up valuation. These approaches are discounted cash flow method, real option pricing method, relative valuation method and Berkus valuation method. In addition to previous studies, practical limitations of each method are examined.

2.1 Valuation Methods

Valuation is the method of measuring the worth of company or an asset. It is the mathematical description of how much money an investor has to lend for the equity in order to make monetary return. There are many ways to determine the value of a company or an asset.

Unlike mature companies, young and start-up companies have some common characteristics which make valuation techniques less applicable. Damodaran (2010) clarifies these characteristics in detail; the very first and crucial consideration is start-ups have no past history and most of valuation techniques depend on it. The next one is that most of new ventures make negative operating profit for very long time and they have little or no revenue at the first stage. Third aspect is that since banks are not eager to risk their money on start-ups; baby step[1] ventures highly depend on private equity firms. This means that start-ups have to borrow expensive money. The last consideration is many of new ventures do not

[1] Baby step: A tentative measure which is the first stage in a long or challenging process.

survive. In other words; start-ups have high default risk. Therefore, although models for valuing stable companies can be used for valuation of baby step companies, due to described reasons, it is hard to mention that conventional methods help investors and investees to reach precise intrinsic value for start-ups.

Quantitative results after valuing a company is more attractable for investors. These results are the final outputs of quantitative models. Damodaran (2010) suggests more than one method to value young start-ups which are discounted cash flow, relative valuation and real option valuation approaches. In addition to using different methods, a research suggests multi stage project valuation methods (Pascual & Jimenez, 2008). On the side of this study, it covers four valuation techniques in general three of which are discounted cash flow, relative valuation and real option valuation methods. These three approaches are methods used for mature companies. Since early age start-ups have distinctive features, investors and investees face some difficulties by applying these approaches. These difficulties will be clarified in detail in the next section. As a fourth approach, Berkus Method, a method exclusively for early-stage start-ups, is covered. Therefore, Berkus technique is proposed for valuing early-stage high volatile companies which comprise risks that cannot be included in DCF, Multiple or ROV approaches. Next few chapters, the study covers DCF, Multiple and ROV methods with their exclusive additions and in the end it focuses on the Berkus method.

2.1.1 Discounted Cash Flow Method

It is known that every asset that generates cash flows has an intrinsic value which is final product of both its cash flow potential and its risks. Damodaran (2009), one of the academicians who use DCF methodology for valuing start-ups, explains how to construct DCF model for young companies. The method includes discounting future cash flows to a

present value which is the same DCF approach for mature companies. At the end of the term, if the cost is lower than the calculated value, it is concluded that the equity has a potential to make a profit and people buy assets only if they believe the assets make profit and positive return.

Several studies advise DCF approach for start-up valuation. Festel, Wuermseher and Cattaneo (2013) comes with a proven practice for DCF application in start-ups that they claim valuing early-stage ventures is applicable by expressing individual beta coefficient specifically for the firm. According to Fernandez (2006), DCF is the most applicable method among others. Engel (2003) also prefers to use DCF to value young start-ups with two categories. Jennergren (2008) remarks DCF approach on his study for precise results. Yet, he suggests splitting forecasting period into several terms and extending forecasting time up to 15 years.

In practical manner, the analytical formula of the DCF (Discounted Cash Flow) is;

$$\mathrm{DCF} = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \cdots + \frac{CF_n}{(1+r)^n}$$

CF: Cash Flow

r: Discount rate (WACC)

n: Time

In the above equation, Free Cash Flow is the cash flow before the debt and after the reinvestment needs. The important part here is estimating free cash flows for the next few years until terminal year. In order to calculate future cash flows two approaches are used. One of which is bottom-up approach while other is top-down analysis. Damodaran (2010) explains both methods in brief; for the bottom-up approach, company's capacity constraint is worked and expected sale is estimated then revenues and earnings are derived. For the top-down analysis, total

market for the product or service is calculated, then, it is worked down to firm's revenues and earnings. Another consideration is the discount rate which is the cost of equity for financing. It should be noted that it may change depending on cash flow risks of business and assets. The last input is the terminal value which calculates intrinsic value of the firm for terminal years. Below diagram illustrates inputs for the DCF valuation as a whole.

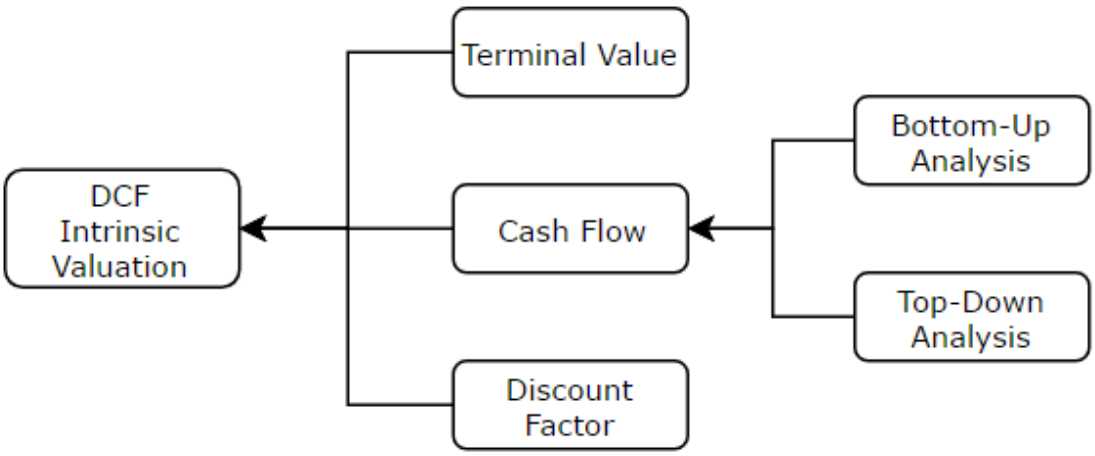

Figure 1: DCF valuation inputs

Limitations of Discounted Cash Flow Model

Damodaran (2010) claims that many analysts believe that since there is high uncertainty in the future projections, discounted cash flow method is not only difficult to apply but also pointless. However, he continues; the valuation needs to rely on a concrete statistics and data in order to be proved easily as much as possible which is possible by discounted cash flow in some extend. Yet, it is inevitable to mention that some critical problems are incorporated with this method. Desache (2014) describes

these problems as since products are new in the market, it is difficult to forecast future by looking past for the product. Another consideration he punctuates is that accomplishment is binary as success or failure instead of variable. Thus, cash flow projections are not concrete as it mentioned. In addition to that, since survival rate is too low, it is difficult to establish a precise business model. Even if business plan seems legit, discount rate either imitates market or is designated by investors.. The last consideration is that high discount rate includes risk of lower cash flows and default risk, yet it does not reward higher cash flow potential and new options to expand on behalf of start-up.

Therefore, covering all of these considerations, some analysts rely on DCF while others search for alternative approaches for valuing baby step companies.

2.1.2 Real Option Valuation Method

The discount cash flow approach focuses on risk of downside. Damodaran (2010) suggests that DCF approach misses the favorable circumstances which comes from an upside potential of risk. Uncertainty does not always means downside but means upside potential. As an alternative to DCF, real option valuation (ROV) approach provides investors with an opportunity to gauge an upside potential for risk.

Damodaran (2010) adds that one of the most important contributions of ROV to the DCF is that it presents an opportunity to observe upside or downside movement at early-stages. Real options give a right to invest but not an obligation to an investor. Thanks to an option, if investment fails, investor does not have a liability. However, if investee successes, investor progresses further investments in order to benefit upside potential. This is excellent fit for start-ups which carry huge potential as well as huge risk of bankruptcy.

Another proponent of above explanation claims that though uncertainty has down side risk, since it provides significant flexibility and opportunity for ventures, real option approach is precious approach to associate potential to intrinsic value (Müller, 2000). Fujiwara (2016) also contributes biotechnology start-up industry on application areas for real option valuation. In addition to that, phase of product is also an assessment metric for the value of information technology start-ups that is measured by real option method in a research (Campbell, 2001).

The ROV methods have distinctive features that can be boiled down as analytical and numerical methods. For further analysis on ROV approach require constructing complex algebraic or numeric model on target company. Deng and Oren (2003), similarly, study on real option approach for high technology projects and they formulate a stochastic dynamic program. In brief, these two methods consist of several sub techniques that have similar or unique characteristics and forms. For early-stage start-ups, growth option is studied in this thesis since it provides investor with an opportunity to progress further investments. One of growth option is underlying asset approach which is analytical method and follows comparable companies in the market. The other approach is binomial approach which follows traunches[2] of deals and splits each round in to quarters or semiannual terms. The former approach is for companies which have an underlying asset in the market as established company whereas the latter one does not need any similar company in the market and it uses experiences of investors and foremost professionals for depicting probability of survive.

[2] Traunch: One of a series of fund allotments earmarked for a specific purpose, such as a financing round in a start-up.

Real Option Valuation Approach

The first method is market comparable approach for those who have benchmark firms in the market. Amram and Kulatilaka (1999) suggest that even though start-ups are private companies, valuation of firm with real option is remarkably associated with market value of established firms. They continue with emulating start-ups, many projects and investment opportunities by exhibiting growth options which include wide range of applications such as corporate R&D, intraprenurial[3] ventures, and platform projects. It is mentioned in the study that compared with the discount cash flow approach, the real options approach results in higher valuation since it uses realistic inputs. These inputs are used in Black-Scholes formula in order to calculate value and they are price of underlying asset, investment cost, risk free return, volatility of the underlying asset and time to expiration. The final designated value, furthermore, is the value of underlying asset in the growth option. Growth option is an option which is sparked only if a company reaches maturity. Thus, initial investment is required in order to initiate growth options.

Below diagram shows steps to follow for underlying asset approach. It should be remembered that this approach is viable providing that there is market comparable.

[3] Intrapreneur: An employee or employer within a company who promotes innovative product development and marketing.

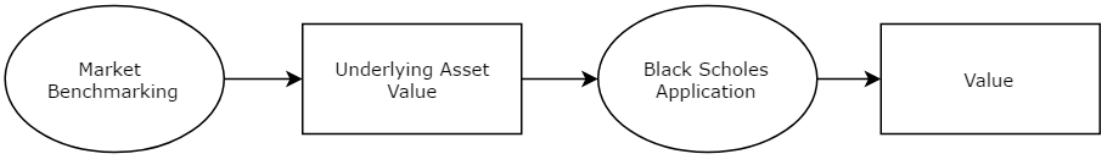

Figure 2: Steps to follow for sizing underlying asset

The very first step starts with benchmarking market and market comparable. Benchmarking analysis commences to estimate time to maturity for a company (Amram & Kulatilaka, 1999). In this step, investors search for a time when start-up reaches maturity as an established company or when it is offered publicly. At that point, business plan of a venture is similar with cash flows of established companies. Next step is estimating sales level and revenue by looking capacity and firm's potential. At the time of maturity, start-ups become mature firms which are recently market comparable. Therefore, third step is to examine companies' market value to sales ratio. This determination helps the start-up to animate itself as an established firm in the market with a designated value which is generated by market value to sales ratio. Eventually, market value becomes the value of underlying asset.

Next step is to use well-known option pricing tool, Black&Scholes formula which is presented below.

$V = N(d_1)A - N(d_2)Xe^{-rT}$

V = Current value of call option

A = Current value of underlying asset

X = Cost of investment

r = risk free rate

T = Expiration time

σ = volatility of underlying asset

$$d_1 = \left[\ln\left(\frac{A}{X}\right) + (r + 0.5\sigma^2)T\right] / (\sigma\sqrt{T})$$

$$d_2 = d_1 - \sigma\sqrt{T}$$

In the above equation; A is the current value of underlying asset which is calculated on the previous step. X is the capital investment, required for a company in order to reach next financial round or preset maturity time. For start-ups, X is the cost of operations until next stepping stone. Next input is r which is simply risk free rate. In addition to r, T is time to reach to next step which is usually 18 to 24 months until next financial round or 10 years until initial public offering. Volatility of underlying asset, σ, is future variability of underlying asset. Amram and Kulatilaka (1999) state that what differentiates real option valuation method from discounted cash flow method is the premium that comes from volatility. It may be added as a reward of better than expected market opportunity. $N(d_1)$ and $N(d_2)$ are probability factors and N is the cumulative standard normal distribution function.

On the start-up case, further investments, X, are necessary for a start-up in order to continue operations. Yet, it should be also noted that initial investment, as whole or as traunches, is compulsory. On this perspective, in order to calculate net present value, initial investment is to be deducted from the value of a company, V. If NPV, net present value, is greater than 0, it is worth to invest in a company, else it should be avoided.

Amram and Kulatilaka (1999) claim that contribution of ROV method to value can be seen simply by comparing ROV and DCF approaches. The premium arises from the volatility of underlying asset and the upside risk of future cash flows.

Limitations of Real Option Valuation Model

Real option valuation covers success potential of a new venture unlike DCF method which punishes a company until maturity. Yet, it does not mean that ROV method is superior over intrinsic valuation since it has several flaws.

The very first weakness is that finding an underlying asset is not always possible. Furthermore, reaching statistics is hard to comprehend, especially in emerging markets such as Turkey. Therefore modeling Black&Scholes is not possible while price in the market is unattainable.

Next fault with ROV method is that Black&Scholes formula is modeled for financial instruments which can be traded continuous and which are liquid in the market. On the contrary, start-ups are not traded easily and can be traded only if they need capital. It is stated by Smith, Smith and Bliss (2011) that ROV model is derived under an assumption of continuous trading and market completeness whereas early age start-ups have discrete financial sessions and follow steps rather than continuous value. After reaching an each step, new steps are welcomed and completing steps until maturity is prerequisite for success.

The last problem is that ROV approach is difficult to apply since it is rather complex and it requires advanced statistics. Entrepreneurs and cofounders may be defocused from operations while searching capital and establishing option pricing model. It is most probable for investees that they have little or no idea about developing complex real option pricing

model. Furthermore, investors, on the other hand, may be less familiar in the experimental application of technique.

In a nutshell, ROV method has both blessing and imperfection sides. If an analyst can find an underlying asset with supportive statistics, real option valuation provides precious solution. Otherwise, it is difficult for both parties during investment rounds.

2.1.3 Relative Valuation

Damodaran (2010) describes that relative valuation is valuation of company by looking how much a market pay for similar companies. Mentioned approaches until now focus on future value of companies by estimating projections. These approaches may benchmark market companies yet it does not solely reflect the market conditions. However, relative valuation imitates market precisely by looking prices of similar assets in the market. Most common used benchmarks are price-to-earning (P/E) and enterprise value-to-earnings before interest tax and depreciation (EV/EBITDA) ratios

The method to follow is less complex than previous ones. Damodaran (2010) explains paths to value a private company as finding a similar company in the business and market with same stage in the life cycle and with similar size. Later, transaction values and market price of other companies is taken from the market and these values are scaled to common variables such as revenues, earnings or sector specific multiples. The last step is calculating a typical multiple that investors are willing to invest.

It is mentioned that comparable approach is the easiest method of valuation practice (Vinturella & Erickson, 2004). In the report (2007) of Pellegrino and associates, a firm focusing on an intellectual property valuation, it is mentioned that comparable approach is easy to calculate

even if market is not rational. In brief, the method is used widely since it is easy to implement yet it comes with complications which make this technique less applicable and preferred.

Limitations of Relative Valuation Model

The very first challenge is to find a comparable company in the market. A research said that there is absence of organized database especially in emerging markets (Damodaran, 2010). In logical sense, the comparable is to be young counterpart in the same business. Yet, young companies have no market prices and statistics.

Damodaran (2010) remarks another problem that multiples, common inputs for valuation, are not easy to scale to firm specific level. Most of the firms have negative earnings and cash flows at early-stage. It creates an incompatibility between target firm and market benchmark.

The other issue is mentioned that investment timing change which may undervalue or overvalue a company (Damodaran, 2010). Survival risk for a start-up changes as well by time changes. By using relative method, incorporated risks are risks of mature companies. Thus, beta or standard deviation is for established companies which cannot be computed for a baby step companies.

2.1.4 Berkus Method

It is stated in the book that very few of early-stage ventures can reach initial target (Cohen & Kador, 2013). Thus, qualitative valuation is prerequisite for investors in order to assess progress of team. Qualitative questionnaire, in addition to that, is a tool for measuring value of early-stage risky start-up. Dave Berkus, an angel investor, suggests a scorecard model to fulfill this need.

Compared to other approaches, Berkus Valuation approach is exclusively for early-stage pre-revenue start-ups. Berkus (2016)[4] mentions that he does not believe financial projections and discounted cash flows for those companies which are pre-revenue. He continues that investors who prefer to go with conventional valuation approaches miss the statistics that fewer than one in a thousand start-ups meet their forecasted revenues.

The model, Berkus (2012)[5] used, consists of several questions that results monetary conclusions to value young ventures. These questions assess risks initiated with business and according to these risks it concludes a quantitative valuation. He explains these risks on his book as execution risk, product risk, technology risk, marketing risk and production risk. Method assigns maximum amount of monetary value to each risk in order to look for entrepreneurial ultimate achievement. Value of each risk diminishes as firm gets more risky.

Each risk can add value to target firm up to $500.000. This is the highest amount for a company can achieve from each category. Investor assigns financial value to each topic and calculates all topics as a final summation. Therefore, the amount can reach up to $2.5 Million in the United States. The amount of $2.5 Million comes from discounting market value of average mature start-ups, nearly $25 Million, with required rate of return on investment, 10 times. Yet, in Turkey, angel investors have fewer budgets and firms' exit price is smaller. Gozutok (2015)[6] suggests in Capital magazine that 80% of all early-stage investors have ^{TRY}1 Million

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[4] https://www.angelcapitalassociation.org/blog/after-20-years-updating-the-berkus-method-of-valuation/

[5] https://berkonomics.com/?p=1214

[6] http://www.start-updergi.com/arastirmalar/melekler-ne-planliyor.html

budget for an investee. Furthermore, investors expect TRY10 to TRY15 Million when they exit. Thus, according to value they designate, it means that they can allocate as much as TRY1 million. Therefore each risk, mentioned in the Berkus method, is worth TRY200.000. It is noted by Berkus (2012) that the model is flexible enough to assign maximum amount investors are willing to pay for a perfect situation.

Table 1: Maximum monetary equivalent of each risk

If Exists	**Add Value to Firm**
Management Team (Execution Risk)	0 to TRY200.000
Sound Idea (Product Risk)	0 to TRY200.000
Working Prototype (Technology Risk)	0 to TRY200.000
Strategic Relationship (Market Risk)	0 to TRY200.000
Product Rollout or Sales (Production Risk)	0 to TRY200.000

Above table explains risks in tabulated form. The very first risk is execution risk which questions adequacy of management team. Steve Jobs said that ideas are worth nothing unless executed. Second question looks for whether the product solves any problem of clients or customers are willing to adopt it. The other query looks for how designers or entrepreneurs achieve proposed product. Working prototype or at least working pretotype[7] diminishes the risk of feasibility of product. Next question asks for how market is penetrated and how much marketing is required. The last one looks for whether a firm made a sale or not. If it does, it means that the product has market with a potential for

[7] Pretotype: A science of faking something before making it.

improvement. Risk elements and respective values can be changed by principles. More important risk features according to an investor can be added or less important subjects can be discarded.

Another applicant of the scorecard method is Bill Payne, an angel investor. He mentions (2006) in his book (Definite guide to raising money from angels) that early-stage ventures can be valued by scorecard method.

To sum up, this method is easy to apply and consists of qualitative questionnaires which convert answers into monetary equivalent. It is to be noted that the model holds only for pre-revenue firms and it is no longer applicable if the firm makes revenue for any period of time. Berkus (2012) reminds us that the model is created specifically for the earliest stage investments as a way to find a starting point without relying upon the founder's financial forecasts.

Limitations of Berkus Valuation Method

Berkus (2016) constructs valuation method for earl-stage ventures that makes valuation procedures easy to implement for both parties. On the other hand, it has some complications to adopt. First problem is that the method is likely to underestimate value of firm since it uses investors' instinct. In addition to that, valuation without precise statistics results in a biased solution eventually.

2.1.5 Conclusion

All methods; DCF, ROV, relative valuation and Berkus methods have pros and cons in short. Discounted cash flow is easy to implement and widely used method yet it boils down the value of an early-stage ventures since discount rate is difficult to designate. Whereas ROV approach is difficult to implement and it is known less among professionals. On the positive side, ROV provides premium for upside potential. Relative valuation, on

the other hand, is easy to apply but difficult to simulate with mature companies. Berkus method suggests good solution for early-stage valuation procedures yet it does not provide strong model that saves results from human bias. In conclusion, some investors prefer to select conventional DCF since it depends upon concrete inputs while others proceed with ROV since it enjoys volatility. Few investors prefer to continue with relative valuation since it is easy to apply. For the Berkus method, there is no academic research about model validation.

CHAPTER 3

METHODOLOGY

The purpose of this thesis is to establish a scorecard model for pre-revenue early-stage ventures in order to guide entrepreneurs and investors during initial investment round. In doing so, valuation depends less on conventional approaches which are constructed with difficult to reach historical data. The model consists of discounted cash flow method and Berkus Method with extended categories. These extended categories are defined exclusively for Turkey by a research. The research is ongoing Tubitak project which has a code of 3501 and has a title of Performance of selection criteria for Turkish incubation and accelerator centers. There are two leaders in the research group who are Assistant Professor Doctor Berna Beyhan from Sabancı University School of Management and Associate Professor Doctor Semih Akçomak from METU Science and Technology Policy Studies. Thesis writer, Olcay Alptuğ Akdağ takes analyzing duty in the project as a graduate researcher. The study examines with 14 Turkish incubation and accelerator centers which accept seed or early-stage start-ups for mentorship. Their acceptance criteria are tabulated as qualitative categories. Investor assigns weight and monetary equivalent to each categories and subcategories. The weight of each section and monetary reward are subjective that can be negotiable by investors and investees.

The thesis continues with developing a hypothetical valuation method. How to construct discounted cash flow approach is described in order to see potential of firm that is underlying asset for an investor. Next, Berkus method with extended categories exclusive for Turkey is enlightened. As

a last consideration, negotiation and deal process is expressed in order to designate shareholder structure.

3.1 Constructing Valuation Model

Valuation approaches for mature companies have some limitations for early-stage start-ups. Therefore, alternative methods are raised by angel investors and seed funders. Since new ventures are lack of historical data and are not able to develop precise financial projections, qualitative approaches rather than analytical methods are preferred by professionals. Dave Berkus, one of the best known angel investor in angel community, has developed a model called Berkus method. The model consists of questionnaire that looks for how risky a venture is. Each category, then, adds value to a firm up to some extent. Maximum monetary equivalent of each risk is defined by investor's willingness. The Investor examines potential of a firm by looking future projections as if firm will success and investor will exit in the future. The value at maturity, on the other hand, is calculated with a DCF method.

The model initially analyzes future value at maturity with DCF method on the investee and investor side. Since both perspectives are considered, there are dual outputs which determine maximum and minimum limits of valuation. It continues with questioning each category in the scorecard in order to assess riskiness of firm. Extended sub-categories and components of sub-categories are added. These elements may have different weight and monetary value according to an investor. Therefore, each risk associated with company is discounted from the maximum value of a company.

The next part is negotiation process which defines how much equity an investor gets by investing. The last part asserts how to conduct a case study with a real start-up which is to be invested. It is the final part of the valuation process.

3.2 Calculating Investor's Expectation

This part calculates highest potential a venture can reach provided that the start-up successes. At the time of maturity, the venture provides investor with exit opportunity that is time for profit realization. It means that the investor realizes return for his or her initial investment. This value is the maximum amount of investment that investor is willing to invest.

The approach begins with estimating venture's potential. It is the value of the start-up when it reaches a fully established corporate level with several products and stable growth rate. The time horizon for reaching that maturity is another consideration since it is an input for defining the present value. Later, it figures out present value of venture by discounting value with a required rate of return of investor.

Estimation of Venture's Potential

The first input in the model is measuring potential from existing operations. The classical method for mature companies is to crunch financial statements and to look back history. However, it is mentioned previously that this does not applicable for baby step companies. Even so, top-down analysis with some modifications is used among analysts. Unlike mature companies, less financial detail is entered between top and bottom lines.

Above mentioned approach begins with forecasting total and serviceable market and narrows forecast to obtainable revenue. It is mentioned that, unless a business faces significant restrictions on raising additional capital (because they are too small and/or in the wrong type of business) or is dependent on a key person; top-down approach is more suited for businesses (Damodaran, 2010).

Top-Down Analysis

In this approach, professionals start with reaching top line of the company by starting from analyzing the total market and they narrow it down until market share which is expected penetration in the market.

The very first step is to sizing the market which starts with estimating total available market (aka TAM). It calculates all market available for the proposed product and services. It defines how big the market is and what is the upside potential for the product. For instance, for a company (let's say VenDeal) which develops a software for the start-up valuation and post valuation management in the financial industry, the total available market is the all financial market players including commercial banks, investment banks, financial institutes, universities, investors, non-profit organizations and government institutes. Thus, it covers all the potential markets for the product. Later, serviceable available market (aka SAM) comes which is the reachable pool of customers who demand the product that competitors offer to market. It narrows the whole market in a more concentrate level that it is the cluster that company competes with other products or services for audiences. For the VenDeal case, individual investors, corporate investors, venture capitals, non-profit start-up organizations, incubation and accelerator centers and universities are markets which VenDeal can operate. In addition to recent market size, future projection is required for the analysis; analysts have to decide future growth rates for the serviceable market until steady state and post terminal years. It should be noted that a research by Shane (2015)[8] states that average exit time for early-stage ventures are between 7 to 10 years. The final estimation is the serviceable obtainable market (aka SOM) which defines the market share that company has in the

[8] https://www.entrepreneur.com/article/253459

serviceable available market. VenDeal, for example, has some distinctive features which make start-up superior over competitors' products. Thus, company assumes that it is able to start business with a 1% market share at the end of the year and it will reach 30% market penetration in steady state level within 10 years. The last forecast carries us through the potential revenue for the company in the long run. With the assumption of constant growth rate and profit margin at final year, terminal value from that time horizon is found. This is the way in brief to measure estimated exit value of company.

Future projections require few assumptions which convey investors and investees to have slightly different conclusions and expectations. Berkery (2008) stated that investors always expect higher return and for this reason they are more conservative on projections compared to entrepreneurs. Thus, two projections are drafted; one of which is entrepreneurs' perspective, more optimistic, whereas the other is investors' perspective, more conservative. Therefore, results for former may seem more pleasing though for latter may seem inferior. As a matter of course, two scenarios arise; one of which results higher value, the other yield to lower value. The two scenarios become ceiling and minimum limit for a company. Investors and investees negotiate between these intervals in order to agree on final value.

Discount Rate

The discount rate for mature companies has two components; one of which is the cost of equity and the other one is the cost of debt. After calculating both values, debt and equity is weighted according to market rates and cost of capital is reached. Unfortunately, the method causes impractical reason if it is applied to start-ups. Damodaran (2010) explains three reasons why traditional discount rate calculation has difficulties for new ventures. Start-ups are often held by undiversified

owners and entrepreneurs. Thus, there is an additional risk to the market risk. The cost of equity includes some or all of the firm-specific risk. Since new ventures are not traded publicly, the most used method, examining betas from stock prices has difficulty in applying to baby step companies. The other reason Damodaran (2010) mentions that since start-ups do not issue bonds, they do not have bond ratings. The final argument he mentions is designating a debt to equity ratio is not possible since young companies do not trade equity or debt.

Venture capitals or angel investors give above covered obstacles as a reason of choosing irrational discount rates which are too high that put away intrinsic value exceedingly. In addition to firm specific risks, the discount rate, ventures use, raises such a level that companies lose most of their value during negotiations due to high country risk for Turkey.

Entrepreneurs are aware that investment has periods and it continues until maturity. Each period, values and cash requirements change. Investees are not eager to compromise with ventures on high discount rates since intrinsic value diminishes remarkably. So as to preserve intrinsic value for the current and next investment periods, they stick on different cost of capital approximations rather than accepting only one discount rate. One of these approximations is venture capital method that looks for the internal rate of return (IRR).

In addition to adjusting cost of capital as firms move over life cycle, the most used method among private equity investors is looking for IRR. IRR is simply the percent increase in what investor invests in a company. In other words it answers if investment makes positive net present value (NPV) or not. Berkery (2008) explained IRR as an investment would yield positive NPV if discount rate is lower than the IRR, else, it results a negative present value and it should be avoided. Preston (2007) suggests that IRR is the discount rate which discounts series of investments to the

net present value. Each investment period, survival risks diminish and possibility of being mature increases. Therefore, additional capital flows into a company and approximates company to mature stage. Further cash inflows surge value of company on the next financial cycle. When next financial cycle gets close, investors' concern softens about whether company will success on the next financial term or not. Berkery (2008) continues with mentioning on his book that at each stepping-stone, the company is different from what it was at the preceding step. Vaulting from a steppingstone to another requires additional capital investment and if capital is raised on the next round, it means company passes another test for survival and risk diminishes and so discount rate decreases.

As it can be understood from the definitions, angels estimate IRR by looking time of next financial cycles and the amount of the money the company will generate during these financial investment rounds. Berkery (2008) states that investment rounds are at least 12 months and at most 24 months. Companies usually raise capital no sooner than 12 months and they have shortage after a while in 24 months as expenses increases. Seed investors, on the other hand, analyze the amount of investment from third party investors that company will raise on the next round of financing. Percentage increase in their capital is the required rate of return for them. If the cost of capital for the initial investment is less than required return, then they conclude that investment is worth to proceed. Therefore, the discount rate changes from investor to investor. However, Berkery (2008) states that investors seek 10 to 20 times increase in their capital investment. Investors, furthermore, are willing to invest when they see at least 3 to 5 times return on capital on the time of exit. Thus, investors adopt their expectations for discount rate. Entrepreneurs, on the other hand, should satisfy investors' expectations as well as conserve the intrinsic value of their companies during negotiations.

To sum up, the percent that angel investors or venture capitals apply is pretty much high since they incorporate both firm risks and risk of survival into the discount rate. Explained method is used in order to find maximum value of present value of scorecard. In summary, the present value is discounted value of exit price.

Attainable Value

Attainable value is maximum amount an investor is willing to invest as if a baby step venture reaches exit stage and is successful. The potential is calculated by analyzing market and business profile. Top-down analysis is applied and final fictitious value at maturity becomes a benchmark. Instead of conventional discount rate, required rate of return of investor is preferred. It is to be noted that until terminal year the rate diminishes to market value which is calculated by benchmarking similar companies in the market. The value at exit is discounted with variable rates to present value which is the highest amount that an investor invests if a company has all desirable characteristics.

3.3 Calculating Value with Scorecard

Conventional valuation methods may be applicable for start-ups for later stages, yet they are insufficient for early-stage ventures. Inadequacy of these approaches has forced investors to use alternative methods such as Berkus Method (2016) in order to reach less biased early-stage valuation. In brief, scorecard tabulates qualitative questions with monetary equivalents.

Berkery's (2008) study writes the following:

> Scorecards are not new. Credit card issuers have used them for years as a means of speeding up the process of approving new card applications and eliminating the vagaries of human judgment. However, the scorecards tended to focus purely on financial data and payment/credit history. These scorecards had been developed in-house at each bank, which meant that it was

> impossible to transfer lessons learned from one credit card issuer to another. In fact, many issuers viewed their in-house scorecards as their competitive weapon (our scorecard is better than everyone else's) (p. 9).

It is true for investor market since each investor challenges each other by trying to invest potential unicorn[9] at the end.

Qualitative valuation is an investigation of target company to validate the potential investee. Mature companies are valued by their intrinsic worth and future cash flows. This is true for start-ups and early-stage companies as well. However, it is obvious that if these companies reaches next milestone is another consideration since its success depends mostly on qualitative factors such as entrepreneur, product and ecosystem. Therefore, Venture Capitals and Business Angles, who is not only investor but also partner and co-worker, are looking for qualitative aspects for risks they take. These aspects may not be well written, explicit and easy to reach and they are subjective. Even worse, academic studies regarding qualitative aspects cannot be proved due to lack of information and confidentiality of capital owners.

Book by Benjamin and Margulis (2005) suggests as follows:

> Investing to earn the potentially extraordinary returns of a new business is extremely risky. The angel has the opportunity to earn above-average returns and enjoy the challenge of helping younger visionaries grow a business, but even after meticulous due diligence, investors lose their investment capital 33 percent of the time. However, these risks do not frighten away sophisticated angel investors. These investors love the action, manage the risk, and search for the "big hit" in pitting their skills against the market. And, at the same time, they continue to contribute to an economic system that has done well by them and that they are devoted to (p. 9).

[9] Unicorn: A start-up which has a valuation more than $1 Billion.

In this study, on the other hand, titles will be stated by interviewing investors and by looking which companies they prefer to invest.

Similar with Berkus method, scorecard model is a valuation model for early-stage pre-revenue start-ups with extended categories. These categories are designated exclusive for Turkey by examining incubation and accelerator centers which are pre-revenue investors and mentors. The study consists of interviews with 14 centers. According to answers the scorecard is modified and extended. The reason of extending categories is to lessen the biases that investors may have. Also, unlike individual investors who prefer to invest by their inner voice, most of the professional investors look for qualifications by checking their self-made questionnaires which are created by long term experiences and trend expectations. With further explanations, the model becomes less dependent on personal instinct and it becomes more systematic.

Drilling down into questionnaire, interviews with 14 VC managers and Technopolis program directors enlighten minds about their most preferred categories and relevant components in the questionnaires. According to their directions and sharing, most frequently used questionnaire subjects are prepared and composed under one model.

The model has three basic categories which are Team, Product and Environment. By assessing "Team", investor is looking for whether team is able to achieve promises. The study continues with examining these categories by decomposing team into three sub-categories which are technical skills, soft skills and prior success. The first breakdown, technical skills, looks for if team/entrepreneur provides technical expertise to their company or project. Next, technical skills are segmented into additional components which are member complementation, team proficiency, planning and projection ability, and task allocation. Further explanations are given throughout technical skills.

Team category, then, continues with explaining soft skills. This is how comfortable the team is while progressing on project. It has eight components which are team consistency, team commitment, flexibility, willingness, communication skill, ecosystem membership, open mindedness, and gender. Each component is explained in detail. The final subcategory for the Team is prior success of team which looks for any evidences about prior exit or project completion. It has no component but has remarkable weight compared to other team sub-categories.

The next category assesses the product and idea that analyzes whether designated service confirms value proposition. The product category has three sub categories which evaluate final design[10] and product, traction and pursuit of growth, and market conditions. The very first assessment of category is final design and product which asses the validity of theoretical design or solid product. While searching for evidences it looks for five components which are differentiation, applicability, replicability, sustainability and niche. These components are followed by second sub-category which is traction and pursuit of growth. It assesses how business specific metrics are defined and how generic performance criteria such as business model, problem-solution fit, and phase of product are satisfied. As a last sub-category, market conditions are covered in detail. It evaluates how market conditions are ready for this product and team. It has several components as follows: market size, market readiness, market penetration, marketing and advertising, and competitor analysis.

The last category is the ecosystem which searches compatibility of environment and companies' and teams' boundaries. Ecosystem category consists of four subcategories; employee market, looking evidences for

[10] Final Design: A plan or drawing produced to show the look and function or workings of a building, garment, or other object before it is made.

sustainable employee power, investor market, searching adequate investors in the ecosystem, incubator and accelerator centers complementary organizations, and government incentives and regulations protector of success. The very first category, employee market assesses possibility of reachable qualified employees. Furthermore, investor market drills down into 5 components which are synergy, self-investment, capital expectation, performance seeking and direct competition within existing portfolio. Third sub-category is incubator and accelerator centers. Incubation and accelerator membership, centers' feedback, and vertical programs are main components of this sub-category. The last concern is breakdown of government incentives and regulations sub-category which includes prerequisites and standby time, regulations, and intellectual property rights components. Table 2 clarifies questionnaire measures as a whole. Investors use these titles for systematic assessment in order to lessen bias while valuing projects qualitatively.

Table 2: Complete questionnaire table

SCORECARD					
Team					
Technical Skills	**1**	**2**	**3**	**4**	**5**
Member Complementation					
Team Proficiency					
Planning and Projection Ability					
Task Allocation					
Average Score					
Soft Skills	**1**	**2**	**3**	**4**	**5**
Team Consistency					
Team Commitment					
Flexibility					
Willingness					
Communication Skill					
Ecosystem Membership					
Open Mindedness					
Gender					
Average Score					
	1	**2**	**3**	**4**	**5**
Prior Success and Reference					
Team Score					

Table 2 (cont'd)

SCORECARD					
Product/Idea					
Frozen Design/Product	**1**	**2**	**3**	**4**	**5**
Differentiation					
Applicability					
Replicability					
Sustainability					
Niche					
Average Score					
Traction and Pursuit of Growth	**1**	**2**	**3**	**4**	**5**
Key Performance Indicator					
Business Model					
Chicken-Egg Problem					
Problem-Solution Fit					
Phase of Product					
Average Score					
Market conditions	**1**	**2**	**3**	**4**	**5**
Market Size					
Market Readiness					
Market Penetration					
Demography					
Marketing&Advertising					
Competitor					
Average Score					
Product and Idea Score					

Table 2 (cont'd)

SCORECARD					
Ecosystem					
Employee Market	**1**	**2**	**3**	**4**	**5**
Reachable Qualified Employees					
Average Score					
Investor Market	**1**	**2**	**3**	**4**	**5**
Synergy					
Self-Investment					
Capital Expectation					
Performance Seeking					
Direct competition within existing portfolio company.					
Average Score					
Incubator and Accelerator Centers	**1**	**2**	**3**	**4**	**5**
Incubation and Accelerator Membership					
Centers' Feedback.					
Vertical Program Product					
Average Score					
Government Incentives and Regulations	**1**	**2**	**3**	**4**	**5**
Prerequisite and Standby Time					
Regulations					
Intellectual Property Rights					
Average Score					
Ecosystem Score					

Investors are free to decide which category and which sub-category is more important. Weight they give to each category changes. For instance, after calculating present value of company as if every topic is fulfilled perfectly, valuation team finds a value as TRY1 million. According to an investor, team has more important than other categories. Therefore, investor has an opportunity to appreciate team category worth TRY500 thousand and others TRY250 thousand equally. Thus, the venture can raise maximum of TRY500 thousand from the team and entrepreneur category. Under the team category, investor, again, can value each sub-category by his/her preference. For instance, let's say the start-up main business is fin-tech software that requires less customer interaction but more coding competence and technical skills. Therefore, the investor may appreciate TRY350 thousand for technical skills sub-category and TRY150 thousand for soft skills. In brief, technical ability can worth maximum of TRY350 thousand while interpersonal skill can be at most TRY150 thousand.

At this point each individual investor assesses each component by giving scores ranging from 0 to 5. Each component is averaged under the name of "average score". The average score decides how much any sub-category is worth as monetary value at most. For instance, the ceiling limit for a technical competency is TRY350 thousand. Let's say, the average score for technical competency is 4 out of 5. Therefore, investor decides to value technical competency as TRY280 thousand. Similar with technical competency, each category and sub-category are valued with this approach. Additionally, all values are summed for the final value.

It should be noted that, investors may have principle for minimum score for an investee can get at least. For instance, an investor may decide to terminate negotiations if any component has 2 or fewer points out of 5. Else, he or she may appreciate TRY0 for the sub-category which has any topic scored 2 or fewer points.

The scoring method depends on what investors assign. It is better to emphasize that there is no specific benchmark for all the qualifications. Furthermore, during scoring, it is possible to have different scores for the same title. Even though scorecard helps investors to focus systematically on the qualitative valuation, bias among individuals is inevitable. On the other hand, the importance of sub-categories may differentiate. For instance, some may give more importance on team whereas others prefer investing in product rather than entrepreneur. One of the active Venture Capital, to illustrate, states that he is expecting 4 out of 5 for each title on the questionnaire. However, it is obvious that which company deserve 5 out of 5 is unclear and most probably it has biases. Nevertheless, questionnaires are best for now tools which shape processes in a systematic manner.

In addition to scorecard points, one by one interviews with VC managers and Technopolis program directors helps us to conclude that verbal qualification of companies result binary solution, to invest or not. If synergy between company and investor is not established or if decision-maker is not satisfied with team, market or ecosystem anyhow, negotiations do not continue and bargaining finishes even though product have promising cash flows.

In short, qualitative factors are stated and practiced in order to test whether a start-up finally reaches desired maturity or not. In other words, it answers whether team is good enough to appreciate invested capital in a specified time horizon. The study goes with further explanations for categories and components of team/entrepreneur, product and ecosystem.

3.3.1 Team/Entrepreneur

Team and entrepreneur(s) are used interchangeably throughout the study. Entrepreneur is an individual who starts her/his own company by

taking all risks while giving up for working as an employee for somebody else. Entrepreneurs' motivation is usually not related with money they earn instead it is related with the success of creating new ideas and businesses. Therefore each entrepreneur has different qualifications. For instance, conservative ones have less chance to be successful compared to radical characteristics. Another example is introvert characteristics contradicts with culture of the entrepreneurship. Likewise, Interviews results that investors in Turkey expects entrepreneur soul from the team while they are looking for investment opportunities. Therefore, it is no surprise that fund providers prefer to compromise with good team. Especially for the early-stage, angels and seed funds prefer high quality entrepreneur with moderate idea to moderate entrepreneur with high quality idea.

As stated previously, team has 3 sub-categories which are soft skills, technical skills and previous experience. As seen on Table 3 each subdivision has additional components. The study goes with explaining each sub-component and their components in detail. Initially Technical skills, then soft skills and finally, prior success of entrepreneur is criticized by the investor side.

Table 3: Subcategories and components of Team

SCORECARD					
Team					
Technical Skills	**1**	**2**	**3**	**4**	**5**
Member Complementation					
Team Proficiency					
Planning and Projection Ability					
Task Allocation					
Average Score					
Soft Skills	**1**	**2**	**3**	**4**	**5**
Team Consistency					
Team Commitment					
Flexibility					
Willingness					
Communication Skill					
Ecosystem Membership					
Open Mindedness					
Gender					
Average Score					
	1	**2**	**3**	**4**	**5**
Prior Success and Reference					
Team Score					

Team/Entrepreneur - Technical Skills

Education and training, prerequisite to create business value, can be achieved by attending school or self-learning principles. These are the technical skills in general. High growth companies are established by innovators who are qualified well that generate considerably new solutions for the mankind problems and individual requirements. Regardless of how they learn, funders are looking for technical skills which should meet the objective of the company. These skills can be

summarized in terse as member skills, team background, planning and projection ability and task allocation.

Member Complementation

Member complementation is how each member be a part of all specific tasks in the organization. It is suggested that team behind the start-up has a shared responsibility (Cohen & Kador, 2013, p. 155). The study mentions that there is a possibility that entrepreneur may be an individual while general expectation from the company to have a team. Especially during first financing cycle, say seed stage, most probably more than one individual work in the company. It is true that entrepreneurship requires more than one dedicator. These people create a team and they differentiate tasks in to subtasks. Likewise, after interviews with professionals, it is concluded that all team members have to have distinct job responsibilities since it is not possible for one to do all engineering, business and hustling staff easily. Expecting coding, market research and network structuring from an individual is not a rational choice. Besides, although there are some outliers, most coders are reluctant to do what hustlers do and they desire to focus only on engineering side. It does not mean that they don't have any responsibility regarding networking but means that their main responsibility is to continue operations on technical side. Therefore, how founders are complementing each other while completing well organized tasks according to founders' skills is one of the hypothesis for the funders while testing technical complementation.

Team Proficiency

The main test of questionnaire is to anchor the team about their ability to reach the final objective. In other words, funders look for founders' proficiency. Cohen and Kador (2013) expect from team that they have at least minimal technical or domain expertise. Checking founders'

background via official records such as diploma, certificates or employment document is straightforward way. However, self-trained competences may sometimes be overlooked. Therefore, testing the competency requires detail focus on what team wants to do and what they have. Answering these two questions help investors to conclude in less-biased way. Business or work experience, on the other hand, cannot easily be valued. Polishing resume is possible by free riders.

Planning and Projection Ability

Study by Benjamin and Margulis (2005) suggests follows:

> Projections are structured around the objectives developed by the management team during the planning process. The marketing, sales, and operations strategies and plans indicate the financial requirements. In past, setting sails into new horizon needed well prepared crew, prepared storage and planned road (p. 259).

Johnson (2015)[11] from Fortune magazine mentions that there is no difference between explorers and entrepreneurs. Instead of king, well qualified, hypercritical investor funds innovators' journey. This means that creators need to schedule their destiny until next financial cycle They also have to consider all possible storms (fluctuation) which distract project members from planned path. Funders, hence, are also seeking how good entrepreneurs are on designing income model, planning projections and scheduling time interval. They also seek for How rational they are. Well planned project is more attractive to ventures and well prepared presentation of these outlining works better during the negotiation. VC managers, angel investors and incubation center or accelerator directors know that there are enormous deviations from the drafted future planning. The planning is nothing more than wishful thinking in the long term. It should be noted that even mature companies

[11]http://fortune.com/2015/05/28/bryan-johnson-lessons-for-etrepreneurs/?iid=sr-link1

change annual financial projection at least 2 times a year. Likewise, Start-ups revise each projection including financial and business during the progress. Changing program and revising financials are not bad thing at all and it is inevitable. Exclusively for the start-up ecosystem, it is must. The only concern here is how the change is made, what are proves of this change and what are the criteria for the changes? How income model is evolved on the next projection?

In brief, providing evidences for change clarifies the flexibility of well-prepared projection in front of money supplier and appeal them at the end of the day.

Task Allocation

Task allocation is distributing jobs, tasks and responsibilities according to competency and ability. Interviews with funders assert that they are interested in how job tasks are allocated among co-founders. Fairly distributed jobs, tasks and responsibilities according to competency and ability are What investors look for on this topic. Next, they search for if each individual in the team is aware of his or her burden. Well stated tasks annihilate conflicts between co-founders. In sum, rationally delivered duties among team members appeal investors.

Average Score

In technical skill category, how compatible the team is with their value proposition. The score is the average of all measures; member complementation, team proficiency, planning and projection ability and task allocation.

Team/Entrepreneur - Soft Skills

Soft skills are human skills that one should have regardless of what others' job, gender or nationality is. However, from the entrepreneur

perspective, it requires some qualifications that prove the hypothesis; the team can manage relations such a way that project can reach final destination. If an entrepreneur does not have these features, she cannot successfully work with others and develop concrete business. The trickier part in soft skill is unlike technical knowledge, human skill cannot be taught in the classrooms. They are not written on the books and eventually are not learned directly. Individuals are to unlock these skills and have to dedicate themselves while practicing these skills. Investors, on the other hand, seek some qualifications from entrepreneurs as soft skills. These skills are team consistency, team commitment, flexibility, willingness, communication skill, ecosystem membership, open mindedness, and gender. These are explained further in the next few sections.

Team Consistency

Cohen and Kador (2013) make up a word called "teammanship" which encompasses the shared values in the team as whole. The very first measure in the soft skills is the team consistency which answers the questions of if entrepreneurs are consistent with each other regarding life expectations. If investor answer what are the expectations among team members? What are their personal aims? What are their expectations from the product? questions on behalf of the team it means that the team are motivated enough to pursue product further. Otherwise, an individual, who has less desire from the start-up, pull other members back from the continuity, demotivates them or, even worse, leaves the start-up.

Compared to mature companies, fewer workers are taking responsibility in the early-stage. Mostly not more than 3 or 5 well educated engineers have a seat on a small office and their personal contribution on business is highly correlated with their involvement to the group. On the cultural side, team harmony cannot be achieved if there is disconnection among

individuals and difference between believes or cultures. For mature or low growth rate companies, these differences do not cause crucial problems. However, for early-stage companies, it is inevitable to see conflicts that consume time and money. Cohen and Kador's (2013) book mentions following:

> I want to see a cohesive team of long-standing solidarity…. What really makes me sit up is hearing from a team whose members have known each other for years and whose skill sets obviously complement each other (p. 59).

Team Commitment

Team commitment creates belongingness that helps members to sustain their focus on project. Dingee, Haslett, and Smollen, (1997) explains in the characteristics of a successful entrepreneurial management team article that five to seven years involvement is obligation to attain goals. In order to sustain full motivation to the project with increasing pace, commitment is must for entrepreneur that can be also measured by investors during one to one interviews.

Another consideration of team participation is. If you ask how much time entrepreneurs should spend on their project, all start-up mentors, entrepreneurs and professionals make a consensus that they should work 24 hours per day and 7 day per week, in other words, all the time. However, don't they need time for personal issues such as paying bills, looking after dog or going out with friends? Of course they have and they should. However, the time spent on these issues should not overcome the time spent on job specific tasks. Out of necessities such as looking after elders or children who is chronic ill, or other responsibilities are the ones which may be hidden by the team and they not only distract members from tasks but also take lots of efficient time. This is not limited with physical appearance in the office. Day dreaming or talking on the phone should also be considered in favor of business. Investors, hence,

evaluating teams' personal responsibilities and they want to make sure that out of necessities should not overcome the nutritious time.

Flexibility

The next measure is the flexibility which assesses the ability of the team by looking how they adapt themselves to changing conditions. "As an entrepreneur you have to demonstrate flexibility to know when it's time to pivot" (Cohen & Kador, 2013). Interviewed professionals claim that while start-ups are accelerating from 0 to 60 mph; they owe high growth rates to its adaptation to dynamic environment. It is mentioned that investors are not only money supplier but also partner and coworkers who have better market know-how and industry experience. Therefore, investors will look how easily they can train and adapt the team in order to maximize growth rate.

Willingness

Next component is willingness of entrepreneur to work with investor. Cohen and Kador (2013) mention that fund is smart money. This means it does not only provide team with cash but also provide team with mentorship. Therefore, entrepreneurs have to be eager to devote time to know investors. It is true that investors supply money but it is overlooked that they are mentors and booster of the team. If entrepreneur see funder only as cash cow without expecting any market support, it annihilates willingness of team towards investor. Establishing a relationship which is nourished by appetite from both parties to each other creates strong business partnership that will be beneficial on behalf of the project. Therefore, testing the team how much they want to go with funder makes sense for the project's sake.

Communication Skill

Cohen and Kador (2013) claim that team should communicate well with outside of the firm boundary. Further evidences are gathered from the interviews that even though the team is engineering on highly technical device which is difficult to understand by business managers, communication is the only key to convince funders about the validation of product. Baron and Markman (2000) mention following:

> A high level of social capital, built on a favorable reputation, direct personal contacts, often assists entrepreneurs in gaining access to venture capitalists, potential customers, and others. Once such access is gained, the nature of the entrepreneurs' face-to-face interactions can strongly influence their success (p. 8).

In addition to one to one communication aspect, funders are curious about seeing a presentation skill on the teams. Clark (2008) explains how presentation skill appeals angels as following:

> Presentational factors (relating to the entrepreneurs' style of delivery, etc.) tended to have the highest influence on the overall score an entrepreneur received as well as on business angels' level of investment interest. However, the business angels appeared to be unaware of (or were reluctant to acknowledge) the influence presentational factors had on their investment-related decisions: the stated reasons for their post-presentation intentions were focused firmly on substance-oriented non-presentational criteria (company, market, product, funding/finance issues, etc.). More generally, comments about the entrepreneurs' presentations centered on presentational issues relating to clarity/understandability and structure, the level of information provided the entrepreneurs' personal characteristics, and their ability to sell themselves and their investment opportunity. (p. 1)

Ecosystem Membership

Cohen and Kador (2013) claim accelerators and incubators become dynamic part of the technology ecosystem in recent years. Both programs provide start-ups with mentorship, advice, practical training, and contacts. The aim is to guide them from idea to product development. A number of hot start-ups have emerged from these programs, encouraging angel investors to take a good look at the start-ups graduating from the best programs. Furthermore, it can be said that socially active cofounders have more opportunity to place their product in the market easily, more importantly, cheap or free.

Open Mindedness

Entrepreneurs are not conservative people however, when they focus on their business too much, they sometimes ignore how the ecosystem is changing. They miss the chance of adapting their product to the up-to-date trends. Common personal character of the latter individuals is persistency which is mostly advantageous except the time when team members are reluctant to accept advises and are insisting on doing wrong. Wasserman (2014)[12] mentions following:

> Even in the idea stage, entrepreneurs must recognize that their passion may be blinding them, and they need to take steps to get the skills and support they need—not just assume they will "find a way." A mentor who excels at being a devil's advocate, for instance, can help come up with worst-case scenarios for the business and then help prepare plans to avoid them.

[12]https://www.wsj.com/articles/how-an-entrepreneur-s-passion-can-destroy-a-start-up-1408912044

Gender

Sarah Fink, head of research at the Centre for Entrepreneurs, conducts a research (2015)[13] in partnership with Barclays on gender influence on entrepreneurship. The report asserts "women focus on long term sustainability of the business, not simply rapid growth to position themselves for exit" (Fink, 2015). Study continues "Women often prefer to re-invest business profits over equity investment to scale sustainability" (Fink, 2015) . This proves that women are more successful than men since men are distracted to other projects easily whereas women hold projects until maturity.

Average Score

In a nutshell, soft skills are covered. Team consistency, team commitment, flexibility, willingness, communication skill, ecosystem membership, open-mindedness, and gender are components of this sub-category. After assessor value each component, average score is calculated explicitly.

Team/Entrepreneur - Prior Success and Reference

Cohen and Kador (2013) suggest following:

> The ideal evidence, of course, is that the team has executed a start-up before. If someone from the PayPal or Twitter development team comes to me, I'll pull out my checkbook before they are finished with their spiel. They've already proven they can do a world-class start-up.

Especially for the early-stage, when there is limited financial history but wishing team, proving soft skills by recommendations via ecosystem professionals and leaders change the perspective of the investors.

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[13]https://centreforentrepreneurs.org/wp-content/uploads/2015/11/Shattering_Stereotypes_Women_in_Entrepreneurship.pdf

Analysis of team success via technical and soft skills provides valuable clues. However, if team or entrepreneur has previous start-up success, it provides not only clues but also evidences for the investor. Hessels, Grilo, Thurik, and Zwan (2011) suggest that exit experience of entrepreneurs from entrepreneurial ventures releases entrepreneurial capacity to be deployed in follow-on ventures. In the paper of Shepherd (2003) , it is mentioned that exit events can be a valuable and significant source of experimental learning that can be potentially transferred across ventures. Corbett, Hmieleski and Baron (2013) claim that when operating an entrepreneurial venture, entrepreneurs learn through improvisation and through experience.

Team/Entrepreneur Score

In the team and entrepreneur category technical skills, soft skills and previous entrepreneurship success are covered. Each sub-category has average scores coming from components. In brief, Cohen and Kador (2013) summarize this category as follows:

> There's nothing more powerful or attractive to a smart angel investor than entrepreneurs who own the idea, own the execution, and recognize the tools and resources they need to succeed. (p. 5)

3.3.2 Product/Idea

Idea to product means 0 to 1 for the start-up business. An idea or a product sprouts from individual's need or problem. It is the reason why investors are risking their money. While risking, funders value product by testing some questions; what is the final design or product? Is there any worthwhile traction or growth? Does product satisfy key metrics? Does market ready to experience and use? These questions compose sub-categories of the product category. In short, final design and product, traction and pursuit of growth, and market conditions are sub-categories

to be examined further. Below questionnaire describes each sub-categories and respective components in detail.

Table 4: Subcategories and components of product & idea

SCORECARD					
Product/Idea					
Frozen Design/Product	**1**	**2**	**3**	**4**	**5**
Differentiation					
Applicability					
Replicability					
Sustainability					
Niche					
Average Score					
Traction and Pursuit of Growth	**1**	**2**	**3**	**4**	**5**
Key Performance Indicator					
Business Model					
Chicken-Egg Problem					
Problem-Solution Fit					
Phase of Product					
Average Score					
Market conditions	**1**	**2**	**3**	**4**	**5**
Market Size					
Market Readiness					
Market Penetration					
Demography					
Marketing&Advertising					
Competitor					
Average Score					
Product and Idea Score					

On the next few pages, details of each sub-categories and components are explained. Initially the very first sub-category, final design and

product, is answered. Later, traction and pursuit of growth is looked. At the end, market conditions are examined.

Product/Idea - Final Design & Product

The final design and product in brief is what the product validation is. Having an Idea, but no product may be financed however, one to one interviews result that angel investors have some expectations regarding the product. At least founders should satisfy investors with prototype or pretotype which provide customers with feeling of what they are buying or experiencing. Furthermore, it proves the idea that the technology behind the mock-up is working. Most of early-stage entrepreneurs have misunderstanding that angels are investing in a model drafted on the power-point presentation. On the contrary, though they are investing risky assets, they want to be sure that model is working. They seek to see whether customers open their wallet and pay for the service or product. Investor, hence, searches any clues about the product by looking measures; differentiation, applicability, replicability, and sustainability and niche. These components are well defined on the next few sections.

Differentiation

Differentiation of product is to have new or developed version of existing technology. Development period requires user experiences and further iterations until final product is achieved. This does not mean that upgrades finish but means further developments continue over the revisions of the final product. Funders, on the other hand, asses the product by looking how the product is differentiated from peers or substitutes. According to Global Entrepreneur Monitor (2017), there are 400 Million entrepreneurs in the world from 54 countries, and the number is drastically increasing. Thus, it is possible that the product has more than one clone with little or no differentiation. At least, the idea has

already been thought and implemented with some extent. Funders, hence, value how much the product differentiated from the peers or substitutes, how additional code or feature makes the final design distant.

Applicability

Applicability is to check the product whether it can be designed and engineered. It is suggested in the research that one component of technical due diligence is inspecting the product or facility physically (Cohen & Kador, 2013) . Proposed product, on the other hand, may be so utopic that engineering of the product or implementation on the market is not achievable. Money lenders, consequently, search for any inconsistency for applicability of the product.

Replicability

Replicability is to have entry barrier which is generally high for technological companies. Nonetheless alternative solutions with better marketing or user experience can beat the previous product easily. Yonja and Facebook, Yahoo and Google are few examples from the pool. Study shows that investors ask the entrepreneurs that whether the product enjoy significant barrier to entry (Cohen & Kador, 2013). It is expected that the barrier should be high enough to discourage successors while low enough to penetrate the market easily for companies which have brand knowledge and experienced early users.

Sustainability and Niche

Another component in the final product subcategory is to have sustainable product. Cohen and Kador (2013) explain what fundable start-ups should have in common as having sustainable future prospect. Investments are made for future exit or dividend opportunity.

The final component of scorecard in this sub-category is having a niche product. There is a probability that product serves on very limited market. In other words, product is focusing on very narrow market which is not big enough to prove scalability of company. Therefore it contradicts with previous component. Future promise of the company should be so wide that investors can see the product anywhere in the world.

Average Score

In summary, investors check final design and product sub-category by assessing well defined components which are differentiation, applicability, replicability, sustainability and niche.

Product/Idea - Traction and Pursuit of Growth

Traction is recording each footstep as data in order to control the performance while growth is inspecting tracked data in order guess trends of the product. This sub-category, therefore, analyzes how a company achieves traction and how it sustains its' growth. Traction and growth are measured while they are being kept under control. Cohen and Kador (2013) mentions following:

> Angels love to see evidence that a start-up actually has a product or service that real customers are paying for. By iterating their start-up model, entrepreneurs may actually generate a prototype that attracts a handful of customers. Angels perk up their ears when they hear about revenue. Where you might see a tiny revenue stream, most angels will see a mighty river (p. 175).

Therefore, getting traction before funding is really crucial for the intrinsic valuation for the product. While traction provides investors with good proves for the companies' success, growth potential appeal investors. Preston (2007) claims following:

> You also need to understand that professional angel investors are interested in companies with great growth potential; companies with a large market potential and a strong path to profitability. They do not invest in lifestyle companies, small

> retail operations, or other companies that, while profitable, lack room to expand. (p. 2).

Above clarifications summarize how growth potential has a massive influence on valuation. Essentially, most of the valuation comes from this concept. Otherwise, without growth potential, no one logically wants to invest in project.

Traction and pursuit of growth sub-category has four components to be assessed; key performance indicators, business model, problem-solution fit and phase of product. These components are explained in next few sections.

Key Performance Indicator

Each new technological product suggests that it solves specific problem of market. To see whether this proposal is true or not, quantifiable measures are assessed. These measures are called key success indicators. It helps funders and founders to track the process and growth. If traction and growth satisfy investors, both parties progress in negotiation.

"Viral coefficients, transactions processed per day, Daily/Monthly Active Users (D/MAUs), data generated per day or month, cohort performance, average time on the platform etc. help founders tell a ready scale story" (Holiday, 2015)[14]. During interviews it is concluded that boot camps test product by creating easy to establish landing web pages. According to hit or subscription on the demo web-site, the quick and cheap evaluation is done. This is widely accepted pattern for value the product's validation. Similarly, investors specify some criteria for the product in order to base

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[14] https://techcrunch.com/2015/07/31/setting-the-right-valuation-for-a-competitive-series-a-round/

their judgment into less subjective evidences. These indicators can be download number, subscription rate, pre-orders or goodwill contacts Founders, therefore, have to persuade investors by providing them with solid metrics which are key performance indicators. In addition to these, sometimes financial metrics are evaluated in order to understand how the company is being managed.

Business Model

Business model is a plan that answers how company generates revenue, continues operations, sustains well qualified employee and makes profit. Cohen and Kador (2013) clarify business model as one of the foremost characteristic of business. They put first on the topic of five beliefs that they would like to be sure about. Magretta (2002)[15] punctuates importance of business model by explaining how entrepreneur construct and revise business model. The argument in business model is how income is generated by operations or by services. Knowing that investors' aim is to make positive return on their investments, signifying how the company makes money is the core of the business plan. Therefore, not only founder but also cash provider has to assess the business model in detail in order to make sure the revenue elements are working well.

Problem-Solution Fit

"Entrepreneur is able to explain the problem or challenge that a customer would be willing to pay to solve, and describe at least one way your product solves that problem" (Cohen & Kador, 2013). It means that the very first aim of the project is to solve a problem with product. Investors, hence, are willing to see how much a product solves the suggested problem. This is called problem-solution fit. If the recommended application is believed that it can good enough to appeal customers, then

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[15] https://hbr.org/2002/05/why-business-models-matter

investor does not hesitate to pump money into the company. Therefore, funders searches answers for these questions; who is potential customer? what are their problems? how does product solve customers' problem?

Chicken-Egg Problem

Another component is problem-solution fit which can be explained as start-ups need customers in order to create valuable content and they need contents in order to leverage customer. Interviews result that investing in e-commerce web-site is usually avoided since they have chicken-egg problem. In order to get huge number of clicks team should have valuable, fresh and plenty contents in the same time they should have valuable, fresh and plenty contents in order to get clicks. In brief, chicken-egg is difficult to overcome and investors beware of this dilemma.

Phase of Product

McClure (2015)[16], claims that as start-up progresses further on the product, it gets better valuation. He continues that pre-revenue early-stage ventures, which have only business plan, get less valuation from investors. Therefore, the stage of product has an effect on the investors mind critically. It is not surprise that working prototype or pretotype generates more cash than the idea which has not even tested. The stages, also, reveal required time and capital for the final product. These steps can be summarized as idea, pretotype, prototype, product in use and the final product. On the valuation side McClure (2015) mentions that there is a model which explains the phase of the product and amount of funding a company can generate. The below table is taken from the McClure's article. Monetary intervals are used widely in the

[16]http://www.investopedia.com/articles/financial-theory/11/valuing-start-up-ventures.asp

United States but they are modified by changing the currency for Turkey. The table describes the estimated company value by assessing the development stage.

Table 5: Valuation by stages of product

Stage of Development	Estimated Company Value
Has an exciting business idea or plan	TRY250,000 - TRY500,000
Has a strong management team	TRY500,000 – TRY1,000,000
Has a final product or technology prototype	TRY1,000,000 – TRY2,000,000
Has a strategic alliances or partners, or signs of a customer base	TRY2,000,000 – TRY5,000,000
Has a clear signs of revenue growth and obvious pathway to profitability	TRY5,000,000 and up

Average Score

In brief, the companies are evaluated by looking some key features which are related with traction and pursuit of growth. These are analytically testable components. Investors are eager to use these tools since they provide understandable evidences. Investees, on the other hand, achieve a chance to conceive their instantaneous business by measuring KPI's.

Product/Idea - Market Conditions

"All attributes of a winning company are market-related" (Preston, 2007). Likewise, the very first lesson on the mentor session of incubation and accelerator boot camps is focusing on the market conditions. Team is supposed to transfer relevant and real market numbers. They have to refrain from generic data. Though, inexperienced cofounders, for instance, suggest their products do not have any substitute, they are

forced to search and find potential competitors. In addition to competition, realistic and attractive market size, market readiness, market penetration, advertising rivalry, and demography are over all components for market conditions category.

Market size

First component is assessing how big the market is. It defines the potential of the product and the future prospect. The analysis is mainly done by analyzing TAM (total available market), SAM (Serviceable available market) and SOM (Serviceable obtainable market). "Investors should invest only if it has the potential to live and develop independently in the long run" (Preston, 2007). Benjamin and Margulis (2005) also states that investors have inclination to follow trending and growing markets.

Market Readiness

Market readiness is the researching the market in order to be sure about product launch. Preston (2007) defines market readiness as the time when customers are suffering due to the lack of proposed solution. Likewise, this study shows that Airbnb or blablacar would not be new if former examples did not die and continued their operations. On that time the market was not ready for the share economy. Especially, the market had no idea about what is the share economy; people did not know how they can trust 3rd party and how they manage cash flow without trustworthy securer. To sum up, the component gauges how early a product is in the market order to prevent failure, to gauge how late the product is so as to attract investors and to gauge where the trend goes so as to preserve intrinsic value.

Market penetration

Market penetration is the ability of creating market share for a product. The project may not offer new solution to the market; sometimes it only eases the process and saves costs for the companies. Therefore, the solution it suggests is not always implemented by firms since previous process has relatively high switching cost. Moreover, market may have many players to operate. Consequently, money suppliers are usually not eager to be one of the market players. Insisting on the project may eventually achieve success but the possibility is rather low for funders to compete with big players.

Marketing and Advertising

True channels and campaigns have to be selected in order to reach essential market share. However, for some high-tech products channels may not be clear since the product is new and unfamiliar among potential customers. Clearly, reaching true audience is not as easy as mature company for the new ventures. Preston (2007) mentions importance of marketing as follows:

> Marketing plan explains how entrepreneurs will penetrate the market and conserving customers. It offers that the easiest sale is to repeat sale which angels will be appealed by. In the dot-com era, sticky and gooey became popular words since they mean getting and keeping customer (p. 127).

Therefore qualified analysis of channels and marketing strategy are what investors look for in the assessment.

Competitor

Benjamin and, Margulis (2005) assert that every compelling venture has a direct or indirect competitor, though entrepreneurs insist that they are first and unrivaled. Each product or project has at least one competitor even though it creates new market. Preston's (2007) study reveals the following:

> Your analysis of competition is a particularly tricky section because your definition of competition may differ from that of prospective investors and even from what your customers perceive. Entrepreneur must look at your company through these other lenses. It does not matter how slick your technology is if the customers don't want it. Make sure your list of competitors is complete and reflects your specific market. If you have only a few companies listed, investors may be concerned that the market is not big enough; if you list too many, then the market will look too saturated to support another entrant.
> More important than identifying competitors is recognizing their strengths and weaknesses and the key factors for your competitive differentiation in the market. Again, use third-party information to portray an objective analysis—particularly when discussing competitors' weaknesses. In addition, you need to show barriers to entry and advantages your company has over the competition. Examples of useful advantages can include a world-class management team, proprietary or patented technology, and key exclusive partnerships, being first to market with impediments or barriers to entry by competition, long-term contracts with major customers, and successes to date (p. 126).

Average Score

To sum up, Benjamin and Margulis (2005) concludes following:

> Companies need to do their homework in understanding the market dynamics and understanding distribution. Obviously a business plan deals with the marketing issues, the competition, the distribution, the pricing, the market needs, how to sell, and strategy. But when I sit down with the people in the company, I have found, unfortunately too often, that they do not have the necessary depth of understanding of those issues. If a company doesn't understand its market and understand how to access the market, it's going to face serious problems (p. 149).

Product and Idea Score

Product category in brief, consists of product proposition, traction and pursuit of growth, market conditions, and their components. In general, it is noted that money suppliers are searching for the well-designed product served on true market in the right time.

3.3.3 Ecosystem

Start-up ecosystem is composed of several sources which are founders, all kinds of new ventures and different types of institutions. Qualified money suppliers, venture capitals and angel investors are essential part of the environment. Another source is skilled, bright, adaptable employees who are crucial for creating value for the companies. The other source is organizations which support enterprises with valuable networking opportunities, physical assets, and expensive technical and business consultancy. The last one is government incentives and regulations which have high impact since are industries are regulated and capital intense.

On the table 6, these categories are stated for assessors to measure start-ups' compatibility. Next sections each sub-category and related components are explained.

Table 6: Subcategories and components of ecosystem

SCORECARD					
Ecosystem					
Employee Market	**1**	**2**	**3**	**4**	**5**
Reachable qualified employees					
Investor Market	**1**	**2**	**3**	**4**	**5**
Synergy					
Self-Investment					
Capital Expectation					
Performance Seeking					
Direct competition within existing portfolio company.					
Average Score					
Incubator and Accelerator Centers	**1**	**2**	**3**	**4**	**5**
Incubation and Accelerator Membership					
Centers' Feedback.					
Vertical program product					
Average Score					
Government Incentives and Regulations	**1**	**2**	**3**	**4**	**5**
Prerequisite and Standby Time					
Regulations					
Intellectual Property Rights					
Average Score					
Ecosystem Score					

Ecosystem - Employee Market

Initial sub-category of ecosystem is employee market which assesses the market on the focus of employee. Harris and Alter (2014) claim in the Accenture report that 45% of the Silicon Valley's employees have at least undergraduate degree whereas the rate is 28% for the United States. Valley absorbs most of the talented people from the country. Bay area, therefore, has been very crucial problem, reaching and employing talented employee for several years. Coders, innovators are new popular

boys in the Valley unlike 20 years ago when basketball players or football coaches were. This sub-category assesses reachable employee Therefore, new ventures are monitored about reachable employees by money suppliers.

Reachable Employees

Isaac (2015)[17] asserts that cash salaries in the Valley is eye-popping compared to non-tech companies since unemployed IT engineer receives one or two new job offer email each day. The main reason is Unicorns which offer not only good pays but also generous equity worth Million USD for an employee when the company is sold or goes public. In this environment, where well-known tech companies such as Google and Apple compete for best talents, it is hard for the newly established start-ups to have chance to arrange one-to-one meeting with senior IT engineers. This subject puzzles not only cofounders but also investors, especially for those who are investing in high-tech start-ups. Thus, entrepreneurs have to suggest solution for talented employee deficiency in the region in order to avoid investors' confusion. Lagermann (2016)[18] states that the best and widespread used method is offering incentives such as employee stock option Investors also seem positive on employee stock options since it provides tax benefit if the shareholder holds the position long enough.

Ecosystem - Investor Market

Ecosystem's next sub-category is investor market which is cornerstone of the environment since no company would have a chance to continue

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[17]https://www.nytimes.com/2015/08/19/technology/unicorns-hunt-for-talent-among-silicon-valleys-giants.html?_r=0

[18]https://insiders.fortune.com/how-to-attract-talented-employees-when-you-have-no-money-26b3bb28cc9c

operations without funding. Type of investors is shaped according to phase of product they invest in. The very first stage is called seed stage and on this stage investors are either business angels, seed funds or 3F's, friends, family and fools. Next rounds, after breakeven point for revenue, are stage A, or round 1, and Stage B -round 2- series. In these stages, venture capitals, private equities and mature companies come in sight for funding. Business angels do not fund in this stage. Benjamin and Margulis's (2005) book mentions following:

> Angel investors are different from their venture capitalist counterparts, who are more conservative, collect substantially more dollars from pension funds and the like, and put the bulk of the capital to work in later-stage deals. The angels have more time to spend with fledgling companies, helping them to build sustainable companies rather than ventures solely for exit. This hands-on guidance is invaluable to entrepreneurs who are the recipients of more than capital but wisdom, knowledge, experience, and expertise of previously successful entrepreneurs in the investors (p. 10).

Stage C -round 3- and mezzanine stages, the next round, are also funded by venture capitals, mature companies as merger or acquisition and private equities Next and final point is the IPO. Study does not focus further than 1st stage which is the stage either angels or seed ventures invest in.

All investors position themselves according to their preferences and capabilities. Preference is subjective and fund raisers decide according to expectations of their funds' investors. On the other hand, capabilities are oblique and it defines how capitals dissipate these competencies into start-ups. These components are integrated as; can the investor provide group with synergy? What is the expectation for both parties for the amount of funding? How does the company perform during performance seeking? Is there any direct or indirect competition between new venture and the existing, funded portfolio ventures? Unlike other sub-categories of scorecard, the evaluator criticizes herself about compatibility.

Steiner and Mittal (2016) claims following:

> Good due diligence processes almost always include founders' references. And just as founders have left a trail of data with those they've worked with, so too have angels. It is important for a founder considering taking investment to speak with founders in the angel investor's past portfolio. Over coffee or a call with the reference founder, check that the angel hasn't been exceedingly meddlesome, that the investor has been fair in their behavior, that they've added value to the company through advice, recruiting or meaningful introductions, and that at a minimum they have not caused harm. If an angel doesn't offer a list of references, simply reach out directly to companies in her portfolio. Even if an angel offers some names, it may be helpful to ping start-ups that weren't included. This is many times referred to as "off-balance sheet" reference checking. Call companies that have both done well and perhaps not as well—you'll want to know if an angel holds an even temperament during both times of success and times of challenge. Seasoned angel investors understand that more often than not, a company's journey ends in challenge, and that winning as a start-up investor requires keeping an even keel when start-ups don't work out.

Synergy

Seed stages and early-stages are most vulnerable stages for new ventures. Therefore, full time, on hand mentoring and consulting are demanded by start-ups from external environment. These assistances may come either from 3rd parties such as advocacy firm and tax advisory or from investors who are consultants. Benjamin and Margulis (2005) advise founders to cultivate a relationship with investors so respectful that funders have a chance to interact with team as peer or mentors. During interviews it is concluded that all tailor-made mentoring sessions save the future of products. Most of the funders seek for start-ups who are willing to take these assistances from professionals. On the founder side, most of them are already noticed that the help taken by professional investors worth more than the money. This situation is mutually beneficial since one party benefits from valuable professional help while the other party enjoys the full control on progression.

Therefore, this interaction requires well-established synergy between start-up and investor. It preserves the communication between parties for long lasting relationship. Angels and seed funds invest in people rather than just ideas or project. Therefore, synergy among parties cannot be modeled or explained with analytically but it is the soul of the good business relationship.

The other consideration of synergy component is investors' business focus. Investors' and investees' business focus should match. Some investors may prefer high-tech products whereas others go for less technological solutions.

Self-Investment

The next component is self-investment which assesses the team whether they risk their capital or not. Benjamin and Margulis (2005) suggest that self-financing may be required by a funding institution to assure entrepreneurs' dedication and interest. Business angels and seed funds have aware of risk they take and they prefer to diminish this risk if it is possible. Thus, investors expect founders to invest as much as they can. If the project is funded by founder, funders believe that start-up is investable.

Capital Expectation

Another component is angel's capital expectation. Negotiation is made in order to bridge gap between entrepreneur's high expectations and investor's valuation model (Benjamin & Margulis, 2005). However sometimes gap is too broad that there is no chance to meet on the middle. Thus, investors check initially to capital expectation of founders and entrepreneurs are supposed to know how much investor can supply.

Performance Seeking

Angels are selecting team rather than half-baked idea. The selection may be done during nonbusiness and networking meetings. Cohen and Kador (2013) mentions following:

> Meetings are a great way to make initial contact. At that point, I'm in my most intense social mood, and the settings for my radar for new opportunities are at the maximum. I make myself available and accessible at such meetings. If my schedule allows, I will stick around until everyone who wants to meet with me gets a chance. That's really why I'm there (p. 36).

Investors sometimes offer on-hand mentoring and consulting to team in order to seek performance of the team before investment rounds. They believe that clues and realities about team are disguised during unofficial mentoring session. A book by Benjamin and Margulis (2005) mention following:

> A number of investors have elected to volunteer for advisory boards of incubators. This is an efficient way for investors to find early-stage deals in industries of interest and geographically close to home, an effort to minimize travel (p. 225).

Hence, funders are willing to see performance of founders during implementation sessions that helps investors to understand product and team better. Preston (2007) states following:

> Therefore, angel investors sometimes become advisers to incubators—partly to help these young companies but also to get an early view of potential investments. Incubator staff also tends to have contacts with the investment community, if only because one of the key factors for graduating a company is sufficient funding. You may wish to consider applying for incubator residency- or for affiliation if the incubator has a virtual or nonresident program (p. 82).

Portfolio Competition

Interview with incubation centers points that there is another ecosystem in investor portfolio. During investment rounds, investors consider how portfolio companies support potential investee. Recent portfolio companies may be consultant of new team. Predecessor has also products that may support newly comer start-up by providing services

and products. This is not only expectation and but also a strategy investors follow. On the other hand, there is a probability that one of portfolio current team is direct or indirect competitor of potential investee. Hence, founders have to do homework and to do a quick search for investor's portfolio companies in order to avoid overlapping.

Average Score

To sum up, Preston (2007) concludes investor market with following:

> Angels facilitate company growth, but they do not make it happen. Often, investors can open doors for entrepreneurs through their contacts and prior professional relationships. But, for further development, team should build one or more successful relationship, giving them a positive reputation in the market. This local, regional, or national visibility can be part of their company's growth strategy. It should also be noted that angels bring much more than money to your company—they also bring experience and connections (p. 160).

Ecosystem - Incubator and Accelerator Centers

Cohen and Kador (2013) assert that incubators are about creating conducive growth environment. The book of Benjamin and Margulis (2005) mention following:

> Incubators provide support within a close geographical locale for seed, start-up, and other early-stage companies looking to expand. Such support can come not only in funding but also in the form of a physical plant, office management, and marketing services. Corporate or university based incubators help companies raise capital, offer technical assistance, and perform valuation. A fully functioning incubator could house a number of growing companies sharing a common business, for instance, in software. They also might share space and equipment and even professional guidance. The stage of development of incubators varies widely from state to state (p. 86).

It can be drafted that one of the key component of ecosystem is incubator and accelerator centers. Membership on these organizations and connections differentiate entrepreneur from others.

Incubation and Accelerator Membership

"Early-Stage Investors placed a significantly higher value on the role of incubators/accelerators" (Aspen Network of Development Entrepreneurs, 2014)[19] Early-stage investors and investees placed a higher value on Incubation and accelerator centers manage several mentoring sessions for early-stage ventures. In these programs, they define some generic problems that start-ups encounter and they propose solutions. Attending these boot camps is not compulsory but suggested by investors. It is also, hence, expected from start-ups to join at least one program so as to increase their pace and development. Benjamin and Margulis (2005) assert that the incubator provides extensive resources that to some degree reduce risks in company development.

Centers' feedback

Accelerator and incubator centers are managed by professionals. Most of them have entrepreneurship experience. Therefore, sum of know-how they have make them trustable source for judging entrepreneur teams. Investors take into account the information coming from these centers while team is progressing. Even some center managers invite funders for pitching day or presentation so as to promote well performed teams who have future prospect. Cohen and Kador (2013) mention following:

> I totally believe in the value of accelerators. When it comes to funding, they represent the high-end potential of start-ups, particularly when they have a reputation for quality and a good model for selecting their start-ups. I try not to miss any demo days (p. 147).

[19]https://assets.aspeninstitute.org/content/uploads/files/content/docs/resources/ANDE%20I-DEV%20INCUBATOR%20REPORT%2011-21-14%20FINAL%20FOR%20DISTRIBUTION.pdf

Vertical Programs

Hunterwalk (2013)[20] explains vertical programs as they bring together teams whose project concentrating on particular technology or industry. Book by Preston (2007) explains following:

> Business incubators come in various shapes and sizes depending on the source of financial support, criteria for selecting incubated companies and ultimately graduating them from the incubator, presence or absence of a virtual program, industry focus, and the like (p. 82).

These vertical programs appeal investors since they have competitive advantage and provide selection filters. Furthermore, mature companies are eager to support vertical programs since they find solution for their current problems. Teams, also, enjoy fast and effective implementation of their project with cooperated companies. Therefore, funders are attracted exceedingly by these programs.

Average Score

To sum up, Book by Preston (2007) claims following:

> Incubators can provide a great deal of value to young companies and some incubators have a small affiliated fund that helps launch graduating companies. Statistics show that companies graduating from an incubator program have a greater chance of long-term success than those that go it alone because of the pre-selection process and the support provided throughout their incubator residency (p. 82).

Ecosystem - Government Incentives and Regulation*s*

The last component of the ecosystem is the governments and regulations. New world governments are conscious enough to give importance to entrepreneurs and start-up ecosystem. Lawmakers have already seen potential on the start-up business and they provide grants

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[20]https://hunterwalk.com/2013/12/10/why-vertical-incubators-are-more-interesting-to-investors/

and loans in order to leverage the potential. On the other hand, they do not hesitate to regulate the ecosystem while they are funding it. Though most of the orders are on behalf of the ecosystem, some have limiting effects on the start-ups. Long standby time which discourages companies, prerequisites for application which favor specific companies, regulations for certain industries which restrict innovation and lack of protecting intellectual property rights are components of why ecosystem suffer from impeding conditions. Therefore, funders are not eager to invest their capital into an environment where government regulations have prohibitive practices. Thus, investors search for any restrictive or supportive evidences on below mentioned components.

Requisites and Standby Time

Most of the research and development products are initially funded by government incentives. Study of Benjamin and Margulis (2005) assert following:

> Government loans and promotions cover inventory, machinery, working capital, and acquisition of commercial property. In applying for a loan, the small business owner must meet the requirements of the ministry, having to supply among other documents a current profit and loss statement, a balance sheet, a schedule of business debt, a current personal financial statement, a business plan, and collateral. The government rarely lends money directly to the entrepreneur (p. 84).

Entrepreneurs, who need to focus on their project, try to satisfy authorities in order to meet requirements. In addition to that, teams wait too long for the result of application while the technology becomes obsolete and team is getting frustrated. These factors demotivate entrepreneurs. They are also distracted from projects while searching for fund. In this situation, some angels do not prefer to invest in teams who are waiting for the incentive. They are expecting from the team to continue without incentives.

Regulations

Entrepreneurs are visionary people who can see out of box. However, their scope may be so wide that government has to limit it. Especially, pharmaceutical, medical, telecommunication and defense industries are highly regulated by governments. Therefore, some early-stage start-ups face entry barriers that make their product infeasible. Investors have to be aware of that risk.

Intellectual Property Rights

Intellectual property rights are under trust of governments. In the countries where entrepreneurs and investors are confident enough to legal orders, ecosystem develops faster and foreign investors are more eager to fund start-ups. Study by Benjamin and Margulis (2005) mention following:

> People starting ventures haven't the luxury of time, especially when they are without intellectual property protection or significant market lead. Nor do they usually possess the requisite collateral, cash flow, or assets to sustain an open-ended funding program (p. Preface XX).

If an entrepreneur develops a technological advantage, investors want assurance that product is protected. Intellectual property protection in the form of patents, copyrights, or trade secrets does represent legal advantages.

Average Score

In a nutshell, according to Benjamin and Margulis (2005), an investable company is not just with a good idea, it includes also attributes of regulations. Incentives and restrictions validate start-ups' potential while intellectual property rights explain how risky for the investor to continue. Therefore, assessors also consider above stated components while measuring government regulations and incentives.

Ecosystem Score

As a whole, evaluators look for employee market, investor market, incubator and accelerator centers and government incentives and regulations sub-categories. These are external factors which have important effect on success of the product.

3.4 Scorecard Score

All the components, underlined in the questionnaire, are conclusion of a study. Research topic is selection process of accelerators, incubators, angels and venture managers. All the components are collected during one-to-one interviews. Technical skills prove intellectual ability of team to attain goals while soft skills help team to achieve coherence and emotional stability. Ecosystem topic, in addition, covers the sub-categories regarding what investees encounter during their journey. If entrepreneurs satisfy funders on these components in the scorecard, negotiations continue with financial picture. Dingee, Alexander, Haslett, and Smollen (1997) mentions following:

> As an entrepreneur, think what that venture capitalist's analysis means to you: there is a three-in-one-hundred chance of securing capital from any one source on terms acceptable to you and the investor and only a 15% chance of being considered seriously for investment, and a comprehensive business plan is usually required to qualify for such consideration

The final monetary value, which is aggregated value of sub-categories, is the value of the company on an investor perspective. It is to be noted again that the value may change investor to investor. As Berkery (2008)claims follows:

> To some extent, there are analogies between real estate and early-stage company valuation. The only way in which real estate agents are able to come up with valuation for a house is through tacit knowledge regarding the neighborhood and the special features of the particular house. They use no meaningful analytical tools, yet they can often give a highly accurate view of the price at which a house will sell" (p. 141)

3.5 Negotiation Processes

Ultimate value of start-up, calculated above, is enterprise value. Early-stage baby step companies are desperate to their entrepreneurs. Therefore, an investment cannot cover all the shares of company, but covers some percent. In here, a question arises as how much percent an investor take from start-up. This section explains percent of a company in exchange for an investment.

Most practiced financing cycle for start-ups is between 18 to 24 months. Negotiations usually start at least 6 months before the start-up is pushed for money. This period consists of valuation and negotiation phases (Berkery, 2008). The study points out that each round, investors figure out how much money an investee needs to raise in order to sustain high growth rate until next financial round (Vital, 2013). She continued with giving an example as follows:

> Let's say that number is $100,000, to last you 18 months. Your investor does not have a lot of incentive to negotiate you down from this number. Why? Because you showed that this is the minimum amount you need to grow to the next stage. If you don't get the money, you won't grow – that is not in the investor's interest. So let's say the amount of the investment is set.

Vital (2013) continues with explaining the percentage phase as follows:

> Now we need to figure out how much of the company to give to the investor. It could not be anything more than 50% because that will leave you, the founder, with little incentive to work hard. Also, it could not be 40% because that will leave very little equity for investors in your next round. 30% would be reasonable if you are getting a large chunk of seed money. In this case you are looking for only $100, 000, a relatively small amount. So you will probably give away 5-20% of the company, depending on your valuation

She (2013)also concludes deal as follow:

> As you see, $100,000 is set in stone. 5%-20% equity is also set. That puts the (pre-money) valuation somewhere between $500,000 (if you give away 20% of the company for $100,000) and $2 Million (if you give away 5% of the company for

> $100,000).Where in that range will it be? That will depend on how other investors value similar companies. How well you can convince the investor that you really will grow fast.

To sum up, the amount of percentage that a team is willing to give away depends on expected additional working capital investment necessary to continue operations. Therefore, giving too much percent harms both investors and investees while giving too small discourages investors from investing. True percentage is calculated fairly if fund needs and intrinsic value are considered.

CHAPTER 4

ANALYSIS AND EMPIRICAL RESULTS

In this chapter, results regarding valued company are analyzed. The company, WBot, is a software company which is established several months ago by serial entrepreneurs. The company valued in this study is chosen since it would be the first company which is financed by a newly established business angle. The Angel is an investment company established under Middle East Technical University Technopolis umbrella. The center has a deep experience on selecting start-ups and new ventures and it has been operating as a leading institute in the country since 1992.

The valuation process starts with introducing model to assessor. Assessor is METU Technopolis professional who has been working there as program manager. Initially, the target company is visited and general information is taken with one-to-one interview. The information consists of financial projections and scorecard categories; product, team and ecosystem. Later, valuation procedure goes with analyzing financials coming from investee and investor. After calculating present value of the company as if the venture would eventually be successful, the scorecard is assessed by principle. Result depends on both financial projection and past experience of evaluator. Assessor is decision maker, working in business angel affiliate of METU Technopolis. Discount rate, applied to start-up, is the required return of assessor. As mentioned before, professionals have intrinsic ability to decide true required return for a venture. Final score with different weighted averages reveals the pre-money value of start-up. The last step is determining additional working capital investment

until next financing round so as to decide percentage of company that is taken by investor.

The study continues with explaining company's product, company's present value and scoring questionnaire. In final, how much percent an investor takes is disclosed.

4.1 The Firm

General information about firm is taken by entrepreneurs. One-to-one interview is set and all information about team, product and market is collected.

The firm is a software chatbot company that manages digital advertising processes of companies. The company designs a chatbot, namely WBot, which can answer individuals and customers with a machine learning algorithm. WBot is designed for campaign management. Traditionally, banks and companies manage their campaigns by sending e-mails and SMS notifications. They do not use additional channel. In addition, the channel is not effective since only 10% of customers open these mails and SMS notifications. In Turkey, sending a SMS is regulated by government and needs customer approval. Hence, companies hesitate to send SMS freely. Furthermore, these channels are not interactive and companies cannot track what customers think and how customers behave. Moreover, firms offer several campaigns at the same time which are difficult to manage via customer relation representatives.

WBot, on the other hand, manages campaigns interactively and measures campaigns' feedbacks effectively. The software helps firms by offering built-in online campaign manager for Facebook. WBot collects first party data from different channels which may be DMP (Data management platform) of target firm or cookie of customer and reaches customers via Facebook. It offers eye-catching message with several

promotions. Once chatbot attracts customer, it sends messages on Facebook. Aim is to help customers to select products/service or to solve customers' problem. Algorithm, which drives software, is designed by designating all possible scenarios that customers demand. For instance, during July, Turkish citizens who have cars are supposed to pay motor vehicles tax. WBot, integrated to a bank system, sends message to individuals in order to ask whether customers pay tax or not. The bot behaves like a real person and directs customers to specific answers in order to help them precisely. According to customers' answer, chatbot offers a campaign or a discount regarding motor vehicles tax. This would not be possible for a bank to get an answer if bank reached customers via e-mail. Throughout algorithm, each scenario is specified and interactive communication is ensured. Furthermore, if customers are unwilling to proceed with campaign, the bank is able to learn reasons for drawback.

4.2 Projections and Present Value

In this part, financial projections are tabulated in the spreadsheet. The general rule of thumb declares that 10 years of projection time is enough for forecasting period. The main reason is that as projection period is increasing, results disperse and targets become hard to reach. Therefore, analysts and professionals generally look for 7 to 10 years of projections in fundamental analysis.

Top-down analysis is best fit for new ventures which do not require significant capital investment and have exponential growth rate. The projections start with market sizing. Later, revenue is calculated and operating profit before tax is analyzed. Finally, profit and after tax free cash flows are found.

Case continues with estimating terminal value after year 10. Terminal value is crucial part since most of value comes from it. There are 2 main

inputs for terminal value which are calculating revenue growth and estimating cost of capital.

The last subject in this part is discounting future cash flows to present value with investors' required rate of return. The required rate is de-facto applied rate by an investor and it may change according to the investor. Yet, it does not change among portfolio companies of an investor.

4.2.1 Top-Down Analysis

Ventures which have high growth potential without capital limitation are valued by starting from top part of the fundamental analysis. Since these kinds of businesses do not need huge capital investments, the only limitation firm faces, is total size of market.

In this case study, top-down analysis starts with market sizing and estimating potential market share until maturity. Next, pricing strategy is explained in order to reach forecasted revenue. Operating margins are sampled from publicly traded companies so as to answer which margin the company operates and how much free cash flow is allocated for shareholders. Sampling companies are chosen from Borsa Istanbul and respective data is taken for this particular company. It should be noted that there will be two scenarios for this part one of which is estimation of the investor while the other is forecast of the investee.

Market Sizing

Digital advertising industry has skyrocketed since the evolution of internet. According to statistics (2017)[21] internet has 3,488 million users that means more than 50% of world population is using internet. This

[21]https://www.statista.com/statistics/273018/number-of-internet-users-worldwide/

result leads an idea that most of the world population encounters an online ad while surfing on the internet. Furthermore, the numbers are increasing and online ad market has long way to go. The industry in Turkey, on the other hand, is in the early-stage. It is expected to be considerably bigger in the near future. Recent research (2016) conducted by Turkish Statistical Institute, reveals that 61.2% of Turkish population has access to internet. That means 48.5 Million people have connection. According to IAB 2016 Turkey digital advertising investment reports (2017)[22] corporates spend TRY1,872.4 Million per annum for online advertising. Social media advertising, on the other hand, has reached nearly TRY262.4 Million which is 14% of total online ad market.

As mentioned previously, investors' and investees' projections differentiate with each other due to risk-awareness and expectations. Two scenarios, attached in the appendix A, are projected independently by both parties. Company clarifies that recently there are 175 potential clients in Turkey who manage their campaigns online via online social platforms. Since final users of WBot's products are enterprises, total available market for the WBot is 175 companies recently. Internet Advertising Bureau (IAB) Turkey claims in their research (2017) that online advertising industry grown 11.9%last year. With the assumption that market for chatbot industry has linear correlation with online advertising market industry, growth rate is set as 12% per annum for the next few years. After fifth year, growth rate is expected to diminish until 8%. Both parties adapted mentioned diminishing growth rate projection. At the end of the 10th year, it is expected that the firm will be sold to private equity which operates in software business or in online advertising industry. After that point, growth rate for the chatbot industry

[22]http://www.iabturkiye.org/UploadFiles/Adex/IAB%20T%C3%BCrkiye%20AdEx%202016%20BB08082017182729.pdf

is expected to be 7%. Final growth rate (7%)[23] is taken from social media advertising outlook report of Statista.

Some of the clients have already been serviced by competitors. These clients have enormous customer groups since they are big enterprises in Turkey such as banks, airlines, credit card issuers and telecommunication companies.

Recently, there are few competitors in the market; Zendesk operated by Zopim, Wit.ai and Api.ai. However, WBot has additional features that differentiate it from others and help company to reach considerable market share. Nevertheless, investors are little cautious about selling first product to the market. Even though there is no switching cost for the software, significant marketing afford may be required for initial sale. Therefore, the investor is little leery and she believes that in the first year, only product will be developed and in the second year only a sale will be achieved. Although the team agree on the product development period that investor mentioned, projections show that the team expects to service 5 clients on the second year. For the further projection, since there are competitors in the market, market share the firm will eventually achieve is limited. Investors believe that there will be also new players in the market after few years. Therefore they are little cautious about market share at the time of exit. Money providers suggest that as a mature company, the firm will reach 20% percent market share with diminishing marginal increase. The entrepreneurs are more optimistic compared to investors. They agree on that the product development will take a year, yet the product will come forward among other solutions. They claim that they will be able to deal with 5 customers on the second year. They added that recent competitors have been operating for a while

[23] https://www.statista.com/outlook/220/113/social-media-advertising/turkey#

however their products do not solve clients' request precisely. Therefore at the time of exit they expect to acquire nearly 30% market share.

In order to find average campaign per client, a research is conducted by WBot. Team claims that they searched for recent and past campaigns of potential clients by field study. In brief, competitors are investigated by looking how much average campaign per client they manage. Eventually, they reach average campaigns per client, 48. It is difficult to project average campaign since there are no tangible results for campaign amounts. Therefore, both parties stick on recent study on average campaign amounts and they will benefit from upside potential in future if clients have higher average rate per year.

To conclude, by multiplying average campaign per client and amount of obtainable clients, the firm reaches annual obtainable campaigns. This is the very first key calculation of the top-down analysis.

Pricing and Revenue Calculation

Each obtainable campaign per year is priced according to duration of campaign and number of customers clients manage. Competitors' pricing starts from ^{TRY}100 per campaign and reaches up to ^{TRY}300 monthly. On an annual basis, the range becomes ^{TRY}1,200 to ^{TRY}3600. For the WBot, who is a new player in the market but has distractive features, pricing is lower compare to other competitors in order to penetrate market. Team claims that the product can achieve required initial sales by adapting price of ^{TRY}2000 per annum. The pricing will be same for first two years and after that point it will increase 10%, average expected inflation rate, each year. Investors, on the other hand, find r starting pricing policy reasonable.

Annual average pricing per campaign and annual obtainable campaign convey projections to revenue. Due to slight difference in market share

and pricing policy, both parties reach different revenue projections. In the first year both projections do not expect any sale, thus there is no revenue. Yet, the investor is cautious about final market share that makes revenue projection to be nearly 50% less than what investees projected. This discrepancy is one of the reasons why final valuation is deviated.

Operating Profit and Free Cash Flow

So as to estimate the expected pretax operating margin in ten years, publicly traded companies, which operate in technology business in Turkey, are examined. Table 7 shows findings.

These companies are operating in technology industry in Turkey. Unlike WBot, some of above companies are manufacturing hardware products only and most of them sell both hardware and software products. Therefore, it is assumed that operating margin for WBot is higher than average operating margin of tech industry. Investor believes that at maturity, the company converges to nearly 20% pretax operating margin whereas team is courageous enough to set 25% operating margin in the tenth year. Yet, the path to stability has some difficulties since projections face negative operating margins at first few years. The team claims that they will have better sale numbers therefore initial operating margins at second year will be higher than what investor is expecting.
Operating profit is simply deducting expenses from revenue. These expenses of near future are briefly summation of employee costs and marketing expenses. Investees and investors are aware that growth potential can be provided only if enough employees are recruited. The only capital investment the start-up may need is supply items such as computers and office stationeries. Therefore, capital investment requirement and relative depreciation expenses are rather low and negligible. On the cost side, there are two main components, employees and office rent. The team is recently sharing incubation centers' office

with other entrepreneurs. The office is free of charge and owned by the investor. The center provides sufficient necessities to the team and unless the firm increases sales more than expected, they are able to use shared office until end of the second year. That means that they will not pay any office expenses until third year. However, for both projections, in order to support increase in sales after second year, the team needs to employ additional engineers and to move to a bigger office. For the cost sub-category, employee salary, investor believes that the start-up will have slightly more working capital.

Only remaining component in this part is calculation of after tax operating income. For brief projection, it is simply free cash flow. In practice, since after tax operating cash flow is found by scaling revenue with operating margin of market benchmark, depreciation and reinvestment rate are not included separately in model. These amounts are already included in the operating margin. Therefore, reinvestment and depreciation amount are expected to grow at the same rate as the operating margin. In order to calculate after tax operating income, tax expense is deducted from pretax operating profit. For WBot, the corporate tax rate is 20%, generic rate for Turkish companies.

Table 7: Pretax Operating Margin in Turkey's Technology Companies[24]

Pretax Operating Margin		
Company	**BIST Code**	**2016**
Alcatel Lucent Teletas Telecommunication	ALCTL	33.36%
Arena Computer	ARENA	10.46%
Armada Computer	ARMDA	12.64%
ASELSAN	ASELS	35.52%
Despec Computer	DESPC	9.38%
Datagate Computer	DGATE	12.72%
Escort Technology	ESCOM	-54.48%
Fonet Information Technologies	FONET	23.19%
Indeks Computer	INDES	12.08%
Karel Electronics	KAREL	25.77%
Kron Telecommunication	KRONT	86.96%
Link Computer	LINK	-6.17%
Logo Software	LOGO	47.83%
Netas Telecom	NETAS	-3.88%
Plastikkart	PKART	12.76%
Average Tech-Industry Pretax Operating Margin		**17.21%**

4.2.2 Terminal Value Calculation

Terminal value has big effect on company's value, yet it has bigger effect on start-ups since baby step companies have negative cash flows in the initial years. In order to calculate terminal value, three components are required; latest cash flow before the beginning of terminal year, the cost of capital and growth rate.

Current growth rate for terminal year is 8% and it is mentioned before that this rate is lower than risk free rate and higher than Turkish economy growth rate. Online advertising industry is expected to grow more than market average.

[24] https://www.investing.com/equities

Next component to be calculated is the cost of capital. The cost of capital includes weighted averages of cost of debt and cost of equity. Both investors and investees agree on that the start-up will not carry debt on its' balance sheet. Therefore, the weight of cost of equity in the capital is 100%.

Table 8: Average Technology Companies Unlevered Beta[25]

Average Unlevered Regression Beta				
Company	**BIST Code**	**β levered**	**Debt to Equity Ratio**	**β Unlevered**
Alcatel Lucent Teletas	ALCTL	0.93	0.009	0.92
Arena Computer	ARENA	0.58	0.841	0.35
Armada Computer	ARMDA	0.43	-18.123	-0.03
ASELSAN	ASELS	0.76	0.117	0.70
Despec Computer	DESPC	0.84	0.160	0.74
Datagate Computer	DGATE	0.69	2.029	0.26
Escort Technology	ESCOM	0.7	0.351	0.55
Fonet Information Technologies*	FONET	-0.09	0.544	-0.06*
Indeks Computer	INDES	0.78	3.649	0.20
Karel Electronics*	KAREL	0.82	-3.190	-0.53*
Kron Telecommunication	KRONT	0.09	0.086	0.08
Link Computer	LINK	0.84	0.000	0.84
Logo Software	LOGO	0.24	0.922	0.14
Netas Telecom	NETAS	0.91	0.041	0.88
Plastikkart	PKART	0.08	0.000	0.08
Average Unlevered Regression Beta				**0.38**

* Companies with negative levered β's are disregarded.

[25]https://www.investing.com/equities

To estimate cost of equity, unlevered beta of the software industry is to be calculated. In the below table, levered regression betas of publicly traded technology firms are adjusted to unlevered regression betas with debt to equity ratio. As a final, the average unlevered beta is adapted to WBot for the firm beta.

The average unlevered beta across public technology firms is 0.38. Knowing that the company will not be funded with debt, this rate can be selected directly. As a result of the difference in the core business areas of the BIST companies and the start-up company analyzed in the case study, the benchmark beta (0.38) turns out to be significantly conservative. In order to use a more realistic beta for a start-up software company, the market beta of 1 is used in the calculations.

In addition to beta in the cost of capital equation, there are other two components; risk free rate and market risk premium. Recent risk free rate for Turkish market is calculated by benchmarking 10 years bond rates which is 10.5%. Damodaran analyzes country risk premiums on his study (2017)[26] that equity risk premium for Turkey is 9.46%. With given components, below cost of equity equation yields to 20%.

$$r_e = r_f + \beta(RP_m)$$

This value is cost of equity at maturity for the technology firms. It is adapted by WBot as well in order to estimate cost of capital for terminal years.

[26]http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html

Table 9: Terminal Value Calculation

Point of View	Entrepreneur's	Investor's
Revenue at year 10	25,180,000.00	14,980,000.00
Stable Growth Rate	7%	7%
Revenue at year 11	26,940,000.00	16,030,000.00
Operating Margin	25%	20%
Pretax Operating Income	6,735,000.00	3,206,000.00
Tax Rate	20%	20%
After tax Operating Income	5,388,000.00	2,564,800.00
Cost of Capital	20.0%	20.0%
Terminal Value	**41,610,000.00**	**19,810,000.00**

Finally, reconsidering revenue in year 10, team of WBot is expecting to have TRY25,180 Million whereas investor concludes TRY14,980 Million. Initially, revenues and after tax operating profit is estimated in year 11. After tax operating income is equal to free cash flow. With stable period cost of capital 20% and growth rate 7%, terminal value is calculated. The findings according to both scenarios are tabulated in the table 9.
It should be noted, deviation on terminal value expectations is mainly due to difference in expected market share and operating margin. The slight differences in these forecasts result in huge deviation in the terminal value.

4.2.3. Required Rate of Return and Present Value

In nutshell, the cost of capital of firm at maturity is average unlevered cost of equity of technology firms in Turkey. Yet, discounting all cash flows as if the firm is a mature company overvalues the present value of the start-up. Angels, on the other hand, expect more than market return since they invest in high risk assets. The question arises here is that what is required rate of return for an investor.

The answer changes according to investor. In the case of this study, investor expects to exit company within 5 years. Furthermore, their

expectation is to return 10 times what they invest. Simply using below equation, expected return yields to 58% in annual basis.

$$r = \sqrt[t]{n} - 1$$

r : expected return per annum

n : expected gross return at time t

t : time to exit

The rate they adapt, on the other hand, is generally close to negotiation. The percentage is applied to all investees of investors. Yet, both parties agree on that after a certain year the 58% rate diminishes to average market cost of capital rate.

In the case study, both projections' cash flows are discounted with 58% during first 4 years since recent investor plans to exit with 10 times return. It is assumed that in the fourth year new venture capital will invest in company and consequently, equity will be diversified further. Getting new funds demonstrates that risks of firm are dispersed. Therefore, future expectation on return and discount rate decay simultaneously. Having known that financial rounds are between 18 months to 24 months, the rate will diminish per 2 years and reach to 20% at ninth year. The decay ratio is high at near terms since there are fewer equity holders. Interim discount rates; 37% and 26% are calculated such that decline amount from previous discount rate is lower than what was in the preceding one. To illustrate; from fourth year rate to fifth year rate the amount of decline is 21% and amount between sixth and seventh year is 11%. Final decline between eighth and ninth years is 6%. Furthermore, differences between declination amounts are 10% and 5% respectively, which shows decline amounts are also decreasing.

Present value, finally, of future cash flows is discounted with above calculated required rate of returns. Table 10 and 11 discloses these discount rates and present values of projected cash flows.

Based on expected cash flows and discount rates, present values of both scenarios are tabulated above. As mentioned previously, investor's and investee's results have differences due to distinct forecasting. The estimation of entrepreneurs is more than 2 times higher than what investors estimate.

Below results are ceiling limit for the start-up, according to investor the firm worth not more than ^{TRY}0.8 Million recently whereas, optimism of entrepreneurs yield to a maximum possible value of ^{TRY}2.1 Million valuation.

Table 10: Present Value Calculation in Entrepreneurs' Projection

Entrepreneurs' Point Of View				
Year	**FCFF**	**Cost of Capital**	**Geometric Sum of Discount Factors**	**Present Value**
1	-129,600.00	58.1%	1.58	-82,000.00
2	-19,200.00	58.1%	2.50	-7,700.00
3	-15,200.00	58.1%	3.95	-3,800.00
4	170,400.00	58.1%	6.25	27,300.00
5	601,600.00	37.0%	8.56	70,300.00
6	1,252,800.00	37.0%	11.73	106,800.00
7	2,284,800.00	26.0%	14.78	154,600.00
8	3,245,760.00	26.0%	18.62	174,300.00
9	4,268,000.00	20.0%	22.34	191,100.00
10	5,036,000.00	20.0%	26.80	187,900.00
Terminal Value	41,610,000.00	20.0%	32.14	1,294,600.00
Present Value of Company				**2,113,400.00**

Table 11: Present Value Calculation in Investor's Projection

Investor's Point Of View				
Year	**FCFF**	**Cost of Capital**	**Geometric Sum of Discount Factors**	**Present Value**
1	-115,200.00	58.1%	1.58	-72,900.00
2	-48,000.00	58.1%	2.50	-19,200.00
3	-91,200.00	58.1%	3.95	-23,100.00
4	-92,800.00	58.1%	6.25	-14,800.00
5	-23,040.00	37.0%	8.56	-2,700.00
6	269,600.00	37.0%	11.73	23,000.00
7	690,400.00	26.0%	14.78	46,700.00
8	1,290,000.00	26.0%	18.62	69,300.00
9	2,016,000.00	20.0%	22.34	90,200.00
10	2,396,800.00	20.0%	26.80	89,400.00
Terminal Value	19,810,000.00	20.0%	32.14	616,300.00
Present Value of Company				**802,200.00**

It is to be noted that the results are discounted as if the company will be successful eventually. Investor adapts discount rate reaching 58% because of the fact that the firm is start-up. Yet, this rate does not count any risks associated with the firm. By following this path, the investor does not pay too much attention to adjust discount rates in order to cover firm specific risks. Instead, it designates only generic required rate of return which is applied to all potential investees of investor. The firm specific risks are measured in scorecard. It considers qualitative aspects to find ultimate value of WBot. Next part shows results of questionnaire done by the investor.

4.3 Scoring Questionnaire

The questionnaire is done to adjust outputs of discounted cash flow method. As mentioned previously, it is difficult to position the firm specific risks into valuation sheets. Adapting impractically higher discount

rate kills the intrinsic value of the company and demotivates entrepreneurs. Furthermore, most of the time there is no concrete evidence to apply high discount rates. In order to assess firm specific risks, questionnaire is filled by investor and applied to firm. In this part, investee does not participate since evaluator reveals the risks by assessing questionnaire.

Table 12: Weights of Categories and Sub-categories

Weights of Basic Categories and Sub-categories		
Categories Weights	**Categories and Sub-categories**	**Sub-categories Weights**
40%	**Team**	
	Technical Skills	50%
	Soft Skills	30%
	Prior Success	20%
20%	**Product**	
	Final Product	30%
	Traction and Growth	70%
30%	**Market Conditions**	
10%	**Ecosystem**	
	Employee Market	20%
	Investor Market	30%
	Incubator and Accelerator	25%
	Government Incentives and Regulations	25%

The questionnaire, designated in the next page, had three basic category and several sub-categories and respective components. It should be noted at the beginning of qualitative analysis that the investor give more importance on "Market Conditions" sub-category and she asked to separate this sub-category as a new category. Therefore, the latest questionnaire evolved slightly to a scorecard which have 4 basic

categories; team, product, market conditions and ecosystem. It also clarifies flexibility of scorecard.

Before starting results, weight analysis is done according to investor's preference. It is asked investor to distribute 100% to scorecard categories. Above table designates weights for all categories and subcategories.

Like all of incubation centers and accelerators, business angels give most of the importance to team category. Similarly, it holds true for this case. Investor gives 40% to team. The other important thing for her is market conditions which is 30%. Remaining categories, product and ecosystem, take 20% and 10% respectively.
Considering weights, the maximum amount of categories can get from valuation is found. The ceiling limit is dispersed to weighted sub-categories. After scoring these sub-categories, results are summed and true value of the firm is reached. It should be noted that since there are two scenarios, there are two maximum available results. Table 13 reflects maximum available value for each category.

Table 13: Maximum Available Value of Each Category

Weighted Maximum Values of Headlines		
Categories	**Entrepreneur's Projection**	**Investor's Projection**
Intrinsic Valuation	**2,110,000.00**	**800,000.00**
Team (40%)	840,000.00	320,000.00
Product (20%)	420,000.00	160,000.00
Market Conditions (30%)	630,000.00	240,000.00
Ecosystem (10%)	210,000.00	80,000.00

Next few sections, each categories and respective scoring are examined in order to clarify qualitative assessing. During assessment, investor make comments and these notes are added if available.

4.3.1 Team

This category can appreciate the firm up to TRY1.9 Million according to the entrepreneur and TRY0.8 Million according to the investor before discounting qualitatively. The category has 3 sub-categories; technical skills, soft skills and prior success which have different weights in the team category as 50%, 30%, and 20% respectively. Each sub-category has a maximum value, tabulated in the table 14.

Table 14: Weighted Maximum Values of Team's Sub-categories

Weighted Maximum Values of Team's Sub-categories		
Sub-categories	**Entrepreneur's Projection**	**Investor's Projection**
Team	**840,000.00**	**320,000.00**
Technical Skills (50%)	420,000.00	160,000.00
Soft Skills (30%)	250,000.00	100,000.00
Prior Success and Reference (20%)	170,000.00	60,000.00

The team has 3 members; 2 of which are software engineers and the other member is responsible of marketing. Marketing responsible, a woman, is married with one of the software engineers. Couples have recently made baby. Therefore, investor claims that the firm has difficulty to manage marketing strategy effectively. Yet, she mentions they have strong skills on the technical side.

Next part, each team's sub-categories are evaluated by the investor and final scoring is tabulated.

Technical Skills

The start-up has 2 software engineers and they are competent on what they are designing. Yet, they are lack of sales and marketing effort due to parental leave. Therefore, need of sales person costs team as 3 points out of 5. Team proficiency assesses experience of team. Investor mentions that they have more than average experience on software engineering. Thus assessor gives 4 points. During initial interview, the investee had some trouble to answer some questions about projections and estimations. Thus investor believes that team is moderate on knowledge of planning and projection. Investor punctuates that interviewee is leader of the team and he could not reflect data precisely. Even though the team has missing member, a sales person, money supplier suggests that they allocate team well. Thus, they get 4 out of 5 on this component. Finally, the eventual result is 4 for Technical Skills out of 5. Table 15 shows investors' scoring in tabulated form.

Table 15: Technical Skills' Scores

Technical Skills	1	2	3	4	5
Member Complementation			X		
Team Proficiency				X	
Planning and Projection Ability			X		
Task Allocation				X	
Average Score				X	

Soft Skills

Next sub-category of team category is soft skills which measures interpersonal conditions of the team. Investor had a chance to work with them previously since the firm is investors' incubation center member. Therefore, money supplier has an advantageous position compared to

other investors. Investor believes that team has good harmony that helps team consistency to get 5 out of 5 points. Having known that team members are recently parent, they may have problems to commit to start-up for several years that yields to 4 points. The flexibility of team is 5 since they are eager to get feedback and to correct product. The team needs fund yet they also applied for government incentives. Therefore, their willingness to be funded by an investor is not at most. The team has table in the incubation center and investor notices that other residents in the center have positive feedbacks to the team. Thus, they get 4 points. They are also active in the internal and domestic events which help team to get 5 points for ecosystem membership. Yet, investor believes they are lack of open mindedness and she punishes them from getting highest score. The last component is gender and investor does not give any importance to gender component. Therefore, this component, gender, is eliminated from the questionnaire. In a nutshell, investor scores team's soft skills as 4 points out of 5 and the table 16 shows scoring.

Table 16: Soft Skills' Scores

Soft Skills	1	2	3	4	5
Team Consistency					X
Team Commitment				X	
Flexibility					X
Willingness				X	
Communication Skill				X	
Ecosystem Membership					X
Open Mindedness			X		
Gender					
Average Score				X	

Prior Success and Reference

The last sub-category is prior success ad reference. In addition to recent firm, entrepreneurs manage another company which sells products. Furthermore, investor gives premium to fail history while valuing company. One of the software engineers furthermore, bankrupted a company before. Combining all of these reasons, money provider gives 3 point to this sub-category.

Team Scoring and Discounted Value

As a brief presentation, team is scored in moderate way. The results show that team is not bad, they worth to proceed further. Yet, they lack of some critical aspects which discount intrinsic value more than expected. Below table summarizes scoring and respective valuation. The last part of the table is the ultimate value of the team in this valuation category. It should be noted that, since entrepreneurs and investor have different projections, two scenarios are showed in the table 17.

Table 17: Scoring and Discounted Value

Subtitles	Entrepreneur's Projection	Investor's Projection
Team	**840,000.00**	**320,000.00**
Technical Skills (%50)	420,000.00	160,000.00
Soft Skills (%30)	250,000.00	100,000.00
Prior Success and Reference (%20)	170,000.00	60,000.00
Scorecard Scores	**Out of 5**	**Out of 5**
Technical Skills	4	4
Soft Skills	4	4
Prior Success and Reference	3	3
Discounted Value	**Entrepreneur's Projection**	**Investor's Projection**
Technical Skills	336,000.00	128,000.00
Soft Skills	200,000.00	80,000.00
Prior Success and Reference	102,000.00	36,000.00
Team	**638,000.00**	**244,000.00**

4.3.2 Product

Product category looks for project in detail. In this part, there are two sub-categories; final design and product and traction and pursuit of growth. Investor adapts 30% and 70% weights respectively in the model. The maximum value of this category and these subtitles are tabulated below.

Table 18: Weighted Maximum Values of Product's Sub-categories

Weighted Maximum Values of Product's Sub-categories		
Sub-categories	**Entrepreneur's Projection**	**Investor's Projection**
Product	**420,000.00**	**160,000.00**
Final Design and Product (30%)	130,000.00	50,000.00
Traction and Growth Pursuit (70%)	290,000.00	110,000.00

Final Design and Product

The first consideration here is differentiation which is 1 point out of 5. The product has competitors and investor believes WBot does not provide new solution to market. Yet, applicability gets highest mark since technology has already developed. As mentioned previously, WBot will have additional competitors since replicability of product is very easy. Therefore, the team cannot guarantee any protection to product. She states that as long as the company sells product, the firm continues operations. Thus, it got 4 points out of 5 for sustainability component. The last component looks for whether the product is niche or not. Being niche for some industries can be preferred whereas it is not for chatbot market. However, WBot is not operating in niche market and it is flexible to service several markets with additional improvements. In short, average score is 3 points and respective scores for final design and product are tabulated in the Table 19.

Table 19: Final Product Scores

Final Design & Product	1	2	3	4	5
Differentiation	X				
Applicability					X
Replicability	X				
Sustainability				X	
Niche				X	
Average Score			X		

Traction and Pursuit of Growth

Investor punctuates that even if a product is high technology and solves very important world problem, if there is no traction, investors do not consider. She claims that if there is no traction, it means, customers do not demand the product although entrepreneur mentions that the product will change the world. They ignore all opportunity if product is lack of key metrics and growth evidences. She comments that for early-stage start-ups, team has to reach potential customers and validate their product. Therefore, unlike other sub-categories, investor defines minimum benchmark for the components of this sub-category. Investor sets 3 point for the minimum level for investable start-up.

For the WBot case, investor mentions that the firm has KPIs. Yet, they need to be improved and they could not satisfy funder at the end of the day. Similarly, business model they have is moderate and needs to be reformed for better valuation. Since chicken-egg problem is not applicable to this start-up, investor asks to take away component. The product is well designed and widely accepted, thus, investor believes WBot answers problems of clients precisely. By assessing the last

component, investor scored 3 points on how the much team progressed until now. The general view of scoring traction part is tabulated below.

Table 20: Traction and Pursuit of Growth Scores

Traction and Pursuit of Growth	1	2	3	4	5
Key Performance Indicator			X		
Business Model			X		
Chicken-egg Problem					
Problem-solution fit				X	
Phase of Product			X		
Average Score			X		

Product Scoring and Discounted Value

Table 21: Scoring and Discounted Value

Subtitles	Entrepreneur's Projection	Investor's Projection
Product	**420,000.00**	**160,000.00**
Final Design and Product (%30)	126,000.00	48,000.00
Traction and Growth Pursuit (%70)	294,000.00	112,000.00
Scorecard Scores	**Out of 5**	**Out of 5**
Final Design and Product	3	3
Traction and Growth Pursuit	3	3
Discounted Value	**Entrepreneur's Projection**	**Investor's Projection**
Final Design and Product	75,600.00	28,800.00
Traction and Growth Pursuit	176,400.00	67,200.00
Product	**252,000.00**	**96,000.00**

In terse, the product gets 3 points on average which means it is worth to invest. Yet, it does not have any promising future if the investor wants to

sponsor unicorn-to-be. Final scoring and respective monetary equivalent can be found on the table 21.

4.3.3 Market Conditions

As mentioned previously, investor demands to separate this sub-category from the product category. It is designated as a new category. Modified model promises better view to model since the weight of market condition category (30%) is punctuated better compared to previous structure. With given weight, market condition can raise at most ^{TRY}1.43 Million on the entrepreneur's projection and ^{TRY}0.62 Million on the investor's projection. Below table reflects mentioned valuation.

Table 22: Weighted Maximum Values of Market Category

Weighted Maximum Values of Market		
Sub-categories	**Entrepreneur's Projection**	**Investor's Projection**
Market Conditions	**630,000.00**	**240,000.00**

Under market condition category there are several questions which are to be answered by investor. The very first consideration is sufficiency of market size. Considering both national and international case, there is growth potential for market size. However since WBot does not consider scaling internationally, their market size is limited with Turkey. In addition to that, there are remarkable numbers of SMEs which can benefit chatbot software in near future. Hence, the market will provide potential clients for chatbot industry. As a final decision, on the market size component the start-up got 4 points from investor which is more than moderate. It is known that the product is not new to market, therefore, it can be concluded that the market is ready. On some extent, having competitors is beneficial for companies. Competitors prepare

customers to consume product or use service before you operate and you do not give any effort to explain customers what you provide. Yet, WBot is slightly late to market since competitors have already been servicing to clients for years. Thus, they do not get full points on this component. Next component is market penetration which cannot be valued recently since there has been no sale until now. For the future perspective, due to recent and potential competitors, it would be hard for the company to acquire high market share. The other component, demography, is rated as 3 since investor believes that in Turkey, technological development suffer from bureaucracy and it does not improve as expected. Investor claims that team will have difficulty to market their product since there are insufficient channels for marketing. She continues with assessing competition and notes that there are and will lots of players in the chatbot industry in near future. Therefore, team will always have challenges coming from competition. Thus, she scores this component with 2 points, showed in table 23

Table 23: Market Condition Scores

Market Conditions	1	2	3	4	5
Market size				X	
Market Readiness					X
Market penetration			X		
Demography			X		
Marketing & Advertising			X		
Competitor		X			
Average Score			X		

Market Condition Scoring and Discounted Value

Market conditions category is the one of the most important category in the qualitative valuation. Investor expects to isolate this category from product category. The part does not have any sub-category and consists of components. On average it is scored 3 points. Entrepreneurs' and investor's expectation on after discounting value can be reached on the table 24.

Table 24: Scoring and Discounted Value

Subtitles	Entrepreneur's Projection	Investor's Projection
Market Conditions	630,000.00	240,000.00
Scorecard Scores	**Out of 5**	**Out of 5**
Market Conditions	3	3
Discounted Value	**Entrepreneur's Projection**	**Investor's Projection**
Market Conditions	**378,000.00**	**144,000.00**

4.3.4 Ecosystem

Final category on the scorecard is ecosystem. It has four sub-categories that assess outside of the firm's boundary. Investor, initially designated weights in order to sort sub-categories according to importance level. She gives 20% to employee market, 30% to investor market, 25% to incubator and accelerator membership and 25% to government incentives and regulation. On the below table, each monetary equivalent the firm can raise from each sub-category is figured.

Table 25: Weighted Maximum Values of Ecosystem's Sub-categories

Weighted Maximum Values of Ecosystem's Sub-categories

Sub-categories	Entrepreneur's Projection	Investor's Projection
Ecosystem	**210,000.00**	**80,000.00**
Employee Market (20%)	40,000.00	20,000.00
Investor Market (30%)	60,000.00	20,000.00
Incubator and Accelerator (25%)	50,000.00	20,000.00
Government Incent. & Reg. (25%)	50,000.00	20,000.00

Employee Market

The very first examines employee market. Investor claims that it is very easy for team to find software engineers and algorithm developers. In brief below table is formed.

Table 26: Employee Market Scores

Employee Market	1	2	3	4	5
Reachable qualified employees					X

Investor Market

The next sub-category is investor market. Indeed, investor scores herself or himself by looking how much she can add to the team. For the first component, synergy, the investor believes that she can contribute on the team. Yet, the support has limitation. Therefore, she cannot score more than average. Furthermore, WBot made self-investment to their main company whereas they did not spend a penny to chatbot product. The investor believes that team has applied for government incentive and if they cannot raise money from this application, they will not proceed further with this product. Third, capital expectation of investee and maximum amount the investor can invest are good fit. In addition to this,

the team is a member of incubation center. Therefore, the investor had more than enough time to see team's performance. The last component in this questionnaire is that investor has a start-up on her portfolio that designs machine learning chatbot system. This company may be direct competitor of WBot. Yet, the competitor is not working on digital marketing industry; it is working on machine learning chatbot systems. If the competitor wants to service to market with product of what WBot designed, they will have higher market share since they have superior software. Thus, it can be concluded that investor has direct competitor in the house with hibernating mode on. Investor knows that the competitor will not service in the online advertising market very soon, therefore, she scores this component with 2 points. Below table summarizes all findings about investor market score.

Table 27: Investor Market Score

Investor Market	1	2	3	4	5
Synergy				X	
Self-Investment	X				
Capital Expectation					X
Performance Seeking					X
Direct competition within existing portfolio company.		X			
Average Score			X		

Incubator and Accelerator

In this part, it should be noted that last topic, vertical program product, is eliminated since the product is not after-product of any vertical program. In brief, the team has a membership of incubation centers and they are active in ecosystem. In addition to that, feedback from centers

is well and investors scored 5 points for both components, as showed below.

Table 28: Incubator and Accelerator Centers Score

Incubator and Accelerator Centers	1	2	3	4	5
Incubation and Accelerator Membership					X
Centers' feedback.					X
Vertical program product					
Average Score					X

Government Incentives and Regulations

The final sub-category is government incentives and regulations. Investor mentions that government extended fund payment time and uncertainty in funds is higher due to recent political conditions. WBot, furthermore, is dependent on this incentive. She punctuates that this dependency is not desirable by investor and she wants to see the team proceeds with or without incentive. Thus, they are not attractive to investor on this perspective. On the regulation side, they may encounter only financial regulations in some extent. Therefore, they are free of regulation. Intellectual property rights, finally, are not protected by government, and team will not face any difficulty on this component. Thus, the component is removed from scoring. In a nutshell, scores are shown below table.

Table 29: Government Incentives and Regulations Score

Government Incentives and Regulations	1	2	3	4	5
Prerequisite and Standby Time		X			
Regulations				X	
Intellectual Property Rights					
Average Score			X		

Ecosystem Scoring and Discounted Value

In the final perspective, the firm has some problems with external boundary of company. Especially, team is dependent to government regulations, and they suffer from not impressing the investor. Therefore, team cannot raise considerable amount from the ecosystem Category. Final table organizes all findings in the ecosystem and put monetary equivalents into order.

Table 30: Scoring and Discounted Value

Subtitles	Entrepreneur's Projection	Investor's Projection
Ecosystem	**210,000.00**	**80,000.00**
Employee Market (%20)	42,000.00	16,000.00
Investor Market (%30)	63,000.00	24,000.00
Incubator and Accelerator (%25)	52,500.00	20,000.00
Government Incent. & Reg. (%25)	52,500.00	20,000.00
Scorecard Scores	**Out of 5**	**Out of 5**
Employee Market	5	5
Investor Market	3	3
Incubator and Accelerator	5	5
Government Incent. & Reg.	3	3
Discounted Value	**Entrepreneur's Projection**	**Investor's Projection**
Employee Market	42,000.00	16,000.00
Investor Market	37,800.00	14,400.00
Incubator and Accelerator	52,500.00	20,000.00
Government Incent. & Reg.	31,500.00	12,000.00
Ecosystem	**163,800.00**	**62,000.00**

4.3.5 Summation of Discounted Values

By scoring questionnaire, qualitative aspects regarding WBot, are assessed. In fact, the scores out of 5 are used as discount factor in order to associate firm specific risks into a valuation. As a final thought; below table illustrates all values that can be raised by categories individually and ultimate valuation of company on the entrepreneurs' and investor's point of view.

It should be noted that, entrepreneurs' projection is two times bigger than investor's. It is mentioned previously that, slight differences in future expectation yield to a considerable variation.

Next section deals with expected capital requirement for WBot so as to reach next financial round. The ultimate percentage the investor will get from the company is calculated as well on the later section.

Table 31: Ultimate Value of Company

Categories	Entrepreneur's Projection	Investor's Projection
Team	638,000.00	244,000.00
Product	252,000.00	96,000.00
Market Conditions	378,000.00	144,000.00
Ecosystem	163,800.00	62,000.00
Summation	**1,431,800.00**	**546,000.00**

In shortened, value of company is calculated with firm specific risks associated discount rate. Ultimate score of overall questionnaire is 3.4 points out of 5. Therefore, nearly 32% of company value is cropped out due to qualitative valuation. Assessor also comments that the ultimate value is rather high for a company such as WBot.

4.4 Negotiation

The final term in this model is the calculation of share the investor will acquire in return for investment. As mentioned previously, the company is expected to be funded on the next financial round which is two years later. Hence, team needs fund that covers negative cash flows for the first two years. Therefore, required capital until next round is additional working capital investment necessary to continue operations until second year.
With a rough estimation that expenses are employee salaries and little marketing effort, summation of two years before tax operating profits is required capital for the WBot in order to continue operations.

Percentage of required capital to ultimate value brings out the percentage value of the invested capital for the firm. Table 32 reflects calculations for both parties.

Table 32: Percentage Worth of Invested Capital

Categories	Entrepreneur's Projection	Investor's Projection
Team	638,000.00	244,000.00
Product	252,000.00	96,000.00
Market Conditions	378,000.00	144,000.00
Ecosystem	163,800.00	62,000.00
Summation	**1,431,800.00**	**546,000.00**
Required Capital Until Next Cycle	**- 186,000.00**	**- 204,000.00**
Percentage of the Firm	**12.99%**	**37.36%**

As a summary, since entrepreneurs and investor estimate different projections, share that entrepreneur is willing to give away is less than what investor is eager to take. In brief, entrepreneur expects to spend ^{TRY}186,000 until next financial round and to give away 13% in return for

this amount. Investor, however, expects 37.4% for the TRY204,000. From that point, negotiation among them will designate last agreement. The monetary equivalent of final deal cannot be lower than certain level since it defines whether the company will reach next financial round. Yet, the percentage may be different. Most probably, it will be more than what entrepreneur's expect and will be less than what investor demands. Final deal will be done behind closed doors due to privacy concern.

As a footnote, during scoring phase, investor mentioned some intentions about investment. She believes that the team and the firm have start-up and entrepreneurship culture. They may work as employee in the different company but they prefer to compel on their own company. It is very attractive thing for the investor. On the other hand, she claims that their product is not distinctive. Furthermore, she punctuates they have to be observed for a while in order to see precise evidences for success. She believes that maybe, in the future they will be valued more and they will eventually be successful. However, she asserts that recently it is too risky for an investor to invest high amount for limited share to this company.

This study will not learn what percentage they will agree but it is known that the ratio is specified by a strongest party. According to Berkery (2008);

> Each side rarely achieves all its objectives, unless the balance of power in the negotiation is one-sided. If there is a severe shortage of capital in the market or if the business is doing poorly, the investor can generally drive the terms. If the business has stellar prospects or there is strong competition between investors to win the deal, the company and the entrepreneur can drive the terms. (p. 174)

CHAPTER 5

CONCLUSION

It is always said that start-up valuation is not a science it is an art. It would be true if investors do not expect positive return for their investment. On the contrary, investors believe that there is a fair value for all type of firms regardless of maturity. These types include pre-revenue early-stage ventures which have no tangible history that proves possible success in the future. Therefore, several methodologies are studied by professionals and academics so as to reach less biased fair value. These applications have some pros and cons. On the cons side, although some methods are used widely, they need past historical data which is not possible for an early-stage venture. In addition to that, success of a pre-revenue does not depend on historical performance but depends on entrepreneur itself. Thus, traditional approaches are lack of assessing team or entrepreneurs.

In this study, in order to annihilate problems mentioned above, traditional approach is used with qualitative valuation addition. The addition is extended version of Berkus method. Extension comes from the study conducted by academics exclusive for Turkish entrepreneurial ecosystem.

Model consists of three main components; present value calculation, scorecard valuation and negotiation. In the present value calculation, top-down analysis is done in order to establish fundamental analysis. The projection shows how market is penetrated with what price and how company operates in with what margins. Starting from 175, market reaches 400 clients with 12% market size increase in 10 years. After

reaching more than 20% market share and nearly 20% operating profit, the start-up generates nearly TRY2,400,000 after tax operating profit on the investor's point of view. Terminal value is second input of present value calculation component. Publicly traded technology companies in the Borsa Istanbul are taken as benchmark and profit margin and market beta for the start-up are calculated. In doing so, cost of capital is estimated for the terminal year. Furthermore, free cash flows until tenth year and terminal value are discounted back to present value. Discount factors are variable and start from expected rate of return of business angel and diminish until terminal years' value. The final sum is the maximum amount that company can raise. The results show that slight difference in projections of market size and operating profit yield to excessive difference between valuations.

Scorecard, then, is assessed by investor and each category is valued with monetary equivalent. By discounting company with scorecard, firm specific risks are associated with company. Final values are ultimate results on the investor's and team's perspective. In brief, valuation is discounted additionally with 32% due to start-up characteristics.

Finally, negotiation component is discussed. It is the final part in which expenses become capital requirement. Working capital need, consequently, help both parties to decide percentage of company in return for capital investment. Ultimate percentages have huge gap that is difficult to agree.

Final result is open to negotiation and last decision is not known. Furthermore, it is believed that the ultimate value changes if another investor assesses the start-up. Although problems with conventional valuation method forward this study to focus alternative way, it does not mean that final model solve all mentioned problems. Furthermore, it comes with additional considerations. The very first difficulty is finding

benchmark which is the problem of other conventional methods. Only superior feature is that, since there are two discount rates in practice, the effect of wrong benchmark diminishes. However, it does not annihilate the benchmark problem at the end. Second problem is lack of investors and potential investees. This situation limits the case studies such that further validation with several firms and investors cannot be done. Furthermore, most of investors are not eager to share their negotiation process due to conflict of interest. Thus, finding relevant data and testing model become troublesome. Final complication is double counting risks. Although it is mentioned to investors in the beginning of the assessment that firm specific risks are assessed in the questionnaire and they do not need to include these risks into expected return, there is a probability that they add these risks into the expected return. Therefore, it is possible to discount the firm twice. This is inevitable since assessors are human being and there is no concrete solution to clear human factor away.

This study is limited with only one case study in the Turkey. As a PHD study or an academic paper, it is planned to apply model to several companies with different investors in global manner, especially in US. This advanced study validates the applicability of the model.

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APPENDICES

APPENDIX A. COMPANY PROJECTIONS

ENTREPRENEUR'S POINT OF VIEW										
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Serviceable Available Market	175	196	220	246	273	300	327	353	378	404
Growth Rate	-	12%	12%	12%	11%	10%	9%	8%	7%	7%
Market Share (%)	0%	3%	8%	15%	21%	25%	28%	30%	30%	30%
Serviceable Obtainable Market	0	5	18	37	58	75	93	105	114	122
SOM Growth Rate	-	-	260%	106%	57%	29%	24%	13%	9%	7%
Average Campaign per Client	48	48	48	48	48	48	48	48	48	48
Obtainable Campaign	**0**	**240**	**864**	**1776**	**2784**	**3600**	**4464**	**5040**	**5472**	**5856**
Average Price per Campaign	2,000	2,000	2,200	2,400	2,700	2,900	3,200	3,500	3,900	4,300
Revenue (X1000)	**0**	**480**	**1,900**	**4,260**	**7,520**	**10,440**	**14,280**	**17,640**	**21,340**	**25,180**
Operating Margin		**-5%**	-1%	5%	10%	15%	20%	23%	25%	25%
Operating Cost (X1000)	162	504	1,919	4,047	6,768	8,874	11,424	13,582	16,005	18,885
Operating Profit (X1000)	**-162**	**-24**	**-19**	**213**	**752**	**1,566**	**2,856**	**4,057**	**5,335**	**6,295**
Tax (20%) (X1000)	**-32**	**-4.8**	**-3.8**	**42.6**	**150.4**	**313.2**	**571.2**	**811.4**	**1,067**	**1,259**
Free Cash Flow (X1000)	**-129**	**-19.2**	**-15.2**	**170.4**	**601.**	**1,252**	**2,284**	**3,245.8**	**4,268**	**5,036**
ENTREPRENEUR'S POINT OF VIEW										
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Serviceable Available Market	175	196	220	246	273	300	327	353	378	404
Growth Rate	-	12%	12%	12%	11%	10%	9%	8%	7%	7%
Market Share (%)	0%	1%	2%	4%	9%	17%	19%	20%	20%	20%
Serviceable Obtainable Market	0	1	4	11	25	52	62	70	75	80
SOM Growth Rate	-	-	300%	175%	127%	108%	19%	13%	7%	7%
Average Campaign per Client	48	48	48	48	48	48	48	48	48	48
Obtainable Campaign	**0**	**48**	**192**	**528**	**1200**	**2496**	**2976**	**3360**	**3600**	**3840**
Average Price per Campaign	2,000	2,000	2,000	2,200	2,400	2,700	2,900	3,200	3,500	3,900
Revenue (X1000)	**0**	**100**	**380**	**1,160**	**2,880**	**6,740**	**8,630**	**10,750**	**12,600**	**14,980**
Operating Margin		**-60%**	-30%	-10%	-1%	5%	10%	15%	20%	20%
Operating Cost (X1000)	144	160	494	1,276	2,908	6,403	7,767	9,137	10,080	11,984
Operating Profit (X1000)	**-144**	**-60**	**-114**	**-116**	**-28**	**337**	**863**	**1,612**	**2,520**	**2,996**
Tax (20%) (X1000)	**-28.8**	**-12**	**-22.8**	**-23.2**	**-5.8**	**67.4**	**172.6**	**322.5**	**504**	**599.2**
Free Cash Flow (X1000)	**-115.2**	**-48**	**-91.2**	**-92.8**	**-23**	**269.6**	**690.4**	**1,290**	**2,016**	**2,396.8**

APPENDIX B. TURKISH SUMMARY / TÜRKÇE ÖZET

Steve Jobs, "Azim başarılı girişimcileri başarısızlardan ayıran özelliktir" demiştir. Yeni ufuklara yelken açmak, birçok kurumsal şirketin çalışanlarına dağıttığı yükü tek başına sırtlamak, girişimcilerin sınırlarını zorlamaktadır. Buna ek olarak, yetersiz nakit akımı ve zayıf mali güce sahip olmak, girişimcileri bu yoldan alıkoymaktadır. Bundan dolayı, girişimciler fikirlerinden vazgeçip, daha kararlı işlerde kariyer tercih etmektedirler.

Banka kredileri, şirketlerin finansman ihtiyaçlarını karşılamaktadır. Fakat bankalar kredi vermek için düzenli bir nakit akışı şartı öne sürmektedir. Bu nedenle kurucular kolayca borç finansmanına erişemez. Bu da girişimcilerin, şirketteki öz kaynaklarının bir kısmını, yatırım getirisi bekleyen diğer yatırımcılara satmak zorunda bırakmaktadır. Özellikle yatırım riskinin ve belirsizliğin yüksek olması, girişimlerin gerçeğe uygun değerini belirlemeyi zorlaştırmaktadır.

Yeni girişimler, ilerleme durumlarında göre farklı yatırım dönemleri ile anılmaktadırlar. Bu dönemler, girişimin fazını ve vade tarihini belirlemektedir. İlk aşama, melek yatırımcılar tarafından finanse edilen erken dönem girişimlerdir. Bu dönem hem finansman sağlayıcıları hem de girişimciler için en riskli dönemdir. İş melekleri ve tohum yardımcıları, daha yüksek yatırım getirisi elde etmek için en iyi fırsatı arayan profesyonel iş adamlarıdır. Riskleri, ekosistemdeki diğer fon sağlayıcılarıyla karşılaştırıldığında en yüksek seviyededir. Bu nedenle, ölçütleri diğerlerinden daha farklıdır ve sınırlı kaynakları için en iyi alternatifleri ararlar. İş ilişkisine ek olarak, proje hızını arttırmak ve yüksek büyüme oranı oluşturmak için girişimle beraber operasyonda görev alırlar. Bu aşamada, yatırım sadece para desteği olarak değil, aynı zamanda iş desteği ve danışmanlık olarak da görülebilir. Bu aşamada, yeni teşebbüslerin genellikle somut olmayan bir fikirleri vardır. Bu aşama,

işletme yeterli müşteri potansiyeline ulaştığında ve hasılat elde etmeye başladığında sona erer. Bundan sonra da birinci ve ikinci finansman turlarının gerçekleştiği erken safhalar ve ileri dönemler gelmektedir.

Bu çalışma, erken aşama yeni girişimleri değerlemek için hali hazırda yapılan araştırmaları analiz etmekle başlar. Dört yaklaşım ön plana çıkmaktadır; indirgenmiş nakit akışı, kıyaslama metodu, gerçek opsiyon değerlemesi ve Berkus metodu. Çalışma, erken dönem değerlemesi için bir metot önererek devam etmektedir. Bu modelde, nitel durumun değerlendiği puan kartı yöntemi ile nicel durumu ölçen nakit akım yöntemi sentezlenmiştir. Amaç, firmaya özgü riskleri, DCF yöntemindeki indirim oranından ayırmaktır. Bu şekilde, değerleme sürecindeki önyargılar çözülmeye ve firmaya özgü riskleri değerlemeye çalışılmıştır. Çalışmanın sonunda, metodu denemek için vaka çalışması yapılmış ve sonuçlar incelenmiştir.

Tez şu ana başlıklardan oluşmaktadır; 1.Bölüm, bu paragraftan oluşmaktadır ve bu çalışmanın hangi başlıklardan oluştuğunu özetlemektedir. 2.Bölüm, erken evre gelir öncesi yeni girişim değerlemesinin literatür taramasını içermektedir. Bir sonraki bölümde, ciro öncesi erken aşama girişimlerin değerini belirleyen bir yöntem açıklanmaktadır. Yöntem, ıskonto edilmiş nakit akım yöntemleriyle Berkus yaklaşımını sentezlemektedir. 4.Bölüm, yatırım aşamasındaki bir yeni girişim ile bir vaka çalışması yapar ve bulguları değerlendirir. 5.Bölüm tüm çalışmayı özetleyen bir sonuç bölümdür.

İkinci bölüm değerleme konusundan bahsetmektedir. Değerleme, şirketin veya bir varlığın değerinin ölçülmesidir. Diğer bir ifade ile parasal getiri elde etmek için bir yatırımcının ne kadar para ödemesi gerektiğinin matematiksel bir tanımlamasıdır. Bir şirketin veya bir varlığın değerini belirlemenin birçok yolu vardır.

Olgun şirketlerin aksine, genç ve yeni şirketlerin sahip olduğu bazı özellikler, değerleme tekniklerini daha az uygulanabilir hale

getirmektedir. Damodaran (2010) bu özellikleri ayrıntılı olarak açıklamaktadır; İlk ve önemli husus, yeni kurulan işletmelerin geçmişi olmamasıdır. Bu nokta değerleme metotlarının çoğunun dayandığı bir noktadır. İkinci özellik ise yeni girişimlerin çoğunun çok uzun süre negatif işletme karı oluşturması ve erken dönemde çok az veya hiç ciro elde edememesidir. Üçüncü konu da, bankaların paralarını yeni açılımlarda riske etmeye istekli olmadığıdır. Bundan dolayı erken aşama girişimler büyük ölçüde özel sermaye şirketlerine bağlıdır. Bu durumda, yeni kurulan şirketler daha maliyetli borçlanmaktadırlar. Son konu ise yeni girişimlerin birçoğunun kısa bir sürede hayatına son vermesidir. Diğer bir deyişle; yeni girişimlerin varsayılan riskleri yüksektir. Bu nedenle, istikrarlı şirketleri değerlendirecek geleneksel modeller erken aşama şirketlerinin değerlemesi için kullanılabilir, ancak bahsedilen sebeplerden dolayı yatırımcılar ve yeni teşebbüsler için içsel değeri net olarak yansıttıklarını söylemek güçtür.

Bir şirketi değerlendikten sonra nicel sonuçlar yatırımcılar için daha çekicidir. Bu sonuçlar, nicel modellerin nihai çıktılarıdır. Damodaran (2010), genç girişimcilere değer belirlemede birden fazla yöntem önermektedir; indirgenmiş nakit akışı, gerçek opsiyon değerleme ve kıyaslama metotları. Bu üç yaklaşım, olgun şirketler için kullanılan yöntemlerdir. Erken yaştaki girişimcilerin ayırt edici özellikleri olması nedeniyle, bu yaklaşımları uygulayarak bazı zorluklarla yüzleşmektedirler. Dördüncü bir yaklaşım olarak, yalnızca erken dönem için girişimler için Berkus metodu ön plana çıkmaktadır.

Nakit akışı üreten her varlığın, hem nakit akışı potansiyelinin hem de onun risklerinin nihai ürünü olan öz değerinin olduğu bilinmektedir. DCF metodunu yeni başlayanlara değer biçmek için kullanan akademisyenlerden biri olan Damodaran (2009), genç şirketler için DCF modelinin nasıl oluşturulacağını açıklamaktadır. Yöntem, gelecekteki nakit akışlarını, aynı olgun şirketlerde uygulandığı gibi DCF yaklaşımı ile

günümüz değerine indirgemektedir. Dönem sonunda, eğer maliyet hesaplanan değerden düşükse, öz kaynakta kar yapma potansiyeline sahip olduğu sonucuna varılır ve satın alma kararı verilir.

İkinci metot olan gerçek opsiyon değerleme metoduna zıt olarak, DCF yalnızca şirketin negatif risklerine odaklanmaktadır. Damodaran (2010), DCF yaklaşımının olumlu risk potansiyelini kaçırdığını önermektedir. Belirsizlik her zaman dezavantaj anlamına gelmeyeceğini, aksine olumlu taraflarının da olduğunu belirtmektedir. DCF'e alternatif olarak, gerçek opsiyon değerleme (ROV) yaklaşımı, yatırımcılara pozitif potansiyeli ölçmek için fırsat sağlamaktadır.

Damodaran (2010), ROV metodunun en önemli katkısını baştaki olumsuz durumların daha fazla sermayeyi riske etmeden korunabileceğini ekliyor. Gerçek opsiyonlar, yatırım yapma hakkı vermekte, ancak yatırımcıya yükümlülük bağlamamaktadır. Bu alternatif sayesinde, yatırım başarısız olursa, yatırımcının bir sorumluluğu bulunmamaktadır. Bu, iyi bir getiri potansiyeli ya da yüksek iflas riski taşıyan riskli varlık için mükemmel bir durum sağlamaktadır.

Geleneksel metotlardan üçüncüsü olan kıyaslama metodunu Damodaran (2010), şu şekilde açıklamaktadır; benzer şirketler için bir pazarın ne kadar ödediğini araştırarak şirket değerlemesidir. Şimdiye kadar bahsedilen yaklaşımlar, gelecek projeksiyonları tahmin ederek şirket değerine ulaşmaktır. Bu yaklaşımlar pazardaki şirketleri göz önünde bulundurur fakat güncel piyasa koşullarını yansıtmaz. Bununla birlikte, göreli değerleme, pazardaki benzer varlıkların fiyatlarına bakarak pazarı taklit eder. Bu metot ile izlenecek yöntem, önceki yöntemlerden daha az karmaşıktır.

Son metot ile nitel değerlemelerden birisi olan Berkus metodu açıklanmıştır. Erken dönem girişimlerin çok azının ilk hedefe ulaşabileceği belirtilmektedir (Cohen & Kador, 2013). Bu nedenle, nitel değerleme, ekipteki ilerlemeyi değerlendirmek için yatırımcılar için ön şarttır. Nitel

anket, buna ek olarak, erken evre riskli şirketlerin değerini ölçmek için kullanılan bir araçtır. Bir melek yatırımcısı olan Dave Berkus, bu ihtiyacı karşılamak için bir puan kartı model önermektedir. Diğer yaklaşımlara kıyasla, Berkus Değerleme yaklaşımı, yalnızca erken aşama gelir öncesi yeni girişimler içindir. Berkus (2016), gelir öncesi olan şirketler için nakit akışlarının indirgendiği mali projeksiyonlara inanmadığını belirtmiştir. Geleneksel değerleme yaklaşımları ile hazırlanan projeksiyonların şirketler tarafından ulaşılmasının zor olduğunu vurgulamaktadır.

Bu tez çalışmasında, indirgenmiş nakit akımı ve puan kartı ile sentezlenmiş modelden bahsedilmektedir. Öncelikli amaç, girişimcileri ve yatırımcıları gelir öncesi erken aşama girişimlerin yatırım turlarında yardımcı olmaktır. Bu şekilde yapılan değerleme, ulaşılması zor geçmiş verilere daha az bağımlıdır. Model öncelikli olarak, DCF metodu ile güncel değeri hesaplayarak başlamaktadır. Bu modelde, yatırımcı ve girişimcinin farklı projeksiyonları olacağı için iki farklı sonuç çıkmaktadır. Her iki bakış açısı da göz önüne alındığından, değerlemenin maksimum ve minimum sınırlarını belirlenmektedir. Firma riskliliğini değerlendirmek için de, puan kartındaki her kategori cevaplanmaktadır. Bu unsurların bir yatırımcıya göre farklı ağırlık ve parasal değerleri olabilmektedir. Bu noktada, şirketle ilişkili her bir risk, şirketin güncel değerinden indirilmektedir.

Bu kategoriler, 3501 kodlu, Türk inkübasyon ve hızlandırıcı merkezlerinin seçim kriterlerinin performansı başlıklı Tubitak projesi ile belirlenmiştir. Araştırma grubunun yöneticileri, Sabancı Üniversitesi İşletme Fakültesi'nden Yardımcı Doçent Doktor Berna Beyhan ve ODTÜ Bilim ve Teknoloji Politikaları Araştırmaları merkezinden Doçent Doktor Semih Akçomak'tır. Bu tez çalışmasının hazırlayan, Olcay Alptuğ Akdağ, projede analiz görevini üstlenmiştir. Çalışma, tohum ya da erken aşama yeni girişimleri kabul eden 14 Türk inkübasyon ve hızlandırma merkezini incelemektedir. Bu merkezlerin kabul kriterleri nitel kategoriler olarak tablolaştırılmıştır. Yatırımcı, her kategori ve alt kategoriye ağırlık

verecektir. Her bölümün ağırlığı yatırımcılar tarafından değiştirilebilir niteliktedir. Berkus metodundaki kategorilerin madde sayısını arttırarak, modelin kişisel içgüdüye daha az bağımlı olması amaçlanmış ve daha sistematik bir hale getirilmiştir.

Olgun şirketler için değerleme yaklaşımları, erken dönem girişimler için bazı sınırlamalar getirmektedir. Bu nedenle alternatif yöntemler melek yatırımcıları ve tohum sağlayıcıları tarafından gündeme getirilmiştir. Geçmiş verilerden yoksun oldukları ve finansal projeksiyonlar geliştiremediği için erken aşama yeni girişimleri değerlerken nicel yaklaşımlardan öte nitel yaklaşımlar tercih edilmiştir. Bu nitel yaklaşımında bir tanesi de, melek yatırımcı olan Dave Berkus tarafından geliştirilmiştir. Model, bir girişimin ne kadar riskli olduğunu araştıran sorulardan oluşmaktadır. Bu durumda, her kategori bir dereceye kadar bir firmaya değer katmaktadır. Her bir riskin maksimum parasal eşdeğeri, yatırımcının istekliliği ile tanımlanmaktadır. Yatırımcı bir firmanın potansiyelini gelecekteki projeksiyonlara bakarak incelemekte ve firmanın bu projeksiyonu başarıp başaramayacağını bu anket ile değerlemektedir.

Yatırımcılar, hangi kategorinin ve hangi alt kategorinin daha önemli olduğuna karar vermekte özgürdürler. Her bir kategoriye verdikleri ağırlık değişmektedir. Örneğin, şirketin bugünkü değerinin, şirket her konuda en yüksek puanı almış gibi hesaplandıktan sonra 1 milyon TL olduğunu varsayalım. Bir yatırımcıya göre, takım başlığı diğer başlıklardan daha önemli olsun. Bu nedenle, yatırımcı, 500 bin TL değerini takım başlığına diğer iki başlığa da 250'şer bin TL dağıtsın. Böylece girişim, takım kategorisinden maksimum 500 bin TL yatırım alabilmektedir. Takım kategorisinde, yatırımcı yine her alt kategoriyi kendi tercihine göre değerlendirmektedir. Örneğin, girişim, daha az müşteri etkileşimi gerektiren, ancak ileri kodlama becerisine ihtiyaç duyulan fin-tech yazılım şirketi olduğunu varsayalım. Bu nedenle, yatırımcı, teknik beceri alt kategorisi için 350 bin TL ve sosyal beceri alt kategorisi için 150 bin TL

değer biçebilmektedir. Kısacası, teknik yeteneği maksimum 350 bin TL değerinde, sosyal beceriyi ise en fazla 150 bin TL değerinde olabilmektedir.

Bu noktada, her bir yatırımcı, 0'dan 5'e kadar skorlar vererek her bileşeni değerlendirir. Her bileşen, "ortalama puan" adı altında alt kategorilerde ortalaması alınır. Ortalama puan, alt kategorinin parasal değer olarak ne kadar değerli olduğuna karar verir. Mesela, teknik yeterlilik için tavan limiti 350 bin TL'dir. Diyelim ki, teknik yeterlilik için ortalama puan 5 üzerinden 4'tür. Dolayısıyla, yatırımcı, teknik yetkinliği 280 bin TL değerinde bulur. Teknik yetkinlikle benzer şekilde, her kategori ve alt kategori bu yaklaşımla değerlenir. Son olarak da tüm değerler son değer olarak toplanır.

Yatırımcılar, bir yatırımın alabileceği minimum puan için limiti olabileceği unutulmamalıdır. Örneğin, bir yatırımcı, herhangi bir bileşenden 2 veya daha az puan alan bir girişim ile müzakereleri durdurma kararı verebilir. Bir diğer alternatif de 2 veya daha az puan alan herhangi bir bileşen sıfır TL değerinden bulunabilir. Bunlar yatırımcının inisiyatifindedir.

Kısaca, nitel faktörler, bir girişimin nihai olarak istenilen olgunluğa ulaşıp ulaşmayacağını test etmek için belirtilmekte ve uygulanmaktadır. Diğer bir deyişle, takımın belirli bir zaman diliminde, yatırımcıya kazanç sağlayıp sağlamayacağını sorgulamaktadır. Çalışma, ekip / girişimci, son ürün/fikir ve ekosistemin kategorileri ve bileşenlerini açıklayarak devam etmektedir.

Anket, Takım/Girişimci, Son ürün/ Fikir, Ekosistem olmak üzere üç temel kategoriye sahiptir. "Ekip" başlığını değerlendirirken, yatırımcı ekibin sözlerini tamamlayıp tamamlamadığını araştırmaktadır. Çalışma, ekibi teknik beceriler, sosyal beceriler ve önceki başarı olmak üzere üç alt kategoriye ayırmaktadır. İlk alt kategori teknik becerileridir. Takım söz konusu projedeki teknik uzmanlıkları araştırmaktadır. Bu Alt başlık, teknik beceriler, üyelerin birbirini tamamlaması, takımın proje için yeterli olması,

planlama ve projeksiyon yeteneği ve görev tahsisi bileşenlerinden oluşmaktadır. Takım kategorisi, sosyal beceriler alt başlığı ile devam etmektedir. Bu alt başlık, proje konusunda ilerleme kaydedilirken ekibin ne kadar sosyal olarak uygun olduğunu incelemektedir. Bu alt başlığın, takımın tutarlılığı, takımın işe olan bağlılığı, esnekliği, istekliliği, iletişim becerisi, ekosistem üyeliği, açık fikirliliği ve cinsiyet faktörleri olmak üzere sekiz bileşeni vardır. Ekip için son alt kategori, önceki çıkış ve başarı alt başlığıdır. Hiçbir bileşeni yoktur ancak diğer takımın alt kategorilerine kıyasla belirgin bir ağırlığa sahiptir.

Bir sonraki kategori, belirlenmiş hizmetin değer teklifini doğrulayıp doğrulamadığını teyit eden son ürün ve fikir kategorisidir. Ürün kategorisi, nihai tasarımı, performansı ve piyasa koşullarını değerlendiren üç alt kategoriye sahiptir. Kategorinin ilk alt kategorisi, teorik tasarımın veya katı ürünün geçerliliğini kanıtlayan nihai tasarım ve üründür. Kanıtları araştırırken farklılaşma, uygulanabilirlik, tekrarlanabilirlik, sürdürülebilirlik ve niş olmak üzere beş bileşeni araştırmaktadır. Bu bileşenleri, performans alt kategorisi izlemektedir. İşe özgü ölçümlerin nasıl tanımlandığını, iş modelini, problem çözümünü ve ürünün fazını değerlendirir. Son bir alt kategori olarak, piyasa koşulları ayrıntılı olarak ele alınmaktadır. Bu alt kategori, ürün ve takım için piyasa koşullarının ne kadar hazır olduğunu değerlendirmektedir. Pazarın boyutu, pazarın hazırlığı, pazarın penetrasyonu, pazarlama ve reklam kolaylığı ve rakip analizi gibi birkaç bileşeni vardır.

Fikir, yeni girişim için ya 0 ya da 1 demektir. Genellikle, bireylerin ihtiyaçlarından ya da problemlerinden bir fikir veya bir ürün filizlenmektedir. Yatırımcıların paralarını risk altında bu ürüne yatırmalarının sebebi budur. Risk altındayken, fon sağlayıcıları bazı soruları test ederek ürünü değerlendirebilir; nihai tasarım veya ürün nedir? Herhangi bir değerli performans veya büyüme var mı? Ürün önemli

ölçütleri karşılıyor mu? Pazar, yaşamaya ve kullanmaya hazır mı? Bu sorular, ürün kategorisinin alt kategorilerini oluşturmaktadır.

Son kategori, girişimin sınırları dışındaki çevreyi araştıran ekosistemdir. Ekosistem kategorisi dört alt kategoriden oluşmaktadır; sürdürülebilir iş gücü, yatırımcı piyasası, inkübatör ve hızlandırıcı merkezleri, devlet teşvikleri ve yönetmeliklerini ele almaktadır. Birinci kategori olan çalışan pazarı, erişilebilir nitelikli çalışanların olasılığını değerlendirir. Yatırımcı pazarı, sinerji, öz-yatırım, sermaye beklentisi, performans ve mevcut portföy içerisinde doğrudan rekabet olmak üzere 5 bileşenden oluşmaktadır. Üçüncü alt kategori inkübatör ve hızlandırıcı merkezlerdir. Kuluçka ve hızlandırıcı üyeliği, merkezlerin geri bildirimleri ve dikey programlar bu alt kategorinin ana bileşenleridir. Son alt kategori ise, ön koşulları ve bekleme süresini, yönetmelikleri ve fikri mülkiyet haklarını içeren devlet teşvikleri ve yasalar alt kategorisidir.

Yeni girişim ekosistemi, kurucular, her tür yeni girişimler ve farklı kurum türleri olmak üzere çeşitli kaynaklardan oluşmaktadır. Nitelikli para tedarikçileri, girişim sermayeleri ve melek yatırımcılar, bu çevrenin önemli bir parçasıdır. Bir başka kaynak ise şirketler için değer yaratacak olan yetenekli çalışanlardır. Diğer kaynak değerli yatırımcılar ve onların ağ fırsatları, fiziksel varlıklar ve pahalı teknik ve iş danışmanlığı ile işletmeleri destekleyen kuruluşlardır. Sonuncusu ise endüstrilerin düzenlendiği ve sermaye yoğun olduğu için yüksek etki yaratan hükümet teşvikleri ve düzenlemeleridir.

Sonraki bölümde de, bir yatırımcının yaptığı yatırımın karşılığında ne kadar hisse alacağını belirlenmektedir. Son bölüm, yatırım yapılacak olan gerçek bir yeni girişim ile bir vaka çalışmasını ele almıştır.

Vaka çalışmasına yukarıda açıklanan metodu uygulamaya başlamak için modeli değerlendiriciye tanıtmakla başlıyoruz. Değerlemeyi yapan kişi söz konusu şirkete yatırım yapacak olan yatırımcıdır. Bu yatırımcı, ODTÜ Teknokentte program yöneticisi olarak çalışmaktadır. Başlangıçta hedef

şirket ziyaret edilir ve bire bir görüşme ile genel bilgiler alınır. Bu bilgiler, şirket ile ilgili bilgiler ve finansal projeksiyonlardan oluşmaktadır. Daha sonra, değerleme prosedürü, yatırımcının yatırım yapılacak girişim ile ilgili hazırladığı projeksiyon ile devam etmektedir. Şirketin bugünkü değerini, girişim sonunda kesinlikle başarılı olacakmış gibi hesapladıktan sonra, puan kartı ile indirgenir. Sonuç genellikle mali projeksiyona ve değerlendiricinin geçmiş tecrübesine bağlıdır. Güncel değer bulunurken, indirgenme oranı, yatırımcının beklentisi ile hesaplanmaktadır. Daha önce de belirtildiği gibi, profesyonellerin bir girişim için gerçek zorunlu getiriyi belirleme tecrübeleri vardır. Farklı ağırlıklı ortalamalara sahip olan final skoru, yeni girişimlerin para öncesi değerini ortaya koymaktadır. Son adım, yatırımcı tarafından alınan şirket yüzdesini belirlemek için bir sonraki finansman turuna kadar ilave işletme sermayesi yatırımının belirlenmesidir.

Çalışma, şirketin ürününü, şirketin bugünkü değerini ve puanlama anketini açıklayarak devam etmektedir. Son olarak, bir yatırımcının ne kadar yüzde alacağı hesaplanır.

Hedef firma, WBot, şirketlerin dijital reklam süreçlerini sosyal medya üzerinden yöneten bir chatbot, yazılım şirketidir. Şirket, öğrenme algoritmasıyla sosyal medya üzerinden müşterilerin problemlerini ve şirketlerin reklam süreçlerini yöneten bir chatbot yazılımıdır. Geleneksel olarak, bankalar ve şirketler e-postalar ve SMS bildirimleri göndererek kampanyalarını sosyal medya üzerinden yönetmektedirler. Ek kanal kullanamazlar. Buna ek olarak, müşterilerin sadece% 10'u bu postaları ve SMS bildirimlerini açtığından, bu kanallar etkin değildir. Ayrıca, Türkiye'de SMS gönderilmesi hükümet tarafından düzenlenmekte ve müşteri onayı gerekmektedir. Dolayısıyla, şirketler SMS göndermekte tereddüt etmektedirler. Dahası, bu kanallar etkileşimli değildir ve şirketler, müşterilerin ne düşündüklerini ve müşterilerin nasıl davrandıklarını izleyememektedirler. Buna ek olarak, müşteri ilişkileri temsilcileri

aracılığıyla yönetilmesi güç olan birden çok kampanya, firmalara tarafından önerilmektedir.

Öte yandan, WBot, kampanyaları etkileşimli bir şekilde yönetir ve kampanyaların geri bildirimlerini etkili bir şekilde ölçer. Yazılım, Facebook için çevrimiçi kampanya yöneticisi sunarak firmalara yardımcı olmaktadır. WBot, hedef firmanın DMP (Veri yönetim platformu) veya müşteri çerezi olabilecek farklı kanallardan birinci taraf verileri toplar ve müşterilere Facebook aracılığıyla ulaşır. Birkaç promosyonla göz alıcı mesajlar sunar. Chatbot müşterilere ulaşmak için Facebook'tan mesajlar göndermektedir. Amaç, müşterilerin ürün / hizmet seçmesini veya müşterilerin problemini çözmesini sağlamaktır. Yazılımı yönlendiren algoritma, müşterilerin istediği olası senaryolar önceden belirlenerek tasarlanmıştır. Örneğin, Temmuz ayında, otomobil sahibi Türk vatandaşlarının motorlu araç vergisi ödemeleri beklenmektedir. Bir banka sistemine entegre olan WBot, müşterilere vergi ödemek isteyip istemediğini sormak için bireylere Facebook üzerinden mesaj göndermektedir. Bot, gerçek bir kişi gibi davranmakta ve müşterilere tam olarak yardımcı olmak için belirli cevaplar sunmaktadır. Müşterilerin cevabına göre de chatbot, motorlu araç vergisi konusunda bir kampanya veya indirim sunmaktadır. Geleneksel yöntemlerle, banka müşterilere e-posta yoluyla ulaştıysa, bankanın olumlu ya da olumsuz bir cevap alması mümkün değildir. Algoritmanın karşılaşacağı her senaryo belirlenmiş ve etkileşimli iletişim sağlanmaya çalışılmıştır. Ayrıca, müşteriler kampanyaya devam etmek istemiyorsa, banka çekince nedenlerini öğrenebilmektedir.

Bundan sonraki bölümde finansalların hazırlanması ile devam edilmiştir. Mali projeksiyonlar elektronik tabloda gösterilmiştir. Genel olarak, 10 yıllık projeksiyon süresinin tahmin periyodu için yeterli olduğu düşünülmektedir. Ana sebep, projeksiyon periyodunun artmasıyla sonuçların dağılması ve hedeflere ulaşmanın zorlaşmasıdır. Bu nedenle, analistler ve profesyoneller genel olarak temel analizde 7 ila 10 yıllık

projeksiyon hazırlarlar. Yukarıdan aşağı analiz, belirgin sermaye yatırımı gerektirmeyen ve üstel büyüme oranına sahip yeni girişimler için en uygun çözümdür. Tahminler piyasa büyüklüğü ile başlar. Daha sonra gelir hesaplanır ve vergi öncesi faaliyet karı analiz edilir. Son olarak, kâr ve vergi sonrası nakit akışları bulunur. Analiz, 10. yıldan sonra terminal değerinin tahmin edilmesiyle devam etmektedir. Terminal değeri, değerlerin çoğunun ondan geldiği için çok önemli bir bölümü kapsamaktadır.

Bu bölümdeki son konu, gelecekteki nakit akışlarını yatırımcıların istenen getiri oranı ile mevcut değere indirgemektir. Gerekli oran, bir yatırımcı tarafından fiilen uygulanan orandır ve yatırımcıya göre değişebilir. Ancak, bir yatırımcının portföy şirketleri arasında değişmemektedir. Girişimcilerin projeksiyonunun yatırımcılardan iki kat daha büyük olduğu sonucuna ulaşılmıştır. Bunun en önemli nedeni, daha önce de belirtildiği gibi, projeksiyondaki ufak farklardır ve bu farklar sonucu önemli ölçüde değiştirmektedir.

Güncel değer bulunduktan sonraki aşama, indirgenmiş nakit akım yönteminin çıktılarını şirkete özel ayarlamak için puan kartı skorlanmaktadır. Daha önce belirtildiği gibi, firmanın spesifik risklerini finansal tablolara yerleştirmek zordur. Uygulamada daha yüksek indirgeme oranının uyarlanması, şirketin asıl değerini ortadan kaldırır ve girişimlerin değerini yok eder. Dahası, çoğu zaman, yüksek indirgenme oranlarını uygulamak için somut bir kanıt bulunmamaktadır. Firmaya özgü riskleri değerlendirmek için anket, yatırımcı tarafından doldurulur ve firmaya uygulanır.

Yukarıda belirtilen anket, üç temel kategoriye ve birkaç alt kategoriye ve ilgili bileşene sahiptir. Öncelikli olarak belirtmek gerekir ki, yatırımcının "Piyasa Koşulları" alt kategorisine daha fazla önem verdiği ve bu alt kategoriyi yeni bir kategori olarak ayırmasını istediği için nitel analizin kategorilerinde değişiklik yapılmıştır. Bu nedenle, anket 4 ana kategoriye

sahip yen, bir puan kartına dönüşmüştür. Bu kategoriler; ekip, ürün, piyasa koşulları ve ekosistemdir. Ayrıca, bu değişiklik puan kartının esnekliğini de kanıtlar niteliktedir.

Sonuçlara başlamadan önce, yatırımcı, isteğine göre ağırlık analizi yapmıştır Yatırımcının, puan kartı kategorilerini toplamda % 100 olacak şekilde dağıtması istenmiştir. Tüm kuluçka merkezleri ve hızlandırıcılar gibi, yatırımcı da takım kategorisine önem vermektedir. Yatırımcı, bu kategoriye % 40 ağırlık vermiştir. Onun için diğer önemli şey piyasa koşullarıdır ve % 30'dur. Kalan kategoriler, ürün ve ekosistem sırasıyla %20 ve %10 almaktadırlar.

Ağırlıklar göz önüne alındığında, kategorilerin değerlemeden elde edebileceği maksimum miktarlar bulunur. Tavan limiti ağırlıklı alt kategorilere dağılmıştır. Bu alt kategoriler skorlandıktan sonra sonuçlar toplanır ve firmanın gerçek değeri elde edilir. Niteliksel değerlendirmeyi netleştirmek her kategori ve ilgili puanlama incelenmektedir.

Bu modelin son aşaması, yatırımcının yatırım karşılığında şirketten alacağı payı hesaplamaktır. Daha önce de belirtildiği gibi, şirketin iki yıl sonra yapılacak bir sonraki finansal dönemde finanse edilmesi beklenmektedir. Dolayısıyla, takımın ilk iki yıl boyunca negatif nakit akışlarını kapsayan bir fon ihtiyacı vardır. Bu nedenle, bir sonraki tura kadar gerekli sermaye, ikinci yıla kadar faaliyetlere devam etmek için gerekli olan ek işletme sermayesi yatırımlarıdır.

Giderlerin çoğunluğunun işçi maaşlarından ve pazarlama çabasından olması beklenmektedir. Bu giderlerin karşılanabilmesi ve operasyonların devam edebilmesi için WBot için işletme faaliyetlerinden doğan mali yükümlülüklerin karşılanması gerekmektedir. Karşılanması gereken bu miktarın, puan kartından çıkan sonuca bölünmesi ile yatırımcının şirketten ne kadar hisse alacağı bulunmaktadır.

Özetlemek gerekirse, girişimciler ve yatırımcı farklı projeksiyonlar tahmin ettiğinden, girişimcinin vermek istediği pay yatırımcının almak istediği seviyeden daha azdır. Girişimci, bir sonraki yatırım dönemine kadar 186,000 TL finansman ihtiyacı olduğunu ve bu miktar karşılığında da şirketin %13'ünü vermeye istekli olduğunu belirtmiştir. Bununla birlikte, yatırımcı, şirketin bir sonraki yatırım dönemine kadar 204,000 TL ihtiyacı olduğunu ve bunun için de şirketin %37'sini alması gerektiğini belirtmiştir. Bu noktadan sonra aralarındaki müzakereler anlaşmanın son halini tayin edecektir. Nihai anlaşmanın parasal karşılığı, şirketin bir sonraki finansal döneme ulaşmasını etkileyeceğinden belirli seviyenin altına düşemez. Ancak, yatırım yapılacak hisse yüzde olarak farklı olabilmektedir. Büyük ihtimalle, girişimcilerin beklediklerinden çok daha fazla olacak ve yatırımcının talep ettiği seviyeden daha az olacaktır. Nihai anlaşma gizlilik kaygısı nedeniyle kapalı kapılar ardında yapılacaktır.

Bir dipnot olarak, puanlama aşamasında, yatırımcı yatırımla ilgili olarak bazı noktalardan bahsetmiştir. Ekibin girişimcilik kültürüne sahip olduğuna inanmaktadır. Farklı bir şirkette çalışan olarak çalışabilecekken, kendi girişimlerini hayata geçirmek için uğraşmaktadırlar. Bu nokta, yatırımcı için çok çekici bir şeydir. Yatırımcı, öte yandan, ürünlerinin ayırt edici özelliğinin olmadığını söylemektedir. Takımın bir süre daha gözlemlenmesi gerektiğini belirtmektedir. Belki, gelecekte daha fazla değer alacaklarına ve sonunda başarılı olacağına inanmaktadır. Bununla birlikte, kısa bir süre önce bir yatırımcının bu şirkete sınırlı hisse için yüksek miktarda yatırım yapması çok riskli olduğunu belirtmiştir.

Nihai sonuç müzakereye açıktır ve son karar bilinmemektedir. Ayrıca, başka bir yatırımcı aynı girişimi değerlerse nihai değerin değişeceği düşünülmektedir. Geleneksel değerleme yöntemiyle ilgili problemler bu çalışmayı hazırlamak için öne ayak olmuştur. Fakat nihai modelin bahsedilen tüm problemleri çözdüğü söylenemez. Bu modeldeki ilk problem, vaka çalışmasının tek bir şirket ve tek bir yatırımcı ile yapılmış

olmasıdır. Bu durum vaka incelemelerini sınırlar ve modelin tam olarak doğrulaması yapılmamaktadır. Diğer problem ise şirkete özgü risklerin iki kere sayılmasıdır. Değerlendirme başlangıcında, yatırımcılara indirgeme katsayısı beklerken, şirkete özgü risklerin eklenmemesi gerektiği belirtildiyse de, hesaplamada kullanılan indirgenme katsayısının şirkete özgü riskleri içerme ihtimali bulunmaktadır. Bu nedenle firmanın risklerinin iki kez indirgenmesi mümkündür. Bu noktada, değerlemeyi yapanların, insani özelliklerinden kurtulup ön yargısız projeksiyon hazırlamaları mümkün değildir.

APPENDIX C. TEZ FOTOKOPİSİ İZİN FORMU

ENSTİTÜ

Fen Bilimleri Enstitüsü ☐

Sosyal Bilimler Enstitüsü ☐

Uygulamalı Matematik Enstitüsü ☐

Enformatik Enstitüsü ☐

Deniz Bilimleri Enstitüsü ☐

YAZARIN

Soyadı : Akdağ
Adı : Olcay Alptuğ
Bölümü: İşletme

TEZİN ADI (İngilizce) : SCORECARD VALUATION FOR PRE-REVENUE EARLY-STAGE START-UPS

TEZİN TÜRÜ : Yüksek Lisans ☐ Doktora ☐

1. Tezimin tamamından kaynak gösterilmek şartıyla fotokopi alınabilir. ☐
2. Tezimin içindekiler sayfası, özet, indeks sayfalarından ve/veya bir bölümünden kaynak gösterilmek şartıyla fotokopi alınabilir. ☐
3. Tezimden bir (1) yıl süreyle fotokopi alınamaz. ☐

TEZİN KÜTÜPHANEYE TESLİM TARİHİ: