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VALUATION METHODOLOGIES FOR BUSINESS STARTUPS: A BIBLIOGRAPHICAL STUDY AND SURVEY

Fabrício Batista de Oliveira
fabriciooliveira.marketing@gmail.com
Carioca University Center - UniCarioca, Rio de Janeiro, Rio de Janeiro, Brazil.

Luís Perez Zotes
lpzotes@gmail.com
Fluminense Federal University - UFF, Niterói, Rio de Janeiro, Brazil.

ABSTRACT

The aim of this study was to research and analyze the different methodologies used for the valuation process and identify which are the most suitable for startup companies in the Brazilian market. The investigation was carried out by means of bibliographical research articles through the databases Scopus and Web of Science and through interviews with professional experts in valuation of companies. The approach of the subject valuation for business startups, presents plenty of opportunities in the countries of Central and South America by their limited amount of scientific production found in databases of scientific productions. From the market point of view, the article presents important contribution to the promotion and maintenance of startups projects, many of which in the early stage of deployment, since it will serve as a source of consultation for such category of company that needs to identify the better options in the process of valuation for startups and companies as support for the economic and financial viability study of projects in the early stage, supporting the professional segments of Administration, Finance and Engineering Production, not limited only to those. The originality of this research is to make a direct relationship of valuation commonly used with startups definitions proposed by Blank and Dorf (2014) and Ries (2011)

Keywords: Valuation; startups; entrepreneurship; economic and financial viability of projects.

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1. INTRODUCTION

Entrepreneurship is growing in countries in North America, Europe and Brazil. This is driven by the generation of the *millenials*, young people born between 1979 and 1995. The author Yazici (2016), describes that the millenials, or also known as Generation Y, are emerging as leaders in terms of technology and they are expected to become three-fourths of the work force until 2025, demonstrating in this generation a great representation in the world economy and a technology-oriented profile.

The business growth of startups in Brazil and in other countries all over the world, accompany the growth, dissemination and democratization of the internet, causing it to boost new business across the globe, since the costs of deploying a business online or through an application are comparatively smaller when compared to a company that has all its scope of activities in the offline environment. Rogers (2011) argues that the growth of entrepreneurship will always be associated with the technological revolution that began in the United States in the early 1980s. Companies such as Microsoft, Apple, Lotus and Dell, to name just a few, gave birth to the current technological sector, valued at US$ 600 billion. Technological advances are responsible for the proliferation of new businesses in new areas, as the companies established on the Internet. Young entrepreneurs realized they could enter their innovations, projects, and creative ideas through the internet, with little investment cost, or almost nothing, but with wide potential for future earnings, reports Lee (2014).

This business model format won space next to traditional companies, creating a new form of company, the startups. In this context, organizations or people began to invest resources in business startups aimed to have a higher return on investment or a higher profit percentage, in order to boost the potential growth of startups in a period of time set. Gorini et Torres (2016) report that the capital should be seen as a bridge between today and tomorrow, as it enables an organization to continue to exist when it has not yet reached the balance, or to expand when the right moment comes. As it is an investment where both parties, investors and startups, need to have a common denominator regarding the amount to be invested by investors, the answer is presented by the process of business valuation to reach the value agreed. However, the process of evaluating startup companies has some specificity when compared to companies that already have operational and financial history: the investment on the part of investors is made in an early moment of company. Currently, it is impossible to make any kind of financial analysis, market or operational by means of historical data; however, for future projections, the item that is mostly taken into consideration is the innovation factor of the project, not its business maturity.

Koller et al. (2010) say that people invest with the expectation that, at the time they buy, the investment value, will grow sufficiently beyond the amount invested, compensating the risk taken at the time of purchase.

The present work searches commonly used methodologies, specifically, for the valuation process of startup companies in the Brazilian market. Diagnosing the current framework of the valuation process of startup companies in the aforementioned market, one should identify the most used methodologies that feature what differentiates each one of them and one of the methods that best fits the reality of a startup company should be chosen.

2. LITERATURE REVIEW

2.1 The startups, the advent of the Internet and Silicon Valley

Between 1996 and 1998 the banks and large trade chains "discovered" the potential of the Internet, driven by the emergence of a large number of access providers (including the free ones). In this period, what is meant by professional Web, with companies creating strategies for this market, began (Sampaio, 2007, p. 7).

According to the statements of Sampaio (2007), the appearance of new server technologies, such as PHP, ASP[1], Servlets and JSP[2], facilitated the creation of websites to be more attractive and dynamic and that trade their products or services over the internet, which is the so called e-Commerce. Such features improved the graphic quality of the sites and people used the internet in large volume.

As much as the term startup had been used before the 1990´s in the United States, it was the internet that popularized the term around the world with the sudden growth of companies such as Google and Yahoo!, since they knew best the amounts of investments obtained in the post-bubble period and remained in positions of leadership in the market.

Why did the startup revolution occur solely with this generation, and not with the other? Because generation Y noticed and know how to use the great potential of the internet. Thus, they use it as the fastest way to expand and test their ideas. In a matter of minutes, you can reach millions of

1 ASP is a framework of basic libraries for processing server-side script languages for generating dynamic content on the Web.

2 Is a technology that helps software developers to create dynamically generated web pages based on HTML, XML or other types of documents.

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people worldwide. What was seen as something impossible is our reality today (Perin, 2016, p. 7).

The startups created in the early 2000 had a great ally for the development of their businesses: the internet. The internet made it possible for these companies to advertise their products without having to use a large amount of money and, in some ways, testing their launching without much operational work, identifying opportunities for improvements and improved versions of the product.

According to Blank et Dorf (2014, p. 56), a "startup is a group of people looking for a repeatable and scalable business model, working under conditions of extreme uncertainty.

It is possible to see the definition placed in the following terms is of paramount importance for the understanding of a startup in the present times:

- **Business models**: are the forms how startups seek to produce value for their customers and transform this value generated into revenue for the company. An example is the new way to publicize a product, to rent a room in a hotel or in a hostel, and to get around the city, that is, a business solution for "social problems".

- **Repeatable**: it is the ability of the products that do not have an inventory limit and are constantly available to the consumer, regardless of demand and with little need for customization and adaptation.

- **Scalable**: It is the ability to take on a large scale, given large amounts of customers, and grow so that their operating costs evolve in a much slower way in the face of their income.

- **Conditions of extreme uncertainty**: these conditions are directly related to the fact that, regardless of the market analysis, financial and operational viability that involves the creation of a startup, they do not presuppose certainty in terms of success of the project and acceptance by the consumer.

Notes from the four concepts mentioned that the startup has a specific characteristic. With that, not all companies may qualify as startups. Because, unlike the concept initially used to define what a startup is, it is not enough for the company to be a newly created company to be called startup and, different from the perception of some, a startup is not a smaller version of a company constituted.

The startup definition proposed by the authors Blank et Dorf (2014) were initially deployed in the region of Silicon Valley, located in the United States of America and comprises the area from San Francisco to San Jose, in the North of the State of California as an area of utmost importance for the development and dissemination of the model of creating a startup replicated all over the world. Such a region is the location of a large set of technology companies, since the decade of 1950.

At the same time, packed with the successful startup Silicon Valley pioneer Hewlett-Packard, Stanford University founded in 1951, the first industrial park focused on technology, which attracted more brilliant minds and conglomerates such as Lockheed and General Electric.

Dozens of companies have moved to the then deserted California behind the plump Government contracts (Normand, 2014, p. 14).

Bryzek (2005) says that Silicon Valley gave birth to tens of thousands of startup businesses that have made the world change economically and technologically. Disruptive technologies have created a great impact, enabling not only the change in terms of behavior of a new type of consumer, but also a new learning curve, delivering a significant cost reduction.

According to Ries (2012 p. 179), as a lean startup grows, it can use adaptive techniques to develop more complex processes without giving up your basic advantage: move with speed through the feedback cycle, build-measure-learn. One of the main benefits of using techniques that derive from lean manufacturing is that, when startups dry grow, they are well positioned to develop operational excellence based on lean principles.

According to Srinivasan (2014, p. 46) companies recognize the importance of entrepreneurship, of the culture of startup and venture capital[3] in creating a disruptive innovation and they accept the Silicon Valley as the place where, beyond the horizon of innovation and change, things happen where they begin to engage widely with the ecosystem.

2.2 Financial Investment and Risk in investment in Startups

The moment to raise funds is of paramount importance for the sustainable growth of a startup. It is not unusual for entrepreneurs not to have financial resources to operationalize their ideas and have to find a way to raise funds for their projects.

3 *Venture* capital is a modality of alternative investments used to support business through the purchase of a minority stake, generally with the objective of having the shares valued for subsequent operation output.

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Massolution (2015, apud Hoegen et al., 2017) says that the total volume of financing of companies has gone up US $34 billion in 2015, representing an increase of more than 1000% in three years.

However, not every startup needs and wants to use third-party capital.

According to Blumberg (2013) not every startup is originated through a merger of capital; entrepreneurs keen to continue their task, have the option of using their own funds to operationalize their project initially, and this option is called bootstrapping.

The author Bryzek (2005, p. 4), says that startup companies can raise funds for the development of their projects through the following ways: private funds, institutional venture capital firms, corporate investors (banks), angel investors and government funding.

According to Calvosa et Freitas (2008), there is a rise of investors' associations in Brazil called outside angel investors (angel investors), which can be a good alternative to incorporate private entrepreneurs, which project beyond the capital, with experience in market relationships (networking) and management, adding additional value to these projects.

Another alternative way to raise funds for startup companies is through crowdfunding.

According to Agrawal et al. (2016, p. 112), this mode allows entrepreneurs to raise capital through strangers and online. On the other hand, equity-crowdfunding is a relatively new tool for angel investors to finance their projects in the early stages. Often the crowd (group or crowd) is limited only to accredited investors. The Equity-crowdfunding provides these investors a range of opportunities available, where the investment is the match against ownership of the company, different from what traditional crowdfunding can have in return for any other benefit, as a bargaining chip.

With respect to the risk in investments on startups, for startups, according to Ouimet et Zarutskie (2014), this category of business is normally conducted by young professionals, which are between 25 and 34 years old, and who are probably relatively more risk tolerant.

On the other hand, by the fact that businesses or startup projects are inserted in markets still growing and often unexplored, with a forecast of future growth, investing in startup projects can be considered a high risk due to their degree of success unpredictability.

According to Silver et al. (2016), the high risk of a startup company is due to lack of information associated with the problems in determining accurately the future of the market potential in which the startup is inserted.

2.3 Valuation of Business Startups

The study of investment decisions has been of great interest, both for the science and corporations, in order to create and establish criteria that are objective and efficient allocation of resources, which is one of the biggest challenges for investors, says the author Rodrigues et al. (2013, p. 1).

According to Collewaert et Manigart (2016), interestingly, a key element in the investment process remained largely unexplored in the scholar literature, named as valuation, which is the evaluation of investment opportunity or "bargain price". This gap in the literature is mainly due to practical difficulties, such as the lack of reliable data, associated with the research of investment agreements and assessments.

According to Pelepu et al. (2004), valuation is the process of converting a projection on an estimate of the value of a company or in any part of the company.

The Table 1 shows the main methods for valuing a company, summarized in the following categories:

Saurin et al. (2009) reported that the choice of the best method does not guarantee the most accurate and correct value of a company, because the rigorous selection of the premises and the use of a form of proper projection are of fundamental importance.

According to Saurin et al. (2009), the big problem for valuation is the value resulting from future factors and what will happen in the future is inserted in the templates according to the premises of the analyst. And as the future is uncertain, and the assumptions are variable, so you cannot ever expect a method to estimate an actual value of a company.

2.3.1 Comparative Techniques of Market or Economic Result

Comparative market techniques compare indexes relating to the transaction of companies that operate in the same segment in order to evaluate their performances as for their sales, profitability index, growth percentage, among others.

In the case of valuation across multiple, simple openings there is a very big advantage; however, the companies compared can be sufficiently different in terms of efficiency, market positioning, marketing and even focus on the products (Mendonça, 2011, p. 185).

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Table 1. Valuation methods

Valuation methods divided by category					
Valuation categories					
1- Economic Result	**2 - Balance Sheet**	**3-Discounted Cash Flow**	**4-Value Creation**	**5 - Options**	**6-Mixed (Good-will)**
Multiples of sale	Book value	Cash flow of the partners	EVA	Black Scholes	Classic European Union
Value of the profits	Adjusted book value	Free cash flow	Economic Profit	Investment option	Accounting experts
Value of dividends	Liquidation value	Capital Cash Flow	Cash Flow Return on Invest-ment-CFROI	Project expansion	Abbreviated income
Other Multiple	Substantial value	APV	Other	The expansion Proj-ect-alternative uses	Other

Source: Prepared with information from Alves et al. (2013, p. 4)

2.3.2 Techniques Based on Financial Assets and Liabilities

According to Ambros et Schnorrenberger (2014), the accounting value model (AVM), also known as a model of evaluation of the book value or equity valuation accounting model is what keeps the accounting information. This is because it does not pass through any adjustment or adaptation, showing how the value of the company's own equity value is obtained by the difference between the assets and liabilities required.

According to Dutta et Reichelstein (2005, p. 527), in literature, accounting competence has consistently been seen through an administrative perspective. Consequently, the accounting rules have the property on which the performance metrics are based on accounting guide managers in valor decisions.

According to Ambros et Schnorrenberger (2014), the ease of obtaining the values and understanding associated with market acceptance, are the strengths of the methodology mentioned here. On the other hand, this methodology merely presents a "picture" of the financial situation of the business, that is, a static picture, since it does not consider the evolution of the company, the value of money in time, the positioning of the market, and its human and intangible resources.

2.3.3 Techniques Based on Discounted Cash Flow

The methodology of the discounted cash flow (DCF) has, as its grounds, that money hasits value modified over time and is the most widely used methodology in terms of project financial evaluation, since it is considered to be the closest to the finance theory, by assessing the ability of an organization to generate wealth in a period of time.

According to Boularhmane et Aboulaich (2016), the discounted cash flow method (DCF) is one of the most used methods to the valuation process, because it reflects the economic strength of the institution regardless of external issues that can influence directly on the final value of a company, as market forces and negotiation.

Galdi et al. (2008, p. 3), define the method of discounted cash flow (DCF), where the value of the company is determined by the sum of the Present Values (PV)[4] of its future cash flows (expected), discounted at a rate that reflects the risk associated to these flows, believing that the value of a currency as we have today, is worth more than the same value expressed in future times.

The DCF formula, according to the statement above, is the following (2):

$$(2)\ Value = \sum_{t=0}^{t=n} \left(\frac{\mathrm{CF_t}}{(1+\mathrm{r})^{\mathrm{t}}} \right)$$

where n is the useful life of the asset,

$CF._t$ is the expected cash flow in period t and r is discount rate reflecting the risk inherent to the expected flows.

According to Perez et Famá (2004), the essence of this method is to project future operating cash flows, bring them to present value, through an appropriate discount rate that reflects the risk posed by these flows and the opportunity cost of the capital.

Even with Perez et Famá (2004), the method has a negative point, which is the difficulty to accurately predict the behavior of important variables because it works with future prospects. These variables are: operating cash flow, the

4 *PV* the *present value* means the value that has the date 0

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projection horizon of this flow, residual value or value of the perpetuity and the discount rate of these cash flows.

2.3.4 Techniques based on value creation

Value creation methodologies seek to know whether the company is generating value and, for this, it is necessary to know the cost of the capital employed and return on capital employed by the company.

According to García (2003) (apud Escobar et Botero, 2013), the methods of this category of company valuation calculate and assess the wealth generated by the company. Operational risk and the market that may be involved are considered through three management alternatives that concentrate at the same time their organizational processes: strategic direction, financial management and human resource management.

According to Tomazoni et Menezes (2004), value is not intrinsically and exclusively related to the Act of measuring. Value is a relationship. Whereas the *valuation* process is done by individuals, the economic value can be understood as an estimate of the trend of a relationship between the utility, subjective and objective desire, provided by this asset and this valuation.

Tomazoni et Menezes (2004) also consider inadequate the fact that evaluation was exclusively focused on financial data, once a company that established it becomes a living organism with its external and internal variables interfering on the deal. Soon, studies of these variables will be of paramount importance to the valuation process, producing trends about the retracting or the growth of the company. In the first case, the value of the company using past data can generate a minimum value, and, in the second case, a maximum value can be generated.

2.3.5 Techniques based on options models

The technique through option models applies methods of evaluation of financial options for corporate decisions.

According to Rodrigues et al. (2013), the study of investment decisions is being discussed and it is of interest in both the scientific and scholar world for decades, in order to provide more objective and efficient criteria regarding the allocation of resources.

Belz (2017) says that, while the analysis of real options is responsible for flexibility in management opportunities and variations in levels of risk, this methodology only found limited use in corporate literature up to this date.

According to (Santos et Zotes, 2011, p. 4) the financial option is a right that gives the holder the opportunity to carry it out or not, according to evaluations. According to the above concept, this methodology comes from changing the way to manage business financial resources, since it operates a concept other than the DCF, where the company has the obligation to comply, regardless of the information that it will acquire in the course of the its path.

Rêgo et al. (2014, p. 300), reported that, in practice, managers change the course previously set according to the dynamics of external factors, always aiming to reduce possible losses or to take advantage of the opportunities available in the market.

According to Rodrigues et al. (2013), the theory of real options, if more complete and robust, presents an advantage before the traditional theory of DCF in the case of *start-up* companies, since the static DCF ignores the value of the option to stagger and investments abandon the project in the event of failure of the project, making the business undervalued.

According to Rodrigues et al. (2013), the business might realize that the disposal of the buyer on raising its reserve price and therefore its provision to pay for some built-in options in a given venture may not come true, in the face of the fear of paying for a flexibility that can be a limited and effective exercise for various political and managerial aspects.

2.3.6 Techniques in mixed models (Goodwill)

According to Perez et Famá (2004), it can be considered as Goodwill, the set of features, qualities and differentials of a company expressed through its future capacity to produce wealth: trademarks, *market share,* organizational knowledge, quality in internal processes, know-how, market credibility, etc. Both authors state that even if Goodwill is not identified in the company's balance sheet and in the financial and economic ratios of the company, they form a series of intangible assets that could be beneficial to the company in a future situation, causing it to generate more wealth on account of these intangible factors.

Technically, Goodwill is considered as the difference between the economic value of the company and its equity value, the market value.

According to Perez et Famá (2004), they conclude that the use and recognition of Goodwill by the Brazilian legislation is indeed a breakthrough in the process of valuation, once the process overcomes some basic limitations of corporate accounting, seeking a fair market value for the company.

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Table 2. Advantages and disadvantages of each method of *valuation*

		Discounted cash flow	Market comparisons or economic result	Accounting Assets and Liabilities	Models of options	Goodwill	References										
							Mendonça (2011)	Ambros and Schnorrenberger (2014)	Escobar and Botero (2013)	Rodrigues et al. (2013)	Zaroni (2009)	Segundo Perez and Famá (2004)	Pereira, 1998 (apud, NEGRA et al, 2004)	Boularhmane e Aboulaich (2016)	Rêgo et. al (2014)	Belz (2017)	Santos and Zotes (2011)
ADVANTAGES	Simplicity and ease of understanding		X	X			X	X	X								
	Saves accounting information			X				X	X								
	The ease of obtaining the values			X				X	X								
	Complete and robust methodology against those traditionally used				X					X							
	Generates more wealth due to intangible factors					X					X	X	X				
	Not interfered by external issues	X										X		X			
	Reflects the economic strength of the company	X										X		X			
	Reflects its ability to generate cash	X										X		X			
	Has flexibility in the course of the change process of the path of the company or business over time.				X										X	X	X
DISADVANTAGES	It does not accurately predict the behavior of important variables for working with future perspectives.	X										X		X			
	It can create fear on the part of the buyer of being paying by a flexibility whose effective exercise may be limited by several political and managerial aspects.				X										X	X	X
	High subjectivity					X			X	X	X	X	X				
	You may not consider the differences of each company in terms of efficiency, market positioning, marketing		X				X										
	It does not take into account external factors can influence the final value of the company			X				X	X								
	It does not consider factors defined in negotiation that interferes with the value of the company	X									X			X			
	It does not consider the value of money over the time and its risks		X	X			X										
	It leads to distortions if companies present variability in its long-term results.					X	X	X	X								

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3. METHODOLOGY

The exploratory research, which, according to Gil (1999), has the improvement of ideas or the discovery of intuitions as main objective, was used, as the goal of this work.

It is descriptive, because it analyzes and describes the data that were collected in the field. And qualitative, focusing on the subjective character of the object studied, where the author Perdigão et al. (2012, p. 107), constitutes an important tool for the study of the perceptions and motivations of behavior, values and attitudes of the human being by highlighting cultural factors and dynamic understanding of the macro environment in which people and emotions are inserted.

The research considered Brazil due to its geographical limitation. The theoretical limitation of this research is focused on startup companies, according to the proposed definitions by Blank et Dorf (2014) and Ries (2011).

The subjects of the research were 40 experts in *valuation*, operating in the Brazilian market, using questionnaires and interviews where they were chosen by the criterion of typicality.

The interview was composed of open and closed questions, aimed at understanding through the experience of the experts of the different methodologies, used for the process of *valuation* of startup companies.

The questionnaire applied can be viewed in the APPENDICE – Questionnaire for Experts. Table 3 below features the stages of research, including their respective activities and a Bibliometric analysis of the articles that were used in the development of the work.

4. RESULTS AND DISCUSSIONS

In this section, issues related to the processes and valuation techniques used by experts in business and startup projects are discussed, considering the variables that compose the startup settings by the authors Blank et Dorf (2014) and Ries (2011).

Figure 1 lists all the *valuation* techniques listed in this research and those associated with the answers given by respondents with regard to existing variables in startup businesses in their analysis on the basis of the proposed definitions by Blank et Dorf (2014) and Ries (2011).

For better understanding and creation of table 4, figure 2 is the result of the average of each variable (business model defined, repeatable, scalable, model, extreme uncertainty, and lean and flexible processes). According to the interviewees, the group of techniques that most presents in their analysis the definitions proposed by Blank and Dorf (2014) and Ries (2011) are the techniques based on the discounted cash flow, with 21 points.

According to Galdi et al. (2008), the *valuation* techniques most commonly used include the discount methods of the stream of dividends of a company, the discounted cash flow models, evaluation models for market multiples and models of residual profits.

The second group of techniques is related to comparative market techniques or economic result, with 16.8 points, techniques based on financial assets and liabilities with 16 points, followed by techniques based on value creation, with 10.8 points, the techniques of model options with 8 points and finally, the techniques of mixed models with 7.2 points.

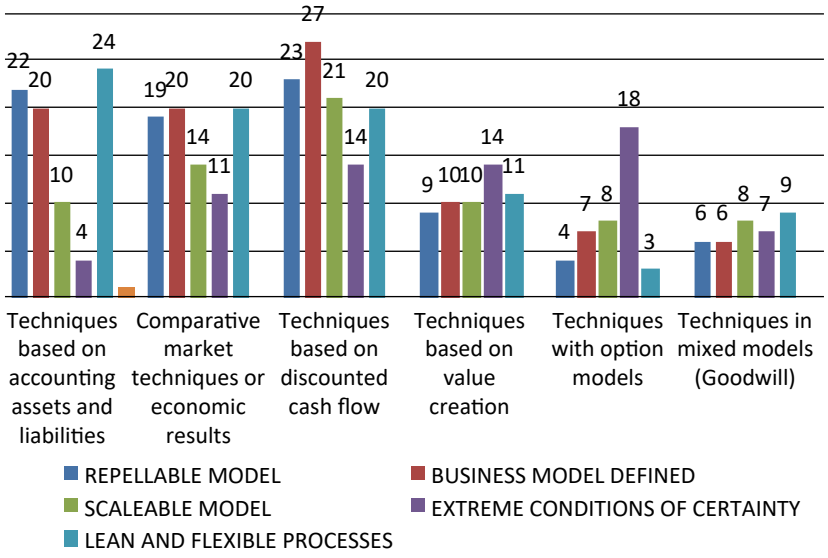

Figure 1. Groups of valuation methodologies x variables of the startup definitions by Ries, Blank and Dorf

Source: the author (2017).

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Table 3. Phases of research and bibliometric analysis

STAGES OF RESEARCH AND BIBLIOMETRIC ANALYSIS								
STAGES OF RESEARCH								
PHASE 01		**PHASE 02**		**PHASE 03**		**PHASE 04**		
Literature review and theoretical foundation of the study		**Application of pre-test of the questionnaire**		**Questionnaire application with the sample**		**Treatment and analysis of data**		
This first phase involved a Bibliometric study,, where data were raised through national and international publications on scientific basis, reference books in each subject, sites of reference institutions in start-ups, small and mid-sized companies and financial institutions.		This second phase consisted in the application of a test, which is questionnaire validation research instrument, with researcher Dr. Valeria da Silva Banerjee		This third phase, to be analyzed in the previous phase (phase 02) the feasibility and applicability of the questionnaire with a specialist, was the application of the questionnaire in a sample of experts already in possession of the final version of the questionnaire		The third stage is the data processing raised in the early stages of research, seeking evidence that aimed to understand, through the experience of the experts, the different methodologies used for the process of valuation of companies in the Brazilian market for startups		
Research Period	**Scientific base**	**Research Criteria**	**Number of findings**	**Refinement by knowledge area**	**Post articles refinement**	**Refinement by document type**		**Articles of the last 5 years**
08/20/2017 at 15:54	Scopus	1-(valuation) AND (company)	3,375	“Economic, Econometrics and Finance”, Business, Management and Accounting	2,003	“Article”	1,644	534
	SciELO	1-(valuation) AND (company)	50	“Management”, “business, finance” and “business”	33	“Article”	32	16

Source: the author (2017).

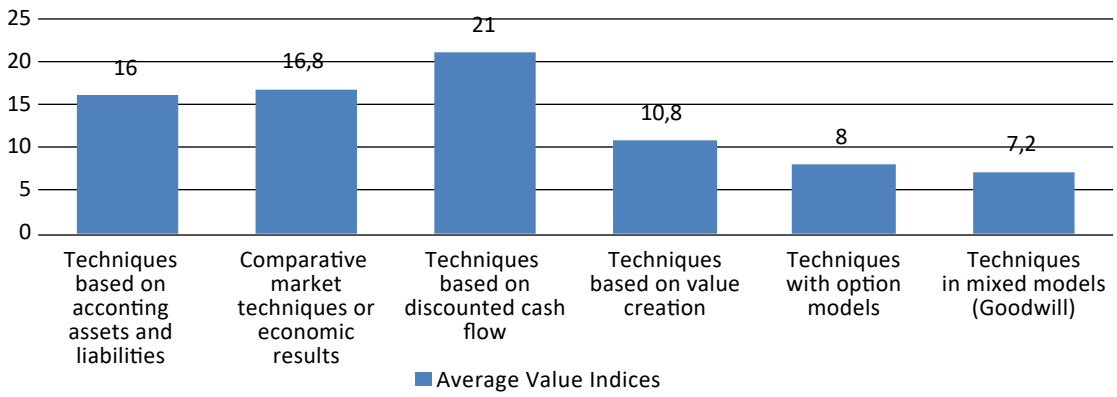

Figure 2. Average Index groups valuation methodologies x startup settings variables by Ries, Blank and Dorf

Source: the author (2017).

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To conclude this chapter, table 4 ranks the methodologies to be considered, most often for the smallest, the variables that exist in startup businesses in their analysis based on the definitions proposed by Blank et Dorf (2014) and Ries (2011), relating each answer given by respondents and each group of *valuation* techniques described in this paper, in response to the problem of research here described. It is important to highlight that this ranking also reflects the frequency of use of techniques based on discounted cash flow, since this group of techniques is the most widely used by experts, regardless if the analysis is related or not to the startup companies.

Table 4. Rank of the methodologies considered, more often for the smallest, the variables that exist in startup businesses, in their analysis based on the definitions proposed by Blank et Dorf (2014) and Ries (2011

Position	Average of the responses given by experts	Group Valuation techniques commonly used by experts
st	21	Techniques based on discounted cash flow
2nd	16.8	Comparative techniques of market or economic result
3rd	16	Techniques based on financial assets and liabilities
4th	10.8	Techniques based on value creation
5th	8	Techniques based on models of options

Source: the author (2017).

5. CONCLUSION

This proposed study search and analyze the different methodologies used for the *valuation* process of startup companies in the Brazilian market, that is, the methods that consider the existing variables in startup companies in their analyses based on the definitions proposed by Blank et Dorf (2014) and Ries (2011).

The goals of this work set out to search and review have been fully achieved, bringing relevant data and information on the techniques of *valuation* of startup companies described in the bibliography available and through experiences described by experts in *valuation.* It was possible to understand the answers given by respondents who still use many parameters of monetary and financial nature in the process of *valuation* of startup companies, not considering issues of the analysis of the project in their innovative factor, as well as the positioning in competitive sectors and projection of future growth, which is presented as a gap in the application of methods in startup businesses. The statement is reinforced when there are techniques based on discounted cash flow, as shown in table 4. Such techniques do not consider in their analysis questions concerning the innovative factor of the project, as well as the positioning in competitive sectors and projection of future growth.

The work will serve as a source of consultation for startup businesses that wish to analyze and verify which *valuation* methodologies are better suited for startup businesses, as well as the advantages and disadvantages of each method, for startup companies. Additionally, we suggest a deepening regarding the research that seeks the application of real option method in the process of startup *valuation*, because such valuation considers it an important feature of this category of enterprise flexibility, and a more in-depth research as an unprecedented method to assess a startup company, respecting its characteristics and peculiarities.

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Yazici, B. (2016), "Attitudes of Generation Y Towards Luxury Products and Youth-Led Change in Luxury Consumption Behaviour", The Turkish Online Journal of Design, Art and Communication, Vol. 6, No. 3, pp. 291-306.APPENDICES OF THE RESEARCH

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QUESTIONNAIRE FOR EXPERTS

Presentation of the questionnaire to the respondent - p. 1

Dear Respondent,

This questionnaire is part of the master's thesis developed by student Fabrício Oliveira, tacher-led by Prof Dr Luiz Perez Zotes, in the graduate program of the school of engineering of Fluminense Federal University (UFF).

GOAL of RESEARCH: To search and analyze the different methodologies used for the process of *valuation* of startup companies in the Brazilian market. In order to rank the five methods that consider, more often for the smallest, the variables that exist in business *startups* in their analyses based on the definition proposed by Blank and Dorf (2014) and Ries (2011); business model defined, repeatable, scalable model, extreme uncertainty, lean and flexible processes.

Your participation is extremely important so that we can make this data collection, completing this fundamental stage of research.

Please be advised that the names of the participants, functions, and companies that work and other information will be kept confidential.

This questionnaire is segmented in 2 phases, with a total of 28 questions, being:

Block 1 – Profile of Respondents

Block 2 – Analysis of the processes of Valuation Available

Block 3 – Valuation Processes for Startup Companies

The estimated average filling time is 7 to 10 minutes.

At the end of this academic research, if it is of your interest, you will receive a copy of the results.

Thank you for your loving participation form and we would be very happy if you could share this link with your professional *network* that has professional profile similar to yours.

This research has as its target audience, professionals who have experience in terms of using methodologies of "valuation", "Valuation of companies" or "Arbitration" companies, commonly known as *Valuation* in their professional activities.

I am available for any questions on the questionnaire. If there is, please contact me. My contacts are below.

INFORMED CONSENT

By completing the survey questionnaire, the developer declares that he accepts to contribute voluntarily to this questionnaire, which is part of the research entitled. The information obtained will be treated with confidentiality and used exclusively for the realization of this survey. Participation is free, not mandatory, and can be stopped by decision of the employee at any time, without any prejudice.

Fabrício Batista de Oliveira
Master's degree in management systems

Dr. Luiz Perez Zotes
Teacher Advisor

Universidade Federal Fluminense-UFF-RJ

Contacts:
fabricioooliveira.marketing@gmail.com
Phone (Whatsapp): (21) 96444-4899

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PART 1- Profile of Respondents - p. 2

We want to know a little about you. Your data is completely safe and will not be used for future advertisements. Please, answer the questions that you feel comfortable answering.

1.1 * Name (First and last name)

1.2 E-mail (we will not use your e-mail on spam or in any kind of advertising or e-mail of marketing campaign. And your delivery is not required)

1.3 Cell phone * (It is not a mandatory information. It will be used only if we need to contact you to discuss our survey. Don't forget your to inform your DDD when providing information)

1.4 Age *

- From 18 to 25 years
- From 26 to 33 years
- From 41 to 34 years
- From 42 to 49 years
- From 50 to 57 years
- Over 58 years

1.5 Genre

- Female
- Male
- Other

1.6 Education *

- Complete High School
- Graduate Complete
- Graduate Incomplete
- MBA/Masters/PhD/Postdoctoral

1.7 Nationality *

- Brazilian
- Foreigner

1.8 In which region do you reside? *

- North
- Northeast
- Midwest
- Southeast
- South
- Don't live in Brazil

1.9 What is your sector of activity? * (Dropdown with 28 sectors of activity)

_____
_____

*1.10 What is your occupation? **

- Investor
- Entrepreneur/Businessman
- Private employee
- Civil servant
- Researcher/Student
- Free Lancer
- Military
- Professor

*1.11 What is your hierarchical level within your organization? **

- Junior/Trainee
- Full
- Assist/Operational
- Senior
- Management
- Supervision/Coordination
- Technician
- Board
- Owner/Council
- Professor

1.12 Experience with processes of Valuation: *

- As an investor
- As an entrepreneur
- As an analyst
- Only theoretical

1.13 How many years of experience do you have in the Valuation process? *

- Less than 1 year
- From 1 to 3 years (incomplete)
- From 3 to 5 years (incomplete)
- From 5 to 10 years (incomplete)
- From 10 to 20 years (incomplete)
- Over 20 years

1.14 Amount of valued companies: *

- Until 3 companies
- From 4 to 10 companies
- From 11 to 20 companies
- Over 21 companies
- I don't know

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1.15 Profile of the companies evaluated: *

- National Companies
- Foreign Companies

1.16 Size of the companies valued: *

- Small businesses
- Midsize enterprises
- Large enterprises

1.17 Contribution of the companies evaluated: *

- Until R$ 100.000,00
- From R$ 100.000,01 to R$ 500.000,00
- From R$ 500.000,01 to R$1.000.000,00
- Over R$1.000.000,00

PART 2 – analysis of the processes of Valuation Available - p. 3

In this block, questions concern the process of company valuation. We're not talking about companies and startups.

2.1 Which criteria are more prevalent to consider an enterprise ready, or not, to receive financial contribution to a project? * (you can choose more than one option).

- After the release of the product test, having the first impressions at hand and drawing its measure
- After assessing sales in a minimum time of operation
- After a minimum base of customers
- After its well defined distribution channels, aligned and tested
- Other:

_____
_____

2.2 On a scale of 1 to 5; 1 = rarely being used; 5 = very much used; and the answers 2, 3 and 4, intermediate; Select the most used listed in the process of valuation of a company.

	Rarely used	**Little used**	**Sporadically used**	**Widely used**	**Very used**
Techniques based on financial assets and liabilities					
Comparative techniques of market or economic result					
Techniques based on discounted cash flow					
Techniques based on value creation					
Techniques based on models of options					
Techniques in mixed models (Goodwill)					

PART 3 – Valuation processes for Business Startups - p. 4

It's almost over. This is the last block of questions. In this block, we will discuss issues related to the process of valuation of startup companies specifically. In view of the definitions of what a startup company proposal by Blank and Dorf (2014) and Ries (2011) is; business model defined, repeatable, scalable model, extreme uncertainty, lean and flexible processes.

3.1 What is the average time expected payback for an investor in a start-up?

- Less 1 year
- From 2 to 3 years (incomplete)
- From 3 to 5 years (incomplete)
- Over 5 years

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3.2 In the pre-money, the degree of subjectivity in the process of Valuation is larger, requiring a future trend analysis. In view of the lack of operating history of the startup, is there any standard or average value by investors, based on the sector and segment of the company willing to receive financial contribution? (Some sources say a typical agreement would be $100,000.00 for 10% of the company. According to the infographic (https://blog.adioma.com/how-startup-valuation-works-infographic/)

- Yes
- No

3.3 Considering the absence of operational and financial history of startups, which items are prevalent in the valuation? (Select up to three options).

- The innovative value of the project
- The technical quality of the team that composes the startup
- The positioning of the project in sectors with great potential for future growth
- The credibility of renowned professionals involved in the project
- The exclusive dedication of the components of the project team
- Professional experience in similar projects of the project management team
- Other:

_____
_____

3.4 Which strategy, by businesses, is most commonly used in rounds of investments? (select only one option)

- Request values above your need, in order to have room for negotiation
- Request only values that you will really need, getting little margin for negotiation.

Answer the questions below using as a basis the proposed definitions by Blank and Dorf (2014) and Ries (2011) on what a startup is; business model defined, repeatable, scalable model, extreme uncertainty, lean and flexible processes.

3.5 Which of these groups are considered, in your evaluation, methodologies of the item: LEAN and flexible PROCESSES?

- Methodologies based on financial assets and liabilities
- Comparative methodologies of market or economic result
- Methodologies based on financial assets and liabilities
- Methodologies based on discounted cash flow
- Methodologies based on value creation
- Methodologies with models of options
- Methodologies in mixed models (Goodwill)

3.6 Which of these groups are considered, in your assessment, techniques of the item: EXTREME uncertainty?

- Methodologies based on financial assets and liabilities
- Comparative methodologies of market or economic result
- Methodologies based on financial assets and liabilities
- Methodologies based on discounted cash flow
- Methodologies based on value creation
- Methodologies with models of options
- Methodologies in mixed models (Goodwill)

3.7 Which of these groups are considered, in your assessment, techniques of the item: SCALABLE MODEL?

- Methodologies based on financial assets and liabilities
- Comparative methodologies of market or economic result
- Methodologies based on financial assets and liabilities
- Methodologies based on discounted cash flow
- Methodologies based on value creation
- Methodologies with models of options
- Methodologies in mixed models (Goodwill)

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3.8 Which of these technical groups are considered, in your evaluation, techniques of the item: BUSINESS MODEL SET?

- Methodologies based on financial assets and liabilities
- Comparative methodologies of market or economic result
- Methodologies based on financial assets and liabilities
- Methodologies based on discounted cash flow
- Methodologies based on value creation
- Methodologies with models of options
- Methodologies in mixed models (Goodwill)

3.9 Which of these groups are considered, in your assessment, techniques the item: REPEATABLE MODEL?

- Methodologies based on financial assets and liabilities
- Comparative methodologies of market or economic result
- Methodologies based on financial assets and liabilities
- Methodologies based on discounted cash flow
- Methodologies based on value creation
- Methodologies with models of options
- Methodologies in mixed models (Goodwill)

PART 4- Closing P. - p. 4

We appreciate your participation and collaboration in our research. Your responses will be of great value to the construction of our work. If you have any questions about this survey, contact us, please:

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