



Founder's Added Value in a Startup Valuation. Could an Expert be Worth an Extra Penny?

O Valor Agregado do Fundador em uma Avaliação de Startup. Um Especialista poderia Valer um Centavo Extra?

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Abstract

The Brazilian Startup market has been growing fast recently, but the assessment of a startup company is still considered a black box by many authors and investors in the market. The main reason for the difficulty of evaluating a startup is the lack of a universal methodology applicable to this type of company. In this article, the authors tested an alternative way to evaluate a company using key variables from the founder's experience. Approximately 30 Brazilian VC funds and the profile of 130 founders with public data were analyzed, and we found significance in the founder's senior management experience before the funding stage. The result is still basic to consider a new assessment approach for startups, but the main conclusion of this article is relevant: the experience of senior management has a significant and consistent impact on the assessment of a startup in Brazil.

Keywords: Venture capital; Startup valuation; Founder's track record; Experience frontier.

Resumo

O mercado brasileiro de startups vem crescendo rapidamente recentemente, mas a avaliação de uma empresa iniciante ainda é considerada uma caixa preta por vários autores e investidores do mercado. O principal motivo para a dificuldade de avaliar uma startup é a falta de uma metodologia universal aplicável a esse tipo de empresa. Neste artigo, os autores testaram um caminho alternativo para avaliar uma empresa usando variáveis-chave da experiência do fundador. Foram analisados aproximadamente 30 fundos do VC brasileiro e o perfil de 130 fundadores com dados públicos e encontramos significância na experiência da alta administração do fundador antes da etapa de financiamento. O resultado ainda é incipiente para considerar uma nova abordagem de avaliação para startups, mas a principal conclusão deste artigo é relevante: a experiência da alta administração tem um impacto significativo e consistente na avaliação de uma startup no Brasil.

Palavras-chave: Capital de risco; Avaliação de startups; Histórico do fundador; Fronteira da experiência.

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1 INTRODUCTION

The Brazilian startup market is in the spotlight after the Nubank phenomenon. According to Nubank's press release, the Brazilian fintech was evaluated in USD 10.4 billion in June 2019 by Technology Crossover Ventures Fund in its seventh investment round. It is relevant to mention that 15 months earlier, the company had been evaluated in USD 1 billion, and after this brief period, its value increased by ten times.

The principal goal of this work is to debate whether the founders' track record could influence the valuation of a startup in Brazil. The idea was extracted from Miloud, Aspelund, and Cabrol's (2012) article and they have found a positive significance between strategic management theories and the valuation of early-stage new ventures in France. Therefore, the idea is to replicate the same methodology to Brazilian startups and founders to verify if we would reach the same outcome.

The analysis was only applied to early-stage companies ("startups") in Brazil, invested by professional venture capitalists through registered private funds in the Brazilian Securities and Exchange Commission ("Comissão de Valores Mobiliários - CVM") with public data and information. It was analyzed 59 VC deals between 2013 and 2018 and 120 founders' profiles of 31 seed money funds.

The valuation of early-stage companies is not a simple task. According to Brealey, Myers, and Allen (2007), several uncertainties are involved in the equation: (i) the financial performance - if applicable, in some cases the numbers are negative, (ii) the business model, (iii) innovative idea/intellectual property, (iv) founder's track record, or (v) simple difference perspective of risk.

But why is this subject relevant? According to Baeyens, Vanacker, and Manigart (2006), the enterprise value is one of the most critical points for a successful transaction, and also for venture capitalists, the entrance valuation needs to be accurate because their bonus and their market sustainability are directly linked with the funds' performance. The financial tools to evaluate a company, such as discounted cash flow and multiple analysis, are well applicable for mature companies with a predictable cash flow, but these tools have been demonstrated to be outdated and inflexible to extract the intangible value of an idea or the founder.

According to the report of the Performance of Private Equity ("PE") and Venture Capital ("VC"), Industry in Brazil elaborated by Insuper, Spectra, and ABVCAP (Minardi et al., 2018), the Multiple on Invested Capital ("MOIC") from 1994 to 2018 in USD, a proxy of return for global investors, of the Private Equity, is 17% higher than Venture Capital Deal (2.7x vs. 2.3x). Conceptually, the expected return for a VC investment should be higher than a Private Equity deal. So, if this hypothesis is correct, why is the VC's MOIC lower than the PE's MOIC?

Although there is no evidence about this difference, one of the answers could be the political and economic turmoil that Brazil suffered in the last years, another one could be that the market is still incipient and we do not have enough market information to compare the output of the report, or finally that the venture capitalists are paying too much for a startup and making bad deals.

In the case of Nubank, the fact mentioned above could have impacted their success. However, in addition to that, all of the founders (David Vélez, Edward Wible, and Cristina Junqueira) have a strong professional background in the financial and consulting sector, such as Itaú Unibanco, Sequoia Capital, Boston Consulting Group, among others.

As mentioned by Miloud, Aspelund, and Cabrol (2012), the main goal of the methodology applied in this article is not to establish a universal tool but could be a first step to an alternative route for startup valuation based on strategic analyses rather than financial numbers. The following sections are divided into five topics: (i) Theoretical Framework; (ii) Methodology and data; (iii) Results and discussion; and (iv) Conclusion.

2 THEORETICAL FRAMEWORK

Startups are extremely important to create new markets segments, encourage innovation, and competition between peers, and disruption ideas (Jovanovic, 1982; Parker, 2005; Shane, 2000). The market dynamics itself increase the entrepreneur's spirit for innovation and further developments. To survive, traditional companies need to keep up with investments to maintain their market shares (Aghion & Howitt, 1992; Klepper, Klepper, & Steven, 1996; Peretto, 1998; Segerstrom, 1991). Thus, creating a circle of economic and innovation growth.

However, there are several barriers for small entrepreneurs to have access to competitive capital to finance early-stage companies (Lerm, Rollberg, & Kurz, 2012). Traditional banks, and especially in Brazil, do not have the long-term risk profile necessary to finance a startup business, and privacy guarantees are not enough for bank loans collateral.

The venture capitalist fulfills this void with private capital but does not think venture money has a long-term profile. The main idea is to structure the startup and reach enough size to sell it to a corporation or private equity (Zider, 2000). According to Emott (2011), first stage VCs target their return 10 times as much as their investment in 3 years.

The typical investor in Venture Capital Funds is pension funds, financial firms, insurance companies, and university endowments (Zider, 2000), who invests only a small part of their capital in high-risk investments. As mentioned by Emott (2011) and (Zider, 2000), these investors are seeking an IRR between 25% and 35% per year over the lifetime of the investment.

Ventures capitalists must find an equilibrium between maximizing the percentage of equity in the exchange of the capital needed and reaching an agreement with the startup shareholder. According to Clercq, Fried, Lehtonen, and Sapienza (2006), and Zacharakis, Erikson, and Bradley (2010), the acceptance on valuation and general terms of the transaction aligns expectations between the founder and venture capitalists, which decreases the potential conflict between the parties.

According to Gornall and Strebulaev (2018), the valuation of a startup is still a black box. The first problem is the difficulty of valuing high-growth companies, and the second is caused by the complexity of the equity structure. In the current study, the second point was not considered since 90% of the sample are not sophisticated shares (ON, PN, and Series A).

There are at least 4 methodologies to evaluate a startup (McClure, 2019). The first is the cost-to-duplicate that involves calculating how much it would cost to build it from scratch. The second is the market multiple, based on previous comparable transactions. The third one is the famous discounted cash flow, which brings the future cash generation of the startup to present value by a discount rate. And finally, the Valuation by Stage, often used by angel investors and venture capital firms to rapidly come up with a rough-and-ready range of company values. Such “rule of thumb” values are typically set by investors depending on the venture’s stage of commercial development:

Table 1 - Valuation-by-stage model.

Estimated Company Value	Stage of Development
\$250,000 - \$500,000	Has an exciting business idea or business plan
\$500,000 - \$1 million	Has a strong management team in place to execute the plan
\$1 million – \$2 million	Has a final product or technology prototype
\$2 million – \$5 million	Has strategic alliances or partners, or signs of a customer base
\$5 million and up	Has clear signs of revenue growth and obvious pathway to profitability

Source: McClure (2019).

According to Gornall and Strebulaev (2018), the main valuation metric used in the VC industry is the post-money valuation. This value is calculated by multiplying the per-share price of the most recent round by the fully diluted number of common shares (with convertible preferred shares and both issued and unissued stock options counted based on the number of common shares they convert into).

In this article, due to the limitation of financial and operational information about startups, we have used the Gornall and Strebulaev (2018) approach combined with the public information available on the CVM website. Please, see below the equation used to calculate the Valuation of the startup:

$$PostMoneyValuation_i = \frac{CapitalRaised}{\%shareacquired}$$

Note: We are considering zero debt in the startup, so the enterprise value is equal to the equity value.

For example, Quero Quitar, a Brazilian platform to negotiate overdue debts, received from Brasil Aceleradora De Start-Ups Fundo de Investimento em Participações Capital Semente (19.250.736/0001-46) the total amount of BRL 1 million for 12% of its shares. So, with our model, the post-money valuation is 1,000 / 12% = 8,333.

Setting an indicative price is just the first step to making a deal in this industry; the other challenge is to invest in the right entrepreneur. According to venture experts, investors should bet on the jockey and not on the horse (Macmillan, Siegel, & Narasimha, 1985).

According to Siegel, Siegel, and MacMillan (1993), the choice of skilled jockeys can be highly subjective and challenging, but numerous studies show that a combination of industry, technical management, startup experiences are very important criteria in funding decisions (1990).

Siegel, Siegel, and MacMillan (1993) find that the number of years the founder has worked in a similar industry is significantly and positively related to sales growth, consequently its intrinsic value. Gimeno, Folta, and Cooper (1997) have also concluded that growth firms tend to be led by entrepreneurs who began their ventures based on ideas developed in their previous jobs. They also find that experiences in top management and supervisory positions are significantly and positively related to return of investment.

The leadership potential of the management team and entrepreneur is the key decision criteria of venture capitalists in Europe, surpassing the traditional criterion: financial, product-market, investor rational, among others (Muzyka, Birley, & Leleux, 1996).

To confirm the relation above-mentioned, Miloud, Aspelund, and Cabrol (2012) have analyzed 184 rounds of early-stage venture capital investments in 102 new ventures in France to check the correlation between the valuation

of a startup and the founder's track record. The authors conclude the attractiveness of the industry, the quality of the founder and top management team, as well as external relationships of a new venture affecting significantly and positively the valuation of a startup.

Moreover, in the authors' views, the methodology applied in their article holds some promise to explore complementary valuation methods for new ventures, especially when valuation approaches are not reliable due to the lack of financial information.

In the next section, we will explain the step-by-step of the procedure to replicate Miloud, Aspelund, and Cabrol (2012) study for Brazilian startups.

3 METHODOLOGY AND DATA

Based on public information available only from 2013, the empirical final database consists of 59 VC deals invested by 7 VC funds in Brazil between 2013 and 2018. We have applied the Generalized Least Square (GLS) model to estimate the significance of the track record of the founder in the valuation of the startup in Brazil and compare the results obtained by Miloud, Aspelund, and Cabrol (2012).

It is relevant to highlight that; the Brazilian venture capital market is still under development. So, most of the transaction information is still private. Therefore, the main limitation of this article is the size of the sample. The database for the analysis was compiled following the steps below.

In the first step, we have reviewed 993 funds in the CVM Fund List with the terminology "seed" in the fund's name (e.g. Fundo de Investimento em Participações Capital Semente Criatec II); or with historical investments in startups, such as Astella Journey III - Fundo de Investimento em Participações Multiestrategia.

After this phase, we selected 31 funds to run a deep analysis of their public information on the CVM website. As mentioned above, only 7 funds had full disclosed information regarding their investments, such as capital invested, percentage acquired, date of the transaction, among others. The final sample consisted of 59 transactions of several sectors with a valuation range between BRL 4 million and BRL 85 million.

Unlike Miloud, Aspelund, and Cabrol (2012), we have followed Gornall and Strebulaev's (2018) methodology for post-money valuation. In our view, although it is a small change in the dependent variable, the result for the Brazilian market is slightly better with this approach.

Table 2 - Average Capital Invested by fund (No of deals)

Value in BRL 000	CRIATEC 2	ASTELLA 3	CRIATEC 3	BRASIL ACELERA	SUL INOVAÇÃO	PERFORMA	CVENTURES
App Software	2,583 (13)	5,000 (2)	2,000 (4)	1,605 (2)	2,076 (6)	2,353 (3)	3,300 (12)
Water Utilities	2,450 (1)	-	-	-	-	-	-
Hardware	2,250 (2)	-	1,300 (1)	-	-	-	3,500 (1)
Healthcare Equip.	2,250 (2)	-	-	-	-	-	-
Agro Machinery	2,500 (1)	-	2,000 (1)	-	-	-	-
Packaging	1,500 (1)	-	-	-	-	-	-
Consumer Finance	-	3,661 (2)	-	1,000 (1)	-	-	-
Logistics	-	-	-	-	-	2,100 (1)	-
Internet Retail	-	-	-	-	-	2,000 (1)	-
Services	-	-	-	-	-	-	3,200 (1)
Biotechnology	-	-	-	-	-	-	4,000 (1)
Total Invest.	49,035 (20)	17,322 (4)	11,300 (6)	4,209 (3)	12,458 (6)	11,160 (5)	50,300 (15)

Source: CVM website

For the next step, we analyzed the founders through the Brazilian Fiscal Authority website (Brazilian IRS - Internal Revenue Service) combined with the quantity of the national registry of legal entities (CNPJ). It is relevant to mention that most of the startups analyzed are closely held corporations. Therefore, they must have at least two partners. During the data analysis, we only considered the hands-on founders. So, although they have two partners, only one was considered in some cases.

The principal source of data information about the founders was from LinkedIn. The platform has 630 million registered members in 200 countries, and it is used for professional networking and connecting job opportunity with job seekers. Unlike Miloud, Aspelund, and Cabrol (2012), that in their analysis they decided to use a dummy variable due to information limitation we have examined 120 CVs of startups founders to verify their industry experience and their top management (Director and C-Level) experience before the capital raise.

Following Miloud, Aspelund, and Cabrol (2012) steps, we have also compiled the founders' previous experiences with startups, whether they are solo or team founders, their network size based on the number of founders, the firms' age previous to the transaction, and the company is a dotcom company.

Table 3 - Average year of experiences prior to the capital raise (No of founders)

Value in years	Industry Experience	Top Management Experience
App Software (89)	14	9
Water Utilities (1)	9	9
Hardware (5)	14	9
Healthcare Equip. (4)	8	7
Agro Machinery (3)	8	7
Packaging (2)	14	11
Consumer Finance (6)	21	11
Logistics (3)	12	2
Internet Retail (2)	9	9
Services (2)	13	6
Biotechnology (3)	10	10
Average (120)	13	9

Source: LinkedIn.

For the control variable, we used the Capital IQ database, the research division of Standard and Poor's, and Ideadata. The industry growth variable measured as the percentage change of the revenue of exclusively Brazilian companies, Return of the Equity (ROE) calculated by dividing net income by the equity of each company in the sector available in the Capital IQ database, industry size computed by the sum of all revenues of the industry in the transaction year, and the Ibovespa Index was used as reference.

Table 4 - Summary of variables and measurements

Variable	Sign	Measurement
Post-money valuation	Dependent variable	ln (Capital Raised / % share acquired)
Industry growth (x_1)	+	Industry Revenue T / Industry Revenue T - 1
Founder's Industrial Experience (x_2)	+	The sum of years the founder(s) worked in the same industry
Top Management Experience (x_3)	+	The sum of number of years founder(s) worked in top management positions
Startup experience (x_4)	+	Dummy variable, with '1' indicating 'have' and '0' 'no'
Solo vs Team Founders (x_5)	+	Dummy variable, with '1' indicating founded by a team; '0' otherwise
Network Size (x_6)	+	The direct count of the number of partners
Industry Size (x_7)	+	Industry Revenue T
Return on Equity (x_8)	+	ROE of the industry
Stock Index (x_9)	+	The close points of the Ibovespa index at the financing month
Firm age (x_{10})	+	The time difference between founding date and financing date, in unit of 'year'
Dotcom (x_{11})	+	Dummy variable coded '1' for pure Internet business, '0' otherwise

Note: ln = logarithm neperian.

Due to information limitation, we excluded three variables: (i) Advertising intensity, (ii) Team completeness, (iii) Firm stage. Unfortunately, there is no information regarding the advertising expenditure per company due to different organizational structures, it was not able to provide an assertive analysis on this variable, and all the startup analyzed was in the seed stage, so there was no reason to add it.

Table 5 reports the mean, median, standard deviations, and minimum and maximum of all variables used in the model. The average valuation of the startups is around BRL 15 million, and the average capital invested is BRL 2.6 million; therefore, venture capitalists seek a range of 15% to 20% of a startup's shares.

Table 5 - Descriptive statistics

Variable	Mean	Median	SD	Min	Max
Post-money valuation	9.37	9.25	0.65	8.29	11.35
Industry growth (x_1)	0.23	0.18	0.19	-0.07	0.80
Founder' Industrial Experience (x_2)	27.78	24.00	17.93	7.00	92.00
Top Management Experience (x_3)	18.37	16.00	13.49	2.00	92.00
Startup experience (x_4)	0.49	0.00	0.50	0.00	1.00
Solo vs Team Founders (x_5)	0.69	1.00	0.46	0.00	1.00
Network Size (x_6)	2.15	2.00	1.01	1.00	4.00
Industry Size (x_7)	12,474.14	2,211.90	62,883.73	0.00	483,490.47
Return on Equity (x_8)	0.15	0.19	0.29	-0.98	1.71
Stock Index (x_9)	57,699.02	51,239.00	15,062.64	40,405.00	87,887.00
Firm age (x_{10})	6.66	5.00	6.20	0.00	33.00
Dotcom (x_{11})	0.78	1.00	0.42	0.00	1.00

Note: For further information regarding the variable, please see Table 4.

Team founders are higher than solo founders, the average experience of 13 years per founder, and a firm age of 5 years shows that the startup business in Brazil is run by entrepreneurs with more experience.

Most likely, the absence of VC investors in the Brazilian Market creates a highly competitive investment environment for money. Therefore, firms with a business model already tested and a more assertive revenue pipeline are chosen instead of young startups.

Miloud, Aspelund, and Cabrol (2012) have tested the Ordinary Least Square (OLS) model but, due to the heteroscedasticity problem identified through the Modified Wald Test, they used the Generalized Least Square (GLS) to work on this problem ("Standard Model").

Using logarithm neperian in the dependent variable is also relevant to correct distortions when you have large data and different orders of magnitude. It reduces heteroscedasticity and asymmetry problems, as well as a linearization of relationships between measures at different scales of nature.

Despite the limitation of the sample and the information in Brazil, in our analysis, we wanted to compare the result of their analysis having our database as described in the previous section, and in doing so, we processed it in the RStudio software.

In the first round, we have run the suggested model of Miloud, Aspelund, and Cabrol (2012), as described in Table 4, but the best result was obtained when we used the dummy variable ("Dummy Model") for the Founder Industrial Experience (x_2) and Top Management Experience (x_3) capped in their median (Dummy variable, with '1' indicating 'having more years of experience than the median' and '0' for otherwise). In the next section, we will display the results discovered and run some sensibilities tests to understand the significance frontier of the top management experience.

4 RESULTS AND DISCUSSION

The result shows a positive significance at 10% level of the top management experience (Table 6) for the standard model. Unfortunately, the other variables were not considered as significant for the Brazilian Market.

Table 6 - GLS Model Results

Variable	Standard Model	Dummy Model1
Intercept	8.86***	8.88***
Industry growth (x_1)	0.00	0.13
Founder's Industrial Experience (x_2) ¹	0.01	0.02
Top Management Experience (x_3) ¹	0.01	0.37*
Startup experience (x_4)	-0.20	-0.22
Solo vs Team Founders (x_5)	-0.01	-0.03
Network Size (x_6)	-0.04	0.03
Industry Size (x_7)	0.00	0.00

Note: 1. Dummy variable in the x_2 and x_3 capped in the median. **** 0.01 *** 0.05 ** 0.1.

Table 6 - GLS Model Results (continuation)

Variable	Standard Model	Dummy Model1
Return on Equity (x_8)	0.29	0.30
Stock Index (x_9)	0.00	0.00
Firm age (x_{10})	-0.01	0.00
Dotcom (x_{11})	0.19	0.21

Note: 1. Dummy variable in the x2 and x3 capped in the median. **** 0.01 *** 0.05 ** 0.1.

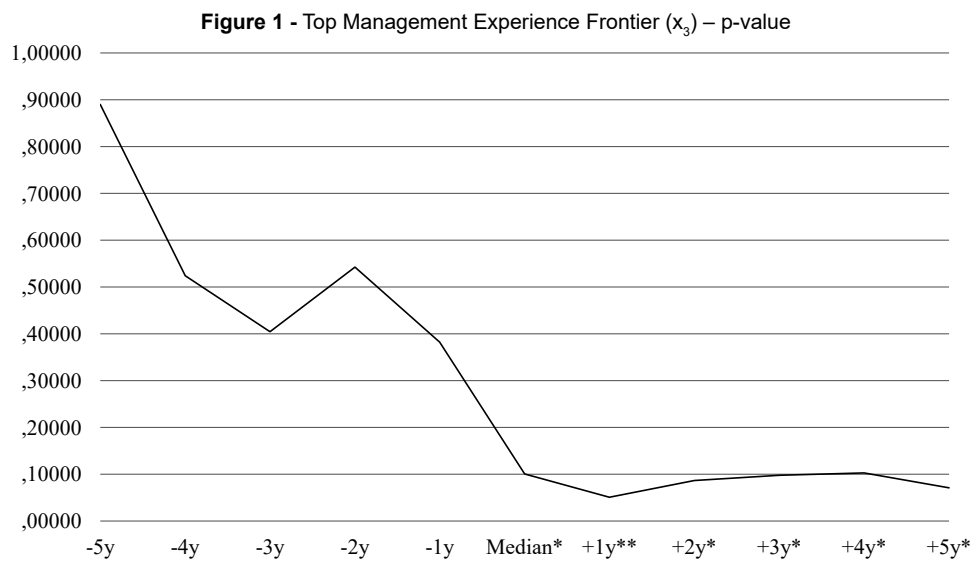
The overall outcome was very far from Miloud, Aspelund, and Cabrol's (2012) discovery. Since the beginning of the gathering data process, we knew that the limitation of information could be a risk of not finding a comparable result.

The lack of public information is a Brazilian problem, and it is not exclusive to the startup industry. The majority of transaction data is very poor, and the information available is only accessible in a private database.

Although it is a clear limitation for our analysis, we want to take a step further and understand when the investors start pricing the top management experience. To do such a thing, we used the same GLS model and database and added and decreased 1 year per time in the dummy variables to a limit of 5 years.

The main discovery is that the top management experience only has significance after the median. When we decided to add a dummy in our model, we did know that the median was the specific breakeven point for significance.

Also, it is relevant to highlight that in the 17th year (median +1y), the top management experience reached significance at 5%. To illustrate the result, we have prepared the Top Management Experience Frontier based on the p-value for each point in the time (Figure 1):



Note. **** 0.01 *** 0.05 ** 0.1.

5 CONCLUSIONS

Based on the idea that investors should bet on the jockey and not on the horse (Tyebee and Bruno 1981; MacMillan et al. 1985), we have analyzed 130 founders of 59 startup deals in Brazil in the last 5 years with public data to discover if the founders' previous experiences leverage the valuation of an early-stage company.

The main limitation of the study was in the size of the sample due to the absence of public information of the deals and about startups. It is not an exclusive problem of the startup market. The access to transaction information in Brazil is generally vastly poor. In our sample, we found statistical significance for the top management experience of the founder. It is relevant to mention that the Brazilian startup market is starting to grow, and we envision a vast potential.

Another important finding in our study was that venture capitalist only price the significance of the top management experience after the median. To show this, we have elaborated the Top Management Experience Frontier (Figure 1). Thus, the analysis of the founder's background could be an important factor to consider, at least in a quality measure, when VC makes an investments decision.

Although we did not reach the same level of significance as Miloud, Aspelund, and Cabrol's (2012) study, we would like to suggest a further investigation of the use of private data to expand the sample combined with

questionnaires methodologies to gather the maximum of accurate information related to founders. We hope this paper stimulates other academics to research further the startup market in Brazil: its relevance is unquestionable.

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