

A Comparative View on Venture Capital Funding in the US and the EU

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Abstract

It is accepted worldwide that entrepreneurial activity is the engine of all economies. Most of the useful things and technologies that we take for granted today come from the ideas of visionary entrepreneurs. In the US the entrepreneurship sector has a long tradition, boosted by the large venture capital available. At the EU level, there is now a constant objective to catch with the US ecosystem.

The objective of this paper is to compare the two ecosystems through a set of secondary data. We will propose a regression model that demonstrates the link between the US and the EU in terms of venture capital funding. The conclusion of the research states that, while the EU ecosystem grew significantly in the last period, the superiority of the US ecosystem is still evident.

Keywords: *entrepreneurship, venture capital, comparison, regression model, innovation, growth.*

JEL classification: G23, G28, M13, O31.

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1. Introduction

Entrepreneurship is the engine of the world economy. Each large company started small through the courage of one or more people who dare to dream and implement new ideas. Through this cycle, the development of society and individuals was continuously fueled. Moreover, various studies (Sorheim, 2005) have shown that new projects are the largest creators of new jobs in the US and Europe.

Access to finance is critical for an entrepreneur at the beginning of the road. But equally important is choosing the right partner. The bona fide collaboration between the entrepreneur and investors can create successful companies that take innovation to a new level.

The article presents a literature review where we have highlighted the main principles surrounding the venture capital industry and especially how a fund is organized. Also, we will briefly point out the main differences between the US and the EU ecosystems. For a deeper understanding of the two ecosystems, we will use a set of secondary data that will form the basis of the results and discussions section.

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2. Literature review and overview of the problem

Many entrepreneurs do not have the necessary funds to develop their business, so they must look for external sources. Given that they are in the early stages of their activity, they cannot go to banks or other financial institutions for loans. Instead, they provide equity (a part of the company) in exchange for cash and other benefits.

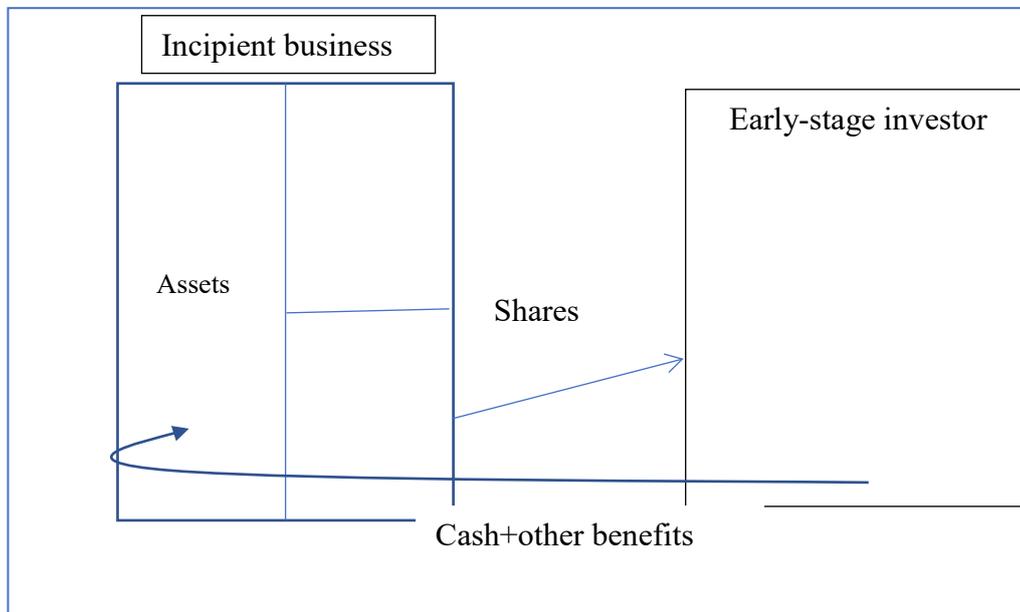


Figure 1. Typical funding process of a tech start-up

Source: adapted from SDA Bocconi School of Management, *Venture Capital and Private Equity*, 2018

By combining several parameters, such as lifespan, valuation, and sales/profits of a company, the financing of a company goes through several stages, according to European Business Angels Network (EBAN), the largest European network of business angels. The terms are quite approximate and descriptive and should be viewed in the specific context of each ecosystem.

- *Pre-seed* – the first investment, has the role of forming the team and starting work on the product. The financing comes from the own funds of the founders, family, and friends, but also from the business angels and active funds at this stage.
- *Seed* – strengthens the pre-seed investment, the company already has several paying customers and a minimum viable product. In this case, financing is provided by professional investors.
- *Serie A* – the product and the team are mature, the business model is tested and verified in the market, the monetization of the product is implemented and brings revenue with a good evolution, and the business has constant customers in several

markets. Series A financing comes from professional investors with higher expectations, who are usually based outside the home country.

- *Series B, C, D, E, etc.* – successive stages of investment until the sale of the company or the public listing on a stock exchange (IPO). The funds raised are usually used for business expansion, including in other markets, developing the clientele by increasing the production capacity and/or implementing new sales and marketing strategies, creating new products, and strengthening the team. The start-up turns into a scale-up and eventually becomes a classic company.

In all the stages presented above, the Venture Capital Fund (VC) is the essential actor that is contributing to start-up success. VCs are professional companies, managed by a team of General Partners (GP), who are involved full-time in the activity. GPs contribute with a small amount of money to the fund, but usually they raise money from limited partners (LP). The LPs are high-net worth individuals, pension and other funds, or even public institutions, who can deploy capital and diversify their portfolio (Andrieu and Stagliano, 2016). The same authors maintain that “venture capitalists are sophisticated investors with high expertise and broad knowledge on how to develop innovative startups”.

Kollmann, Kuckertz and Middelberg (2014) identified few criteria which contribute to a successful raise of funds from LPs by GPs. Among these, we can mention track record, level of trust, perceived controllability, previous collaboration, level of similarity, and level of openness. Very schematic, the structure of a VC is presented in Figure 2.

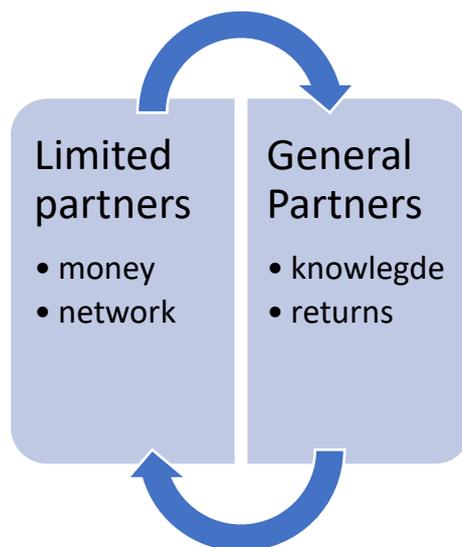


Figure 2. Structure of a Venture Capital Fund

According to Groh and Wallmeroth (2016), venture capital funds are active investors monitoring and influencing the strategic decisions of the company in which they invest. Very often, they are present on the board of directors, which gives them

partial control over the company. However, per Schertler and Tykvova (2012) their presence in the company is limited in time and as participation. In most cases, a VC holds no more than 20% of the company's equity – enough to have an important voice, but also minimizing the risks of losing the money invested in the event of a failure. More importantly, however, is the role of VC in fostering innovation (Faria and Barbosa, 2013) and supporting the creation of innovative start-up firms.

The concept of the VC originated in the United States in the late 70s and still today the US is the most important market (Block et al., 2019). The industry is structured into several hubs, with Silicon Valley becoming the most famous and aspirational for every entrepreneur in the world.

Europe has somehow lagged and the industry has developed properly in the last decade. While private investors also contributed to this phenomenon, peculiar to Europe is the involvement of public funds, especially in EU countries. This involvement is done through a dedicated vehicle called the European Investment Fund (EIF). The EIF is defined as “a specialized provider of risk finance for the benefit of small and medium-sized enterprises (SMEs) across Europe”.

The EIF is currently also involved in venture capital financing through direct participation in several funds. Very recently, EIF and the Government of Romania launched a dedicated program, called Romania Recovery Equity Fund of Funds (REF). As the name suggests, REF is not involved directly in start-ups, but “invests into underlying funds managed by financial intermediaries (fund managers) that are selected according to the EIF’s standard procedures” (according to https://www.eif.org/what_we_do/resources/rrf-romania/index.htm).

Other initiatives like this one are active in all the EU countries, with the same objective to accelerate the growth of the European ecosystem and close, as possible, to the US ecosystem.

3. Methodology

The analysis will be done using a secondary dataset developed by a reputable global research organization called CB Insights (<https://www.cbinsights.com/>). This institute specializes in the field of tech start-ups, and, having access to an impressive database, produces global, regional, and sectoral reports, statistics, and analysis. For this paper, we will use the year-end report 2021 that presents a comprehensive analysis of the state of the ecosystem at global, regional, and sectoral level. The tabular dataset attached to the report contains historical series from 2015 to 2021; in some cases, these data are also presented at the quarter level, which allowed complex statistical analysis to be carried out. The data set is set out in Annex 1.

4. Results and discussions

As was pointed out in the literature review, the tech start-up sector has also experienced accelerated development at EU level. This has been boosted both by the new generation of entrepreneurs and, above all, by dedicated public policies and

funds. Basically, at the EU level, the strategy is for the ecosystem to catch up with the maturity and sophistication of the US ecosystem. For this reason, our analysis will take the American ecosystem as a reference, without going into details.

To analyze trends in the EU, we introduce the following variables:

- The total amount of EU-wide funding in billion USD (*EU Funding* variable);
- Total number of transactions concluded in the EU (*EU Deals* variable);
- Total number of sales/exits from founders' companies in the EU (*EU Exits* variable);
- Total value of US-wide financing in usd billions (*US Funding* variable);
- Total number of transactions concluded in the US (*US Deals* variable);
- Total number of sales/outflows from founders' companies in the US (*US Exits* variable);

The absolute figures show a clear superiority of the US ecosystem over the EU ecosystem, reflected in all three variables analyzed – *Funding, Deals, and Exits*. Although in the reference period both ecosystems grew strongly, the gap between them remained relatively constant. The maturity of the American ecosystem is also clear if we compare the average value of a transaction, according to Figure 3.

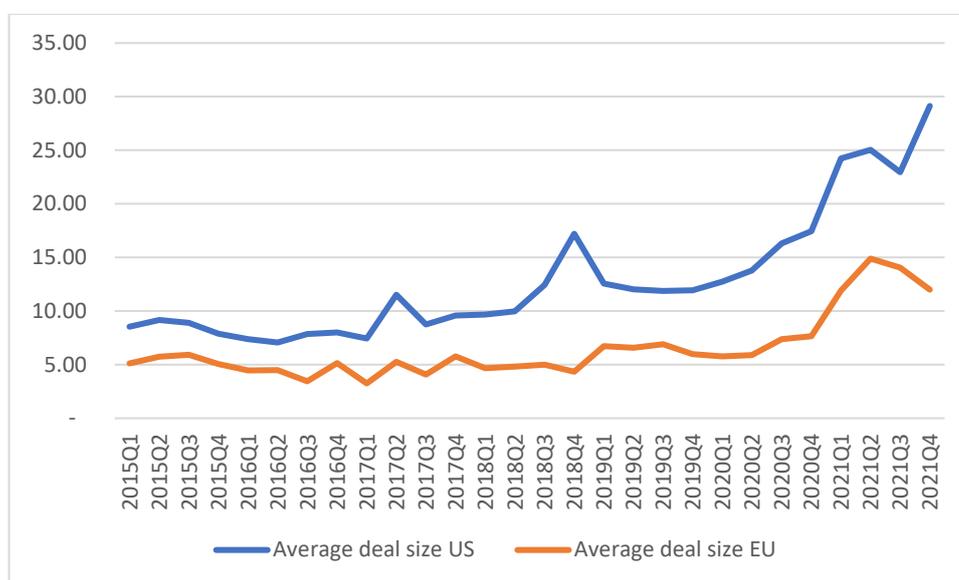


Figure 3. Average value of a transaction in the US vs. the EU

As said above, the American ecosystem serves as a model for the European ecosystem. In practice, many investors in the US have also started to be active in the EU. Using the Eviews 12 program, we can also highlight the statistical link between the two ecosystems, taking as references the value of funding. The unifactorial regression model is shown in Figure 4.

Dependent Variable: EU_FUNDING
 Method: Quantile Regression (Median)
 Date: 03/23/22 Time: 18:13
 Sample: 2015Q1 2021Q4
 Included observations: 28
 Bootstrap Standard Errors & Covariance
 Bootstrap method: XY-pair, reps=10000, rng=kn, seed=241320654
 Sparsity method: Kernel (Epanechnikov) using residuals
 Bandwidth method: Hall-Sheather, bw=0.31995
 Estimation successfully identifies unique optimal solution

Variable	Coefficient	Std. Error	t-Statistic	Prob.
US_FUNDING	0.303730	0.042955	7.070826	0.0000
C	-1391.149	1154.368	-1.205118	0.2390
Pseudo R-squared	0.635556	Mean dependent var		9427.111
Adjusted R-squared	0.621539	S.D. dependent var		6254.586
S.E. of regression	2353.345	Objective		20120.95
Quantile dependent var	7160.450	Restr. objective		55210.03
Sparsity	5100.568	Quasi-LR statistic		55.03556
Prob(Quasi-LR stat)	0.000000			

Figure 4. Unifactorial regression model

The data presented in Figure 5 confirms the hypothesis presented above and can therefore conclude that the *EU Funding* variable is dependent on the *US Funding* variable. The regression equation is written as follows:

Equation 1

$$\text{EU Funding} = 0.303729603636 * \text{US Funding} - 1391.14915013$$

However, given the R-squared value of around 0.63, there is an indication that there are other factors explaining the *EU Funding*. In reviewing the literature, we have shown a phenomenon specific to Europe, the involvement of public funds in the financing of technology start-ups. We are talking about a focused and concerted approach at EU level, through dedicated institutions such as the European Investment Fund (EIF), which have changed the paradigm of industry at European level.

5. Conclusions

The venture capital industry is constantly increasing, both at the US and European levels, in all segments and verticals. The tech sector is booming all over the world, as these start-ups are solving real problems with the help of technology.

At the EU level, the ecosystem is intended to catch up with the maturity and sophistication of the US ecosystem. Even if, now, the superiority of the American ecosystem is obvious, at European level efforts are being made, including through public

funds, to reduce this gap. The link between the two ecosystems was analyzed through various comparisons and with the help of a unifactorial regression model.

As in every research, this paper has its own limitations. The view on both ecosystems is at a very high level, without entering into details per state or vertical. We intend to continue the research by focusing on specific details to better understand the difference between the two ecosystems.

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Annex 1

Secondary dataset developed by CB Insights (<https://www.cbinsights.com/>)

Time	Funding	Deals	New Unicorns	Total Unicorns	Exits	US Funding	US Deals	US Exits	EU Funding	EU Deals	EU Exits	Fintech Funding	Fintech Deals	Retail Tech Funding	Retail Tech Deals
2015Q1	\$37,1B	4,982	24	111	5.117	\$21,3B	2,492	714	\$4,4B	851	330	\$3,9B	443	\$9,1B	657
2015Q2	\$44,8B	5,171	31	140	5.342	\$24,3B	2,646	758	\$4,6B	796	331	\$6,3B	503	\$7,7B	704
2015Q3	\$48,3B	5,390	34	171	5.595	\$23,4B	2,621	714	\$5,2B	875	321	\$7,8B	545	\$10,6B	784
2015Q4	\$41,2B	5,241	12	176	5.429	\$19,2B	2,425	621	\$4,6B	917	299	\$4,0B	506	\$8,5B	744
2016Q1	\$40,4B	5,882	10	183	6.075	\$19,6B	2,658	683	\$4,5B	1,010	306	\$4,7B	642	\$6,7B	793
2016Q2	\$39,1B	5,332	14	191	5.537	\$17,0B	2,403	651	\$4,7B	1,054	323	\$9,4B	558	\$4,0B	727
2016Q3	\$38,5B	5,624	13	199	5.836	\$19,1B	2,433	596	\$3,9B	1,145	406	\$5,7B	566	\$7,1B	746
2016Q4	\$39,6B	5,447	10	204	5.661	\$17,5B	2,190	621	\$6,2B	1,204	382	\$3,7B	550	\$8,1B	667
2017Q1	\$42,0B	6,538	13	211	6.762	\$19,8B	2,665	795	\$5,1B	1,573	472	\$5,0B	729	\$7,3B	792
2017Q2	\$55,9B	6,307	23	229	6.559	\$29,9B	2,596	708	\$7,1B	1,357	519	\$7,7B	708	\$14,8B	812
2017Q3	\$58,0B	6,672	19	243	6.934	\$23,7B	2,707	749	\$5,8B	1,425	488	\$8,8B	736	\$11,1B	864
2017Q4	\$58,3B	6,770	29	263	7.062	\$24,5B	2,559	772	\$8,6B	1,496	498	\$7,4B	728	\$10,7B	860
2018Q1	\$57,3B	7,184	25	283	7.492	\$26,7B	2,753	800	\$7,2B	1,533	496	\$8,6B	886	\$14,4B	878

Time	Funding	Deals	New Unicorns	Total Unicorns	Exits	US Funding	US Deals	US Exits	EU Funding	EU Deals	EU Exits	Fintech Funding	Fintech Deals	Retail Tech Funding	Retail Tech Deals
2018Q2	\$83,8B	7,777	35	301	8,113	\$29,0B	2,909	793	\$7,2B	1,488	620	\$24,2B	888	\$12,6B	998
2018Q3	\$70,2B	7,710	51	339	8,100	\$34,9B	2,807	790	\$7,0B	1,396	503	\$10,8B	926	\$12,2B	954
2018Q4	\$78,8B	6,822	46	378	7,246	\$43,7B	2,542	867	\$6,4B	1,471	600	\$9,7B	840	\$14,2B	773
2019Q1	\$69,3B	7,226	37	410	7,673	\$34,0B	2,712	873	\$10,7B	1,596	641	\$12,9B	940	\$17,6B	828
2019Q2	\$65,4B	7,106	45	440	7,591	\$33,5B	2,783	833	\$10,3B	1,568	601	\$11,4B	848	\$12,1B	884
2019Q3	\$65,9B	7,229	40	469	7,738	\$33,4B	2,815	832	\$9,7B	1,404	545	\$11,5B	932	\$11,1B	887
2019Q4	\$57,9B	6,770	31	492	7,293	\$28,2B	2,362	864	\$8,9B	1,483	631	\$11,8B	822	\$8,8B	845
2020Q1	\$59,6B	6,337	24	507	6,868	\$32,5B	2,550	786	\$8,2B	1,411	516	\$11,4B	857	\$8,9B	806
2020Q2	\$58,2B	6,164	26	524	6,714	\$31,5B	2,282	580	\$8,3B	1,398	490	\$11,9B	775	\$9,1B	732
2020Q3	\$81,3B	6,931	37	538	7,506	\$41,6B	2,550	764	\$10,3B	1,392	605	\$12,9B	853	\$11,1B	807
2020Q4	\$94,6B	7,068	47	569	7,684	\$45,2B	2,591	1,011	\$11,8B	1,545	848	\$12,7B	1,006	\$17,9B	869
2021Q1	\$132,8B	7,802	112	657	8,571	\$71,0B	2,933	1,217	\$20,2B	1,694	911	\$27,2B	1,183	\$25,0B	932
2021Q2	\$150,9B	8,169	142	754	9,065	\$71,6B	2,861	1,200	\$27,9B	1,876	996	\$36,6B	1,224	\$30,1B	1,019
2021Q3	\$160,7B	9,599	132	856	10,587	\$75,7B	3,300	1,251	\$23,0B	1,640	941	\$32,7B	1,306	\$27,4B	1,059
2021Q4	\$176,4B	9,077	131	959	10,167	\$92,8B	3,187	1,290	\$22,1B	1,841	1,049	\$34,9B	1,256	\$26,6B	1,018

Source: CB Insights (2022), State Of Venture 2021 Report, available at State Of Venture 2021 Report - CB Insights Research, accessed on (20 January 2022)