FEATURES OF VALUATION OF STARTUP COMPANIES

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The purpose of the article is to determine which of the methods of valuation are the most suitable for objective assessment of startups – newly created enterprises with no operating history and profits. The method of critical analysis of scientific and methodological literature is used. The methods of valuation of startup companies offered by well-known experts in the field of business valuation are summarized and systematized. Valuating startup companies an appraiser should search for alternative methods of valuation. Given the fact that there is no perfect valuation methodology of a startup company, we can suggest that an appraiser should use different methods of valuation (or a combination of them) to arrive at the right conclusion. Using several methods of valuation of startups you can come to the average value which may be closer to reality because all the alternative startup valuation methods are based on predictions and probabilities. To assess the value of a startup company that do not yet have profits, it is the most appropriate to use such methods as: the Berkus Method, Risk Factor Summation Method, Scorecard Valuation Method (Bill Payne Method), First Chicago Method, Venture Capital Method. When a company gives a stable profit it is more correct to use traditional methods of business valuation. The article substantiates the inexpediency of classical methodological approaches and methods for assessing the value of startup companies. A generalization of classical and new methodological approaches and methods of business valuation for startup companies is conducted. The prospects of further studies are determined: searching of the most acceptable methods of estimation of value of startup companies depending on the stage of the life cycle of a company and a sector in which it operates.

*Keywords***:** startups, business valuation, efficiency of investments, pre-money valuation, post-money valuation, valuation of startups.

ОСОБЛИВОСТІ ОЦІНКИ ВАРТОСТІ КОМПАНІЙ СТАРТАПІВ

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Разом з виникненням нових форм підприємницької діяльності постають нові проблемні питання стосовно того як оцінювати вартість таких компаній, коли традиційні методологічні підходи і методи не дають об'єктивної оцінки ефективності інвестицій в стартапи. Дані новостворені підприємства не генерують прибутку на початку своєї діяльності, але згодом прибутки від них сягають величин неможливих для стабільного традиційного бізнесу. Оцінюючи стартап, необхідно брати до уваги не поточний фінансовий стан проекту, а його

майбутній стан з урахуванням ризиків, притаманних даному проекту. З огляду на той факт, що не існує ідеальної оціночної методології для компаній стартапів, ми пропонуємо оцінювачу використовувати різні методи оцінки (або їх комбінування), щоб прийти до правильного висновку. Застосовуючи декілька методів оцінки вартості компанії стартапу ви можете прийти до середньоарифметичної вартості, яка може бути ближче до реальної, оскільки усі альтернативні методи оцінки вартості стартапів грунтуються на передбаченнях та ймовірностях. Стаття висвітлює, узагальнює та систематизує методи оцінки підприємств стартапів, що пропонуються відомими спеціалістами в галузі оцінки вартості бізнесу.

Ключові слова: стартапи, оцінка бізнесу, ефективність інвестицій, доінвестиційна оцінка, післяінвестиційна оцінка, оцінка вартості компаній стартапів.

Urgency of the problem Together with the appearance of new forms of entrepreneurship, the issues arise such as: how to assess these newly created enterprises, which do not generate profits in the beginning of their activity, but subsequently their profits reach the values impossible for a stable traditional business. This problem is extremely urgent as classical methodological approaches and methods of assessing the value of companies do not give an objective result in relation to startups. The search for new and most appropriate methods for assessing the value of a newly emerged company, assessing the effectiveness of investments, pre-money valuation and post-money valuation are issues that an appraiser faces during the valuation process. While evaluating a startup, it is necessary to take into account not the current financial status of the project, but its future status, considering all the risks inherent in this project. The article highlights the experience of how to consider all these factors correctly.

Analysis of recent reviews and publications Scientists Damodaran Aswath, Stephen R. Poland, Rubinstein Mark, Alex Wilmerding and others researched methods and methodological approaches to startups valuation, efficiency of investments, but the issue of startups valuation is still not sufficiently studied. That has caused us to continue researching this matter.

The purpose of the article is to determine which of the methods of valuation are the most suitable for objective assessment of startups.

The method of critical analysis of scientific and methodological literature is used and the materials of researches executed by leading scientists in the field of business valuation in 1993-2017 are summarized.

Presentation of the main results of the study. A startup company is an entrepreneurial venture which is typically a newly emerged, fast-growing business that aims to meet a marketplace need by developing a
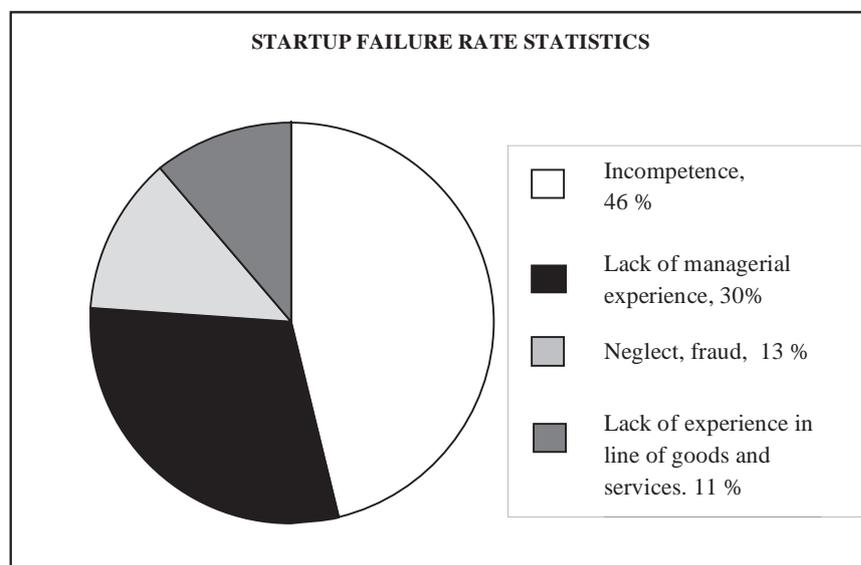
viable business model around an innovative product, service, process or a platform. A startup is usually a company designed to effectively develop and validate a scalable business model [19, 18].

Startups have high rates of failure, but the minority of successes include companies that have become large and influential [8].

A bit more than 50 percent of small businesses fail in the first four years (according to the data of The U.S. Bureau of Labor Statistics) [22].

Leading causes of small business failure (Figure 1):

- incompetence: 46 percent;
- unbalanced experience or lack of managerial experience: 30 percent;
- catchall category (includes neglect, fraud, and disaster): 13 percent;
- lack of experiences in line of goods or services: 11 percent [13].

STARTUP FAILURE RATE STATISTICS

Incompetence, 46 %

Lack of managerial experience, 30%

Neglect, fraud, 13 %

Lack of experience in line of goods and services. 11 %

Figure 1. *Startup failure rate statistics*
Source: [13]

Characteristics of young companies. Young companies are diverse, but they share some common characteristics.

1. No history: At the risk of stating the obvious, young companies have very limited histories. Many of them have only one or two years of data available on operations and financing and some have financials for only a portion of a year, for instance.

2. Small or no revenues, operating losses: The limited history that is available for young companies is rendered even less useful by the fact that there is little operating detail in them. Revenues are small or non-existent for idea companies and the expenses often are associated with getting the business established, rather than generating revenues. In combination, they result in significant operating losses.

3. Dependent on private equity: While there are a few exceptions, young businesses are dependent upon equity from private sources, rather than public markets. At the earlier stages, the equity is provided almost entirely by the founder (and friends and family).

As the promise of future success increases, and with it the need for more capital, venture capitalists become a source of equity capital, in return for a share of the ownership in the firm.

4. Many don't survive: Most young companies don't survive the test of commercial success and fail. There are several studies that back up this statement, though they vary in the failure rates that they find.

5. Multiple claims on equity: The repeated forays made by young companies to raise equity does expose equity investors, who invested earlier in the process, to the possibility that their value can be reduced by deals offered to subsequent equity investors. To protect their interests, equity investors in young companies often demand and get protection against this eventuality in the form of first claims on cash flows from operations and in liquidation and with control or veto rights, allowing them to have a say in the firm's actions. As a result, different equity claims in a young company can vary on many dimensions that can affect their value.

6. Investments are illiquid: Since equity investments in young firms tend to be privately held and in non-standartized units, they are also much more illiquid than investments in their publicly traded counterparts [5].

The Statistic Brain Research Institute compiled a statistics on startups survival (Figure 2)
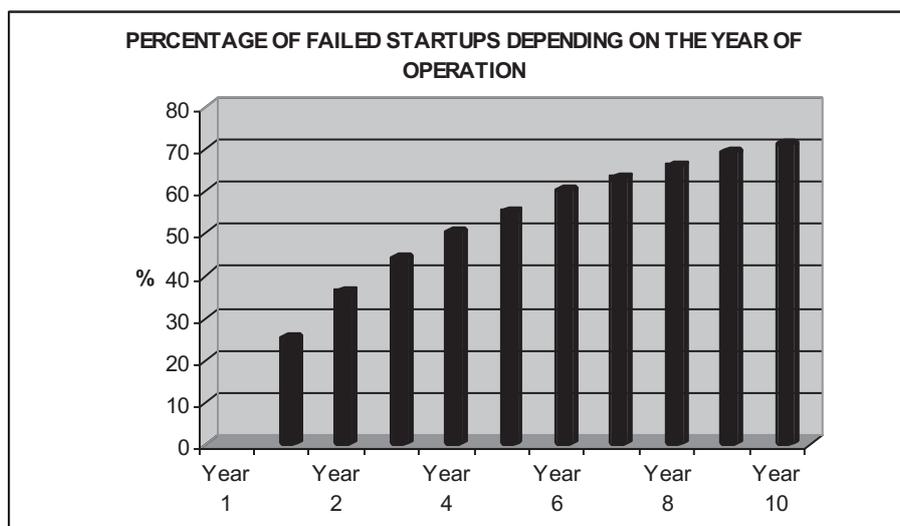
Figure 2. Percentage of failed startups depending on the year of operation
Source: [21]

When an early stage investor is trying to decide if they should make an investment into a startup he will guess what the likely exit size will be for that startup of a type, and in a specific industry. If a business owner has used methods to show their startup is worth a high amount that investor is likely to invest more into the company. Using these methods or frameworks is also important because startup companies lack reliable past performance and predictable future performance that most established businesses use to estimate their value so having a way to guess a valuation is useful, even if it is all guesswork and predictions [20].

When valuing a business, we generally draw on three sources of information:

- The firm's current financial statement.

How much did the firm sell? How much did it earn?

- The firm's financial history, usually summarized in its financial statements.

How fast have the firm's revenues and earnings grown over time? What can we learn about cost structure and profitability from these trends?

Susceptibility to macroeconomic factors (recessions and cyclical firms)

- The industry and comparable firm data.

What happens to firms as they mature? (Margins.. Revenue growth... Reinvestment needs... Risk).

Valuation becomes more difficult as we move away from the standard script: money making manufacturing companies with long histories.When valuation becomes more difficult, you will be tempted to abandon first principles in valuation and told that discounted cash flow (and intrinsic) valuation don't work for "these" companies. Instead, you will be asked to look at alternate metrics and models to price these companies.

The architecture of conventional valuation is strong enough to allow us to value any company, but it does require us to be flexible (in our approaches and use of models) and creative (in making estimates and dealing with uncertainty) [4].

Pre-money and post-money valuation. Pre-money and post-money are frequently used terms to describe the valuation of a company when raising capital. The pre-money valuation of a company is simply the value of the company before an equity investment is made. The post-money valuation is the pre-money valuation plus the equity investment.

Although it might seem like a quick equation, the difference of pre-money and post-money valuations can prove critical as a business scales and receives new investors [7]. There are no scientific methodologies for establishing a valuation for early stage ventures. Better practice dictates that we use multiple methods for estimating the valuation for investment purposes, then based on those results choose a final pre-money valuation (by averaging multiple methods, perhaps after eliminating outliers) [15].

The Berkus Method. The Berkus Method was developed in the 1990's.

No matter the region, product or industry, investors must reduce risk as much as possible. It's important for you, the entrepreneur, to consider suggestions and methods to value your early stage startup without existing revenue. The method should allow for higher maximum value on elements not listed in the matrix. The matrix should be able to be easily modified to respond to altered circumstances or conditions.

The Berkus Method uses both qualitative and quantitative factors to calculate a valuation based on five elements:
- Sound Idea (basic value)
- Prototype (reduces technology risk)
- Quality Management Team (reduces execution risk)
- Strategic Relationships (reduces market risk)
- Product Rollout or Sales (reduces production risk)

"The original matrix is too restrictive, and should be a suggestion rather than a rigid form."—Dave Berkus.

How to estimate the value of your startup before raising investment from the investors is paramount. It's also important to understand your investor's interest such as the size of the exit they are striving for. There is no universal truth when it comes to valuations—be flexible.

The Berkus Method will not be relevant once your startup starts generating revenue, but it can certainly provide a simple approach to determining your value while in negotiations with investors.

Risk Factor Summation Method. The Risk Factor Summation Method has a bit more quantitative workings on specific risk factors, which brings further risk management and governance consideration into the pre-money valuation. Like the Scorecard Valuation Method, we need to start with the average industry pre-money valuation.

A list of risks associated with the startup and it's industry:

- Management risk
- Stage of the business
- Legislation/Political risk
- Manufacturing risk (or supply chain risk)
- Sales and marketing risk
- Funding/capital raising risk
- Competition risk
- Technology risk
- Litigation risk
- International risk
- Reputation risk
- Exit value risk [11].

Scorecard Valuation Method (Bill Payne Method). Key to the Scorecard Method is a good understanding of the average (and range) of pre-money valuation of pre-revenue companies in a region. With this data in hand, the Scorecard Method gives subjective techniques to adjust the valuation of a target company for seed and startup rounds of investment [16].

This method considering the following criteria:
- Strength of the Management Team: 0-30%
- Size of the Opportunity: 0-25%
- Product/Technology: 0-15%
- Competitive Environment: 0-10%
- Marketing/Sales Channels/Partnerships: 0-10%
- Need for Additional Investment: 0 – 5%
- Other factors: 0 – 5%

The actual valuation worksheet is extensive, but here we get the general idea of how to weight the pre-revenue startup. As we see, "Strength of the Management Team" is and will always be the most important factor in valuing a startup [12].

First Chicago Method. This method, named after the First Chicago Bank, is based on probabilities with three scenarios: worst case, a normal case and best case. It is a post-revenue method since you need financial information including revenues, earnings, cashflows, exit-horizon etc.

This model combines elements of market oriented and fundamental analytical methods. It is mainly used in valuation of dynamic growth

companies. Each valuation is made with the DCF Method and add a percentage reflecting the probability of each scenario to happen [2].

Venture Capital Method. The Venture Capital Method (VC Method) was first described by Professor Bill Sahlman at Harvard Business School in 1987 in a case study and has been revised since. It is one of the useful methods for establishing the pre-money valuation of pre-revenue startup ventures [17].

The venture capital method reflects the process of investors, where they are looking for an exit within 3 to 7 years. First an expected exit price for the investment is estimated. From there, one calculates back to the post-money valuation today taking into account the time and the risk the investors takes.

The return on investment can be estimated by determining what return an investor could expect from that investment with the specific level of risk attached. The Venture Capital method is an often used in valuations of pre-revenue companies where it is easier to estimate a potential exit value once certain milestones are reached [11]. To choose a correct method for assessing value of a startup company you need to know on what stage of a lifecycle your company in now. These are the main stages (Figure 3):
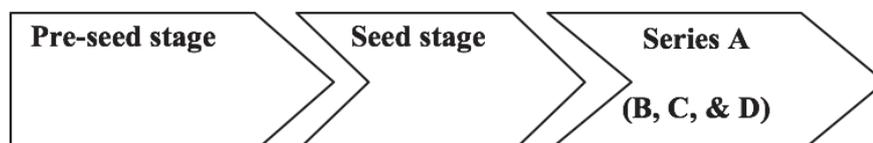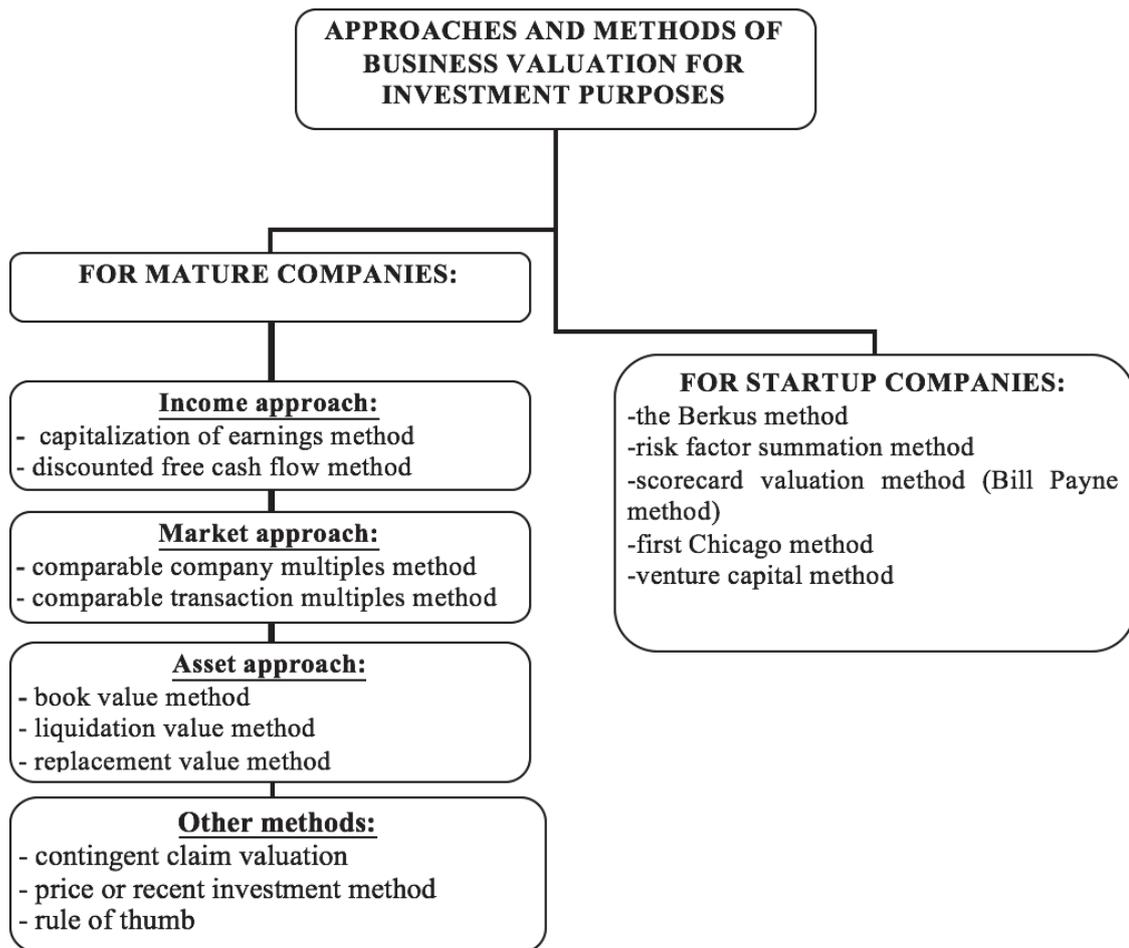
THE MAIN STAGES OF A LIFECYCLE OF STARTUPS

Figure 3. The main stages of a lifecycle of startups
Source: [10]

Pre-seed stage. A pre-Seed funding round is for early stage product development of a minimum viable product (MVP). Funding of a startup at this level is to maximise its future fundraising opportunities through testing, having an effective core team and building beyond a prototype. Funding for Pre-Seed business normally comes from the 3F's (Friends, Family and Fans!). The amount of money is usually relatively small because the business is still in the idea or conceptual stage.

Seed stage. Startups at this level have already validated their value proposition. They have monthly revenue which is consistent, constant and the business is growing month on month. The startup needs its next level of funding

to find true product/market fit, scale, grow and become a competitor in the current market place.

Series A, B, C & D stages. Financing tends to occur when the startup is generating strong revenue from its business model, but rarely will the business be generating net profits at this point. Most investors will be venture capital funds or angel investors who are willing to accept the high levels of risk found in these early-stage company investments. This round is to scale a product/market fit nationally and potentially internationally [10]. According to the materials of this study mentioned above, we can suggest that to get the most objective and realistic value of a startup company we should take into account the stage of development of the company which we are assessing. In Figure 4 we propose generalized classification of approaches and methods of business valuation for investment purposes on the basis of analysis of scientific literature and articles written by leading experts of investment industry.

APPROACHES AND METHODS OF BUSINESS VALUATION FOR INVESTMENT PURPOSES

FOR MATURE COMPANIES:

Income approach:
- capitalization of earnings method
- discounted free cash flow method

Market approach:
- comparable company multiples method
- comparable transaction multiples method

Asset approach:
- book value method
- liquidation value method
- replacement value method

Other methods:
- contingent claim valuation
- price or recent investment method
- rule of thumb

FOR STARTUP COMPANIES:
-the Berkus method
-risk factor summation method
-scorecard valuation method (Bill Payne method)
-first Chicago method
-venture capital method

Figure 4. Approaches and methods of business valuation for investment purposes
Source: [developed by an author]

Conclusions. Valuation of an early-stage startup company is an extremely complicated topic because you need to get the closest to the real value of a company with a very short operating history or with no history at all. Taking into account the above-mentioned materials we can conclude that traditional methodological approaches and methods of valuation often give a false result. They are difficult to apply because startups have a high risk of failure and those that survive produce profits the amount of which is difficult to predict. So, valuating startup companies we should search for alternative methods of valuation.

According to the materials mentioned above, we can suggest that to get the most objective and realistic value of a startup company we should take into account the stage of development of the company which we are assessing. To assess the value of newly created companies that do not yet have profits, it is the most appropriate to use such methods as: the Berkus Method, Risk Factor Summation Method, Scorecard Valuation Method (Bill Payne Method), First Chicago Method, Venture Capital Method. When a company gives a stable profit it is more correct to use traditional methods of business valuation.

Given the fact that there is no perfect valuation methodology of a startup company, we can suggest that an appraiser should use different methods of valuation (or a combination of them) to arrive at the right conclusion. Using several methods of valuation of startups you can come to the average value which may be closer to reality because all the alternative startup valuation methods are based on predictions and probabilities.

Taking into account the fact that business and entrepreneurship are constantly and dynamically changing, and along with them the business appraisal methodology is changing, it can be anticipated that such an important issue as assessing the cost of a newly created company will remain relevant as it has a number of open questions for further research.

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