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Valuation of Unicorn Companies: The Airbnb case

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Introduction

Starting from the 2000s, the Unicorn outbreak has been one of the relevant topic faced in the financial markets.

Unlike the mythological creature, in finance the word Unicorn means a startup whose valuation reaches one billion dollars deciding to not go public.

What has allowed this phenomenon spread so exponentially is partly due to the different attitudes of investors. The reason behind Unicorns capability to reach such conspicuous valuations has to be found in the huge risk capital faced by Venture Capitalist companies and large private investors, in particular the scenario has been transforming over time, changing its actors, involving also investors who traditionally not active on the market aggressive way.

On the other hand, joining the Unicorns club is a great motivational source, whose goal is mainly to achieve this status which is quite rare for a company, especially if it is private. Regarding the Unicorn's status means be part of a selected range of company with some reflection in both financial market and valuation, especially for those developed in few years.

The aim of this dissertation is to provide the fairest value of Airbnb based on the most updated financial data, macroeconomics. In addition, has been carried out a sensitivity analysis including the effect of the pandemic outbreak occurred in March 2020.

Specifically, the main paper aspect is about my own **Financial Valuation model for Airbnb** trying to predict, through consistent assumptions, both with the reference market and with the financial data of the company itself, what its value in terms of Equity Value both before and after the impact of COVID-19.

Furthermore, the paper will be focused on other two important aspects, which analyzed in the 1st and 2nd chapter respectively, better clarifying the rationale behind the Airbnb evaluation.

The first one is to explain the actual transition that these unicorns have had in remaining private companies longer than was done thanks to the support of Private Equity funds through and large the investment capability made in particular through PIPOs (private IPOs) giving the possibility to the specific company to grow in terms of volumes and

investments avoiding the problems of being a public company such as excessive regulation, excessive costs and related risks.
The second aspect analyzed is focuses on the explanation of a possible overvaluation of unicorns made by the market and the reasons why Venture Capital usually tend to overestimate them. From the analysis will emerge that the Unicorns' overvaluation is mainly due to the fact that each Venture Capital does not consider important aspect evaluating a start-up company. One of the most important refers to the non-inclusion of all the preferential claims such as liquidation preferences **(LPs)** or anti-dilution provision in the valuation, therefore giving the same value to both common and preferred shares. As stated by "Gornall and Strebulaev" in a Stanford research, the fair valuation of these companies remains a "**black box**" due to both the difficulty of evaluating companies with high growth rates and the complexity of financial structure.
Also, the paper analyses some aspects trying to find a correlation between the overvaluation of current unicorns and the speculative bubble that occurred in 2000 with Internet Companies (called "Dot Com").

In the third and final chapter, after reporting the financial data, an analysis of Airbnb has been carried out through the different valuation methodologies most commonly used in Investment Banking, more specifically: i) Method of Market multiples and ii) method of Discounted Cash Flow (DCF) with the relative assumptions.
Additional to the base case valuation, different scenario analysis have been investigated, for example, including the strategies implemented and the company capability to face one of the largest crises in modern history such as that caused by COVID-19, as well as its recent delivery of financial data to the SEC (Security Exchange Commission) for its debut in public markets.

Chapter 1: The Change

1.1 IPO's features and birth of Unicorns

Deciding to be listed represents a strategic choice of considerable importance for the future of a company. This decision can modify the founding plan of the company from multiple points of view and can result in both a highly successful operation and a possible destruction of value, if carried out wrongly. [Borsa Italiana S.p.A. (2001)].

The choice of going public is not only the way to find new financing sources, but also other topics should to be analysed. Going Public changes, the balance of the previous managerial structure, as well as the structure owner and at the same time the entire network of relationships previously established with suppliers, customers, employees and. More generally, with the category of stakeholders involved in the company, the decision to go public may suffer sequential turmoil.

An Initial Public Offering ("IPO") is a type of public offering where shares of stock of a company are sold to the market, on a securities exchange, for the first time.

IPO is a common practice used by companies for three main reasons:

- Raise capital expansion ("Primary IPO");
- Monetize the investments of early private investors ("Secondary IPO");
- To become publicly traded enterprises.

Most companies undertaking an IPO do so with the assistance of an investment banking acting role of underwriter. Underwriter services include the share price assessment and the public market establishment for shares through the initial sale.

Doing a more in-depth analysis of the IPO's *pros and cons*, we can say that regarding ***the pros,*** they can be divided by different nature: i) Financials, ii) Company profile and iii) Liquidity deriving from.

1. Financials

Through the action of Going public, companies can access to a wider and more diverse range of capital, offering greater financial flexibility publishing constantly the data relating to the activities carried out and the results achieved thanks to them. Secondly, the capital provided by an IPO increases the equity of a company, facilitating the future financing through debt and shares and exactly for this reason a publicly traded company can raise more capital through additional stock offers

2. *Company profile*

Regarding the company profile an IPO allow to receive a greater visibility and attention from the investment community and greater reputation of the company and therefore consequently have a higher prestige and so-called competitive advantage compared to private competitors.

The company's profile becomes more relevant thanks to an IPO as the same allows the company to develop that ability to attract and retain employees through the application of **equity incentives**, such as stock options.

3. Liquidity

In terms of additional liquidity that can be obtained through this extraordinary finance transaction, we know that the IPO increases the market value of any company and at the same time its valuation thus allowing shareholders to have greater negotiating power with the hypothetical buyers of their shares and thus increase what their interests are. In any operation there are advantages that can be significant or not but at the same time it is important to keep in mind that an IPO also has disadvantages which unfortunately are the cause of delays and indecisions by large companies whether to become public or not.

Regarding ***the cons*** that could derive from an IPO, it is important to focus attention on: i) the obligations concerning it, ii) the loss of share control, iii) the dilution of the same and iv) the higher costs deriving from management and expenses in general.

The ownership of the firm is divided into a specified a number of shares and shareholders who purchase these shares become a partial owner of the business but when a company has an IPO we may see a more shares in the company and this increase the number of shares outstanding and effectively reduces how much each shares represents.

During the IPO process, the board's experience, management team, and professional advisers, as well as readiness to operate as a public company, are the major factors in determining how smoothly will make the transition to operating as a public company.

Management will have to invest time in public relations and in informing the investment community about the company and its recent developments to ensure that investors and analysts remain satisfied with the company's performance.

It's important Implement a strategic operating plan because Going public is, in his essence, a strategic decision.

Another matter that concerns the Regulation of being a public company, is to comply with securities legislation and the rules of applicable stock exchanges. Regulators do focus on the governance of public companies, and their expectations of boards of directors as well as board committees continue to evolve. Public companies must meet extensive continuous disclosure requirements.

Higher disclosure and compliance costs mainly in the United States (ex: Sarbanes-Oxley Act of 2002[1]).

[1] *The Sarbanes-Oxley Act effectively increased the compliance costs of going public and being a reporting public company. Passed in 2002, it may have helped depress the initial public offering market, with only 87 IPOs completed in the US in 2003*

	Model	Effects on the Probability of IPO	Consequences after IPO
Costs of Going Public			
Adverse Selection and Moral Hazard	▸ Leland and Pyle (1977), Chemmanur and Fulghieri (1995)	▼ Smaller and younger companies less likely to go public	▼ Negative relation between operating performance and ownership
Fixed Costs	▸ Ritter (1987)	▼ Smaller companies less likely to go public	
Loss of confidentiality	▸ Campbell (1979), Yosha (1995)	▼ High-tech companies less likely to go public	
Benefits of Going Public			
Overcome Borrowing Constraints		▲ IPO more likely for high-debt/high-investment companies	▲ Deleveraging/high investment
Diversification	▸ Pagano (1993)	▲ Riskier companies more likely to go public	▲ Controlling shareholder decreases his stake
Liquidity	▸ Market microstructure models	▲ Smaller companies less likely to go public	▲ Diffuse stock ownership
Stock Market Monitoring	▸ Holmström an Tirole (1993), Pagano and Röell (1998)	▲ High-investment companies more likely to go public	▲ Large use of stock-based incentive contracts
Enlarge Set of Potential Investors	▸ Merton (1987)		▲ Diffuse stock ownership
Increase Bargaining Power with Banks	▸ Rajan (1992)	▲ IPO more likely for companies paying higher rates	▲ Decrease in borrowing rates
Optimal Way to Transfer Control	▸ Zingales (1995a)		▲ Higher turnover of control
Exploit Mispricing	▸ Ritter (1991)	▲ High market-to-book values in the relevant industry	▲ Underperformance of IPOs; no increase in investments

TABLE 1: Main Academic Theories about the Go Public Decision

Through the explanation of the basic concepts and what an IPO is, the following work tries to highlight what will happen about two years before the Sarbanes Oxley Act of 2002, which, as already mentioned, has increased the costs of listing on the market.

Starting in the 2000s, we began to witness a phenomenon that has significantly changed the way we conceive markets: the first *Unicorns* are born, defined as a company whose capital is equal to or exceeds the $1 billion dollar.

The billion-dollar goal can be considered as a management goal to achieve a status that is somewhat rare for a private company.

Stewart Butterfield himself, founder of a start-up in the technology sector, had said "a billion dollars or nothing". The psychological factor makes a crucial part in this case, pushing the individuals to want more and more for personal fulfilment.

The peculiar characteristic of Unicorns companies is that of being ***private***, a completely distinct scenario from what happened previously that, in order to reach a state of international relevance, it was essential for a company to be listed on the stock exchange through the classic IPO method.

In the case of a Unicorn, the capital is founded through the so-called PIPOs, i.e. private IPOs, which allow the company to remain private longer, avoiding the risks and costs that it could incur if it appeared on the public market.

During the chapter, the contribution of Private Equity investments in spreading this trend highlights the benefits of the governmental structure of a Private Equity company, which will reduce the risks of a typical public company.
Through a ***PIPO*** the company remains private for a longer period of time, thus maintaining the organizational structure of the Private Equity, from which it can benefit. The set of benefits brought by the private market means that the phenomenon has already spread globally.
The following analysis will present the sectors in which the number of Unicorns is greater, as well as the geographical areas in which they are distributed.
Being a recent phenomenon, the analysis will continue focusing on the economic forces that have contributed to the boom of this trend, especially the market demand (investors) and supply (companies).

1.2 Who they are?

The "Unicorn" is a metaphor used to describe those start-ups, extremely innovative especially in technology, whose valuation exceeds $1 billion dollar.

The term is used because the peculiar characteristic of these companies is that of being able to raise capital, so to increase their market value remaining private; very rare event like the mythological creature from which they take their name. The financial market has shown a trend in the way companies raise capital: traditionally start-ups collected private capital from various sources and investors (venture capital, private equity), and then turned to the public market through an IPO in order to raise the funds needed to finance their business in the long term.

The change consists in the process called PIPO, through which companies are able to raise capital that exceeds $1 million without entering into the public market. The milestone of one million dollar does not stop the progress of this trend: financing a

company outside the public market continues even once it reaches the level that can be evaluated as "Unicorn".

For example, UBER, a company that provides an automotive transport service through a mobile application. The company was founded in 2009, and through a series of investments with significant risk of capital, in 2013 reached $1 billion valuation. Despite the "goal" achieved, the management decided not to make the public placement and today it has reached a value of $57 billion.[2]

Most likely, the factors that have the greatest impact on the choice to remain private in the long term, can be linked to the willingness of the companies to avoid those risks that affect the public companies: like oppressive regulatory environments, misaligned incentives between managers and shareholders, which lead to opportunism events and to bear agency costs.

In addition, there is an increasing number of private investors anxious to invest in those start-ups that they believe are promising. This causes the company to accumulate more and more capital, and in the face of such a profitable situation, it will try to remain private for as long as possible.

One reason that prompts private investors to prefer this type of investment is the advantage of receiving preferred shares rather than ordinary ones. Ordinary shares are shares in the capital of a company, which differ from the preferred ones because the latter enjoy pre-emption rights over ordinary shares, as regards the distribution of dividends and the capital liquidation.

Venture capitalists are therefore the best-known figures that spread up the growth of start-ups, but over the last years, mutual investment funds have taken a decisive role with higher value loans, obtaining a percentage of the company's ownership.

[2] https://orbis.bvdinfo.com/version-202059/orbis/1/Companies/Report

1.3 PIPO

A distinguishing feature of the 2010s was the emergence of the Private IPO ("PIPO"), which is Silicon Valley parlance for a company raising over $100 million. PIPO investment increased eleven-fold this decade. This injection of capital allowed companies to remain private for a longer period of time.

Over the last five years, the ownership percentage in those deals has gone down, as the competitive environment has driven up valuations and more companies raised capital through a PIPO.

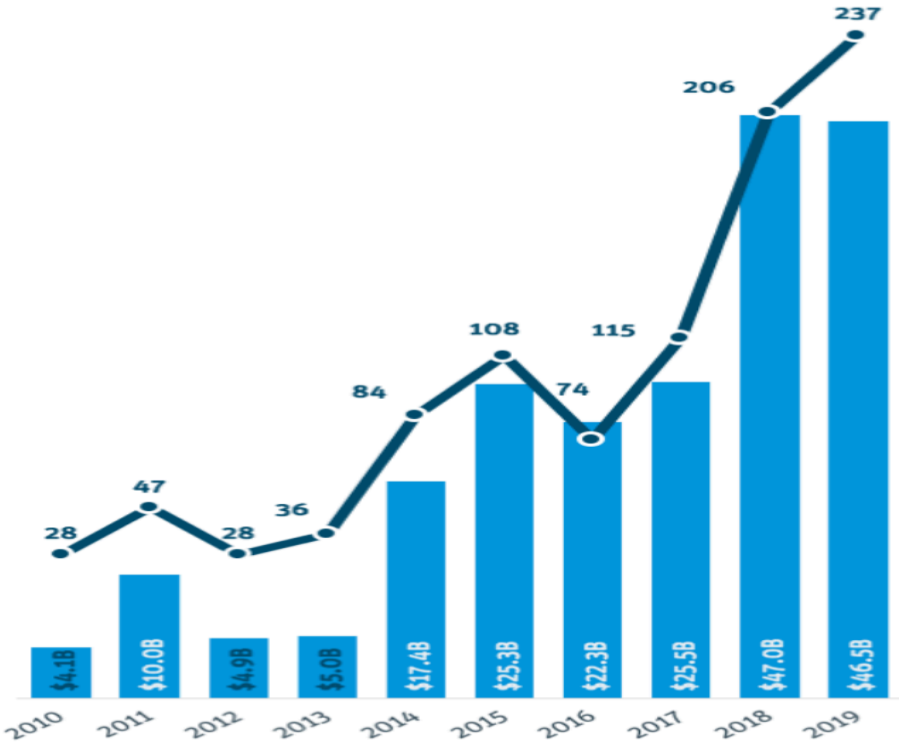

CHART 1: number PIPO's high-tech companies in the US from 2010 to 2019[3]

What differentiates a PIPO from an IPO is that the latter allows the company to be listed on the stock exchange, thus facing the public market, abandoning the private one. Companies therefore reach a stage of development such as to decide to make a first public offer of shares.

[3] https://www.svb.com/trends-insights/reports/state-of-the-markets-2020-q1-report

The offer may be primary, with the aim of selling shares to collect liquidity for the company, or it may be a secondary offer, in which existing shareholders choose to sell part of the securities held, allowing shareholders to monetize their holdings.
In reality, several factors lead managers to want to prefer a private business structure, including bureaucratic constraints and the costs associated with producing the information to be transmitted to shareholders. In fact, from private to public process it is not unidirectional, and it often happens that listed companies return to take on private ownership.

1.3.1 PE's transaction[4]

To understand why the PIPO phenomenon has spread so widely, it is important to analyze the role that Private Equity (PE) investments have had in capital markets.
The PE is the capital of external investors used to finance especially start-up companies, as well as for restructuring operations.
The transaction is therefore based on the contribution of risk capital by institutional investors in unlisted companies (called target companies). The goal of the investor will be to make a higher profit following the sale of the controlling interest acquired with the investment.
Traditionally, PE investors have made their investments through two different financial techniques: i) Venture capital and ii) Leverage buyout.

(i) Venture Capital (VC) companies focus their investments on companies that have just started but with great growth potential. The goal is that, after several capital raising operations, the company will strengthen its position by acquiring greater credibility over their actual and projected cash flow that can be acquired or have the possibility of obtaining a greater amount of capital available with an IPO.
(ii) Leveraged buyout (LBO) operations target heavily indebted companies, and it is an operation that aims to acquire the company by exploiting the company's debt capacity. After the restructuring period, these funds aim to untie themselves from the investment by selling the company to another private buyer, or alternatively transforming the company from private to public.

[4] Journal of Applied Corporate Finance: In Search Of Unicorns, Vol 27 number 3, 2015

Various analysis over the years have highlighted how PE funds impose a better governance structure such as to reduce the agency costs that often arise in public companies. The latter are in fact characterized by a large number of owners/shareholders, in charge of which bears a large part of the corporate risk, unlike the manager, who does not provide capital, and who bears very little risk.

This can lead to a divergence of interests between management and shareholders, especially if the company's governance structure is weak or ineffective and determines agency costs to be incurred for the operation of the company. Incentives, reporting, supervision are some of the methods used by shareholders to minimize this loss and try to avoid these costs.

However, the entry of LBO funds has changed the way of controlling the market and this has had a significant impact on the governmental structure of companies, both current and potential targets.

Since capital is invested by very large LBOs, the need arises to review the professionalism of the individuals involved in identifying companies with negative (and therefore target) performances, hiring management with better preparation.

In response, public companies have started to adopt some governance practices typical of companies controlled by PE funds.

There is therefore a reorganization of the company: if a company is characterized by a weak governance structure, most likely it has focused its attention on the size and growth of the company itself, instead of focusing on the corporate value.

As a consequence of the above, company's performance is negative, and it is starting to be pressured by the market, through hostile climbs or by LBO funds.

An organizational rearrangement is therefore indispensable, and if necessary, based on the governance model of the PE: performance must focus on the value of the company, new system of incentives and bonuses rather than the size. This leads to higher performances and therefore to creating value.

In particular, the governance structure of the PE companies has several key features:

- ✓ reduced board of directors (between 5 and 7 members);
- ✓ concentrated ownership and control;

- ✓ members of the board and management with significant share incentives, through ownership of shares or with an incentive plan.

This type of structure, especially with such a fair incentive system, better aligns the interests between shareholders and management compared to what happens in public enterprises. It is not easy to evaluate the performance of a PE fund due to limited data on the fund's assets; often the fund itself does not disclose data on its cash flows. Despite this, there is still empirical evidence that highlights the ability of PE funds to provide higher returns than listed companies.

A recent study found that returns from buyout operations in the United States are higher than returns from public markets.

The buyout investments exceeded the S&P 500 index by approximately 20%-27% considering the life of the fund, i.e. an increase in performance of 3% per year.

It is important to underline how these PE funds are persistent in terms of performance with better performance rather than the market in the long term.

Despite this, however, it emerged that, since 2000, LBO funds have lost ground in terms of persistence of performances, unlike VC funds which continue to have better returns than the market (through a comparison with the S&P 500 index).

All of this highlights the potential role of private investment in correcting weaknesses in the structure and organization of public companies.

1.3.2 PIPO's role

Companies using PIPO are already private, so the task of PIPO is to allow a non-public company to keep its private structure longer.

Thanks to this, the company can benefit from the organizational structure and managerial set of a longer PE, which, as previously highlighted, are indispensable factors for better business performance.

Typically, a newly formed business organization requires 2 or more small capital infusions in the private market. Subsequently this will no longer be sufficient, and the company will need more liquidity to accelerate its growth and expansion process, as well as to create value for its shareholders; typically, this role is performed by a classic IPO.

The significant inflow of capital brought to the company through an IPO brings with its various management problems typical of a public company.
The listing brings with its new responsibilities, such as the need to make organizational, managerial and managerial changes, to strengthen the administrative and financial service through an adequate control and reporting system and to comply with statutory regulations.
The role of PIPO in allowing the company to remain private for longer before being forced to seek sources of public liquidity therefore appears advantageous.
Usually, for a company, the time that elapses from the moment it is created to the moment it carries out an IPO varies from 3 to 5 years and this interval is also extended to 11 years thanks to the PIPO.
These are therefore additional financing operations, which slow down the natural process that a company should undertake, that is, small private investments before launching on the public market, and avoid, as long as possible, the typical problems of a public enterprise exposed previously.

1.3.3 The Unicorn landscape by country, sector, and valuation

The benefits brought by the PIPOs have meant that an increasing number of companies prefer to remain in the private sphere, raising capital that makes them acquire the name of "Unicorns".
As mentioned above, the peculiarity of this type of business is that it has a value that exceeds $1 billion dollar.
In order to be part of this "club" it is important that companies have certain characteristics: (1) be a private company; (2) been financed at least once from institutional capital (banks, finance companies, mutual funds); (3) have a market valuation of $1 billion or more.
The *"unicorn club"* is growing exponentially in fact, as of August 2015 was represented by 142 companies with a capitalization of 1.6 billion dollar, and an aggregate value of 623 billion dollar.

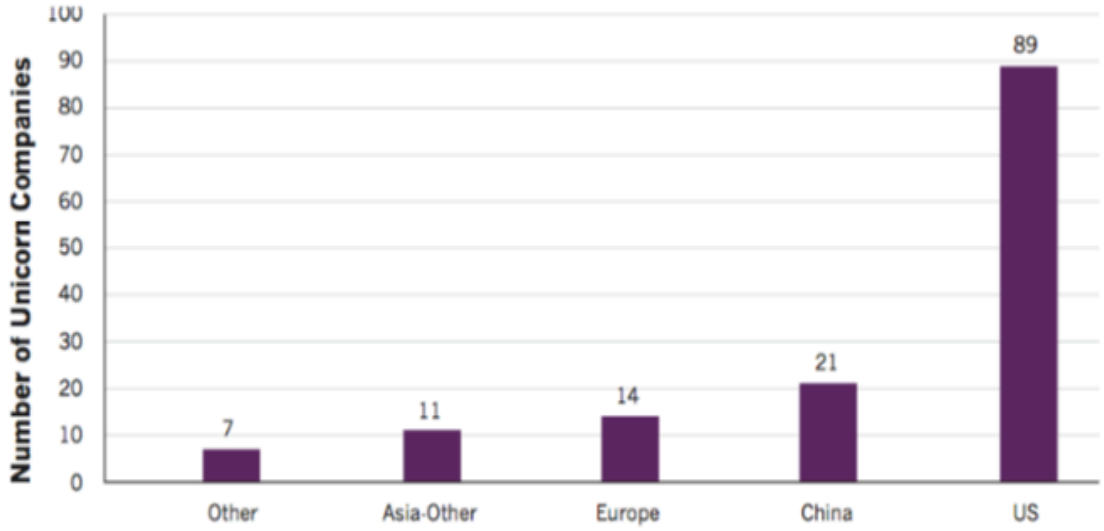

CHART 2: Number of Unicorns worldwide by country, August 2015[5]

After only 4 years, in March 2019[6] the number of unicorns present globally is more than doubled, in fact, there are currently 326 Unicorns distributed mainly between the United States and China with an aggregate value of $1,086 billion.

Country	# of Unicorns	%
USA	156	47.9%
China	94	28.8%
UK	17	5.2%
India	13	4.0%
Germany	8	2.5%
South Korea	6	1.8%
Rest of World	32	9.8%
Total	**326**	

CHART 3: Number of Unicorns worldwide by country, March 2019

[5] Journal of Applied Corporate Finance: In Search Of Unicorns
[6]www.visualcapitalist.com/visualizing-the-unicorn-landscape-in-2019/

Sector	# of Unicorns	Valuation ($B)
Internet Software Services	82	$153
e-commerce	44	$129
Fintech	32	$94
Healthcare	30	$76
On Demand	23	$200
Hardware	14	$56
Data analytics	12	$27
Social	11	$27
Autotech	11	$23
Media	8	$89
Travel Tech	7	$11
Cybersecurity	7	$15
Other	45	$186
Total	**326**	**$1,086 billion**

CHART 4*:* Number of unicorns by sector, March 2019

A particular feature of these companies is the fast reaction in terms of time in reaching a valuation of $1 billion dollar.

The phenomenon initially affected the most famous Unicorn area in the world: "The Silicon Valley", located in San Francisco, California (United States).

The largest hi-tech companies in the world came into light in this area. The key actors were in fact Facebook, Google and Apple.

The chance to have the greatest concentration of services and support available meant that this was the ideal ground for new start-ups to appear.

Aileen Lee, Venture Capital investor, was the first to coin the term Unicorns referring to this area, and in particular to the 39 billionaire businesses that Silicon Valley boasted.

The United States was therefore the cradle of this phenomenon, which subsequently became a global phenomenon.

The previously illustrated analysis takes into consideration the geographical dispersion of these companies, noting that the United States is still the area with the largest number of Unicorns (156 companies), followed by China with 94 companies and Europe where 25 Unicorns are present.

In addition, the typical business of these companies concerns the technological environment, especially in the field of Internet Software, E-commerce.

Nowadays, the top 10 Unicorns are worth a total of $388 billion, which is roughly 36% of the 326 unicorns that currently exist.

Rank	Company	Valuation ($B)	Country	Sector
#1	Toutiao (ByteDance)	$75	China	Media
#2	Uber	$72	United States	On-Demand
#3	Didi Chuxing	$56	China	On-Demand
#4	WeWork	$47	United States	Other
#5	JUUL Labs	$38	United States	Other
#6	Airbnb	$29	United States	eCommerce
#7	Stripe	$23	United States	Fintech
#8	SpaceX	$19	United States	Other
#9	Epic Games	$15	United States	Other
#10	GrabTaxi	$14	Singapore	On-Demand

CHART 5: top 10 unicorns by valuation at March 2019

1.3.4 Supply and Demand condition underlying the PIPO market and implication of trend

The analysis done until now has highlighted the orientation of many companies to prefer the private ownership structure rather than the public one, pointing out how PE investments have the ability to get involved in the organizational structure of a company by establishing the typical characteristics of a private company.

PIPO investments have the ability to prevent the typical problems of a public company by allowing the company to remain private longer, and this phenomenon has expanded more and more to become a global trend.

It is interesting to take a look why these PIPOs have spread up only in recent years; in this regard, the analysis of particular economic forces, including the demand and supply of private capital, can provide the answers to this question.

In fact, as companies may have a preference for raising private rather than public capital, investors may also be more interested in investing in private companies.

Analysing ***demand***, there are several factors that affect it to such an extent that companies prefer to raise capital through PIPO:

- *Excessive regulation of public enterprises*: in the last years, the United States has undergone numerous regulatory changes that have had a significant impact on public companies. In particular, in 2002 the *Sarbanes-Oxly Act (SOX)*[7] was introduced, among which clauses is that according to which the CEO and CFO of each company must personally certify that their financial statements and operating results are fully compliant with the law; under penalty of criminal sanctions, compensation. What has most affected this act are the excessive costs that businesses have to bear in order to comply with the clauses.

  In 2014, 58% of large companies spent more than $ 1 million to fall under the clauses of SOX.[8]
- *Analysts and IPO activities*: Fair Disclosure (FD)[9] introduced in the United States in 2000. This helped to decrease the number of analysts who follow smaller companies. The disclosure of information involves fixed costs, which are excessive for small businesses that have preferred to reduce the disclosure of information.

  Analysts play an indispensable role between public enterprises and potential public investors, providing them with information about companies. As these figures decrease, the information on the market is reduced, leading to a loss of interest in making investments in small public companies.
- *Costs and Risks of the IPO*:

  When a private company wants to become public, it must bear direct and indirect costs.

  Direct costs include subscription fees for investment banks, as well as legal and auditing costs incurring during the process.

  With regard to indirect costs, management could lose operating discipline, the ultimate goal of which could only concern successfully ending the public offering.

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[7] U.S. Securities and Exchange Commission: Sarbanes---Oxley Act of 2002": https://www.sec.gov/about/laws/soa2002.pdf

[8] "CFO: SOX Compliance Getting More Costly": http://ww2.cfo.com/auditing/2015/05/sox---compliance---getting-----costly/

[9] SEC Regulation Fair Disclosure: http://www.nber.org/papers/w10567

In addition, following an IPO, the company may incur costs to ensure compliance with the laws; can increase the risk of litigation.

The moment a company decides to go public it may have to bear approval risks. SEC deals with the analysis of public offer documents. During the review, which can take several weeks, the SEC may request additional information from the company or modify its offer documents.

Private companies may be able to limit these requests, focusing more on activities that increase the value of the company itself. Compared to a proven placement in which investors can negotiate the agreement and draft final documents within a few days, the timing of an IPO process is much more uncertain.

From the ***supply*** point of view, the deterrent factors towards IPOs are equally incisive:

- *Low interest rates and search for yield*: following the 2008 crisis, the Federal Reserve (United States central bank) significantly lowered interest rates on bank loans, to the detriment of returns on financial assets. This has led institutional and private investors to seek higher returns in other types of investments, such as private ones.
- *Spread of PE investments*: this type of investment has become an increasingly important component of the capital market. Numerous institutional investors prefer it, taking it as the main strategy in the distribution of their funds. Investing decisions are often taken to earn more and more; since there is a widespread belief that there are fewer trading activities in private markets than the public one, they identify a higher source of return in this type of market.

The impact that a PIPO can have on a company could be to strengthen it by making it more resilient to market volatility. In fact, thanks to the organizational and managerial structure guaranteed by the PE, a Unicorn company generally has sufficient capital reserves to continue its activity despite the market conditions being different from the internal condition of the company itself.

While a successful IPO is influenced by internal factors, such as the quality of management; but at the same time also from external factors beyond the control of the company, such as the general condition of the market. Just thinking about the number of

emerging companies with high growth potential, which went bankrupt following the 2008 economic crisis.

An IPO could therefore result the company in numerous costs and risks associated with its willingness to enter the public market. Thanks to the PIPO, the company can obtain enough capital to continue its growth, thanks to the possibility of remaining private for a longer time by postponing the public offer.

Chapter 2: The Unicorn's overvaluation

2.1 Introduction

From the end of the 90s until today the growing technological progress and the advent of the Internet has profoundly changed every aspect of our lives by bringing in quite a few changes also in the economy and in the world of finance.

The traditional economy has been always characterized by an economic system in which companies are mainly oriented production, or the transformation of raw materials and semi-finished products into finished products.

The new economy, unlike the "old economy", is instead characterized by a company that provides and / or creates any type of product or service through the use of IT tools and of communication. Just on the technological wave of the last period, that of the Mobile Internet, several companies founded their value by generating the phenomenon of the "Unicorn Companies".

A Unicorn Company, as we said in the previous chapter, is essentially an unlisted technology start-up valued beyond $1 billion.

These do not require important infrastructure as the business it is exercised in a virtual space, contrary to the traditional company, and they base their own business model on intangible resources exploiting the potential offered by the network.

If the practice for businesses of the past provided for slow and steady growth, now the market is studded with these new companies that follow a totally different development path: they are born quickly and just as quickly they die[10].

This prompted the latter to turn, in advance of what happened in the past, to the capital market in initial stages of the development process, obtaining extremely high quotations without having ever produced, in most cases, $1 dollar of profit.

The landing of these companies on the stock exchange also made it necessary to redefine the procedures traditional valuations, not applicable precisely to companies that have nothing in common with the "traditional" ones that have always flocked to the stock market.

[10] https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/grow-fast-or-die-slow-why-unicorns-are-staying-private

It is not the first time that enthusiasm for innovation and new technologies has overwhelmed the stock exchange: in the 2000s with the Dot Com, or the first companies that used technologies Internet to do business, the stock market witnessed the first "bubble tech" and one wonders whether the situation is bound to repeat itself.
In this chapter we will focus on the anatomy of technological unicorn valuation and its overvaluation analysing all innovative start-ups trying to show if we will go back to the same technological bubble as we have seen during the Dot Com bubble.

2.2 Unicorn's Valuation Trend[11]

Donald Trump said about high-tech investment valuation that:" you have a stock market that is very strange, you look at some of tech stocks and they are selling for so much money" trying with this assumption to define all those highly valued VC-Backed companies are overvalued.
Is not alone professing this opinion because Mary Jo White[12], Ex Chair of the securities and Exchange Commission, spoke at Stanford saying about Unicorns that "maybe those companies appear more valuable than they actually are".
The real question is: "What do investors think about the Unicorn's valuation"? Are they overvalued? Fairly valued? Or Undervalued?
A survey done by ***Ilya Strebulaev***, Full Professor, Finance & Venture Capital, Graduate School of Business, Stanford University shows that about more than thousand venture capitalists exactly 92% of those VCs said the ***Unicorns are Overvalued***, 75% believe that Unicorns are very significantly overvalued.

Unicorns are "non-listed", privately held companies valued as $ 1 billion and more but recently some investors and analysts start to feel uncomfortable and sceptical with the high valuations.
In this section I would like to highlight a particular potential flow in the valuation metrics frequently applied on these corporation.

[11] Stanford Graduate School of Business
[12] https://techcrunch.com/2018/04/10/unicorn-price-tags-arent-all-theyre-cracked-up-to-be/

Starting from various examples, **Uber** saw an "IPO Haircut" in 2019 from an initial valuation of 68 billion dollars to a 40 billion dollar after its listing; cloud computing company **DOMO** took over $1.7 billion dollars off the top in 2018; one of the most important high-profile haircut came in 2019 from **WeWork** lowering its valuation by 32 billion dollars before the company withdrew its IPO.

Mostly what you see whenever a value is communicated is directly connected with financing rounds, for example UBER last financing round allow it to be valued $ 62 billion, Airbnb with the 2017's financing round was valued at $ 31 billion and with last one received, during COVID-19 crisis, from a private equity finance the valuation dropped to $18 Billion dollar.

Another example of overvaluation has been **Square,** a payment process company, was valued at 6 billion dollars after its last round of founding before going public but a study found that special promises to late-round investors had inflated this valuation; the study calculated Square was actually worth 2.2 billion dollars close to the 2.6 billion dollar valuation that company received for its IPO.

Private investors have infused these companies with cash betting they have the potential to corner their markets and at the same time private valuation have become an accepted yardstick for what these companies are worth on the public market but many investors believe these valuations often overstate a firm's likely true worth.

Private start-ups seeking investment typically undergo a series of funding rounds, where investors, usually venture capital and private equity firms, provide cash in exchange for equity in the company and each new round of fundraising sets a new valuation or the company.

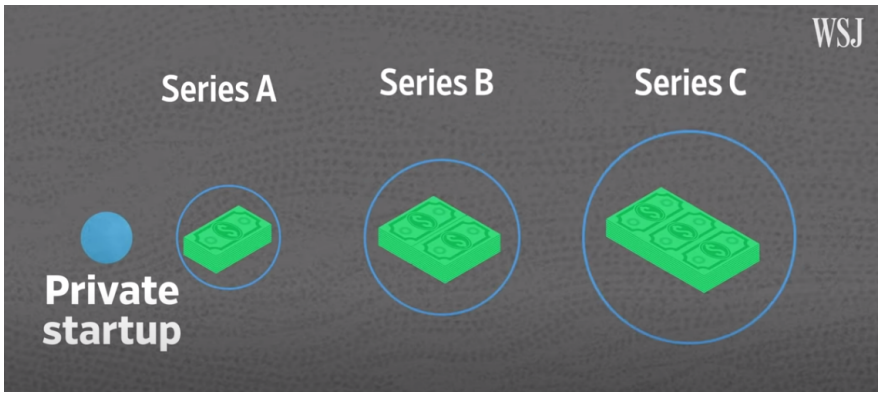

FIGURE 1: The Wall Steet Journal

These valuations are usually based on several factors including market size, revenue and management and some investors and analyst contend that the entire process tends to carry a bias toward higher prices, because private markets are filled almost exclusively by investors who want their stakes to appreciate.
What makes private markets different is that they generally aren't subject to the scepticism that's common in public market indeed, private market is fuelled by optimism because private investors, unlike their public counterparts, typically are constrained in their ability to sell their stake in the company, and they can't bet against the stock by selling it short.

So, what is actually valuation? Most of us know about public companies' valuation for example if the stock price is $300 and the number of shares outstanding (common shares) is 1 million, the equity value is $300*1 million= $300 million as called (Market capitalization).
This is the public companies' valuation that is completely different from what is used in Venture Capital Industry, that it's called ***Post-Money Valuation***, is it called post-money because it takes into account the money raised in the latest round of funding calculating the value by simply using the relation of **"price paid by the VC or investor/capital invested"** to **"received equity shares".**

Below I will show you an example:
Lest imagine a company that has a pre-money valuation equal to 4 million and after that, is planned a capital increase process for the amount of $1 million and an investor agrees to invest said amount in exchange for 20% of the company, the value of the company once it has invested $1 million, It will be $5 million, where $1 million is 20% of $5 million. Therefore, the value after the investment, the post-money, will be $4 million (pre-money valuation) plus $5 million = $9 million.

In private Venture Capital is used another formula taking firstly the price of ***preferred shares*** (one popular way of enticing investors is to offer them preference shares, securities that offer perks above and beyond the ownership stake conferred by common stock. Preference shares are often sold to private-run investors and are more valuable than the

common shares that are typically sold in an IPO, which helps to explain why private market valuations often end up higher than public market ones) multiplied by the total number of ***common shares*** and this represent a very real problem because Common shares are completely different from Preferred shares and therefore we cannot compare the market *capitalization valuation and VC valuation.*

In private companies the founders and employees typically have either common shares or option on common shares while VC investors get preferred shares because these preferences get a preferential treatment because if the exit is low and company is not successful, the founders and employees gets zero but VC preferred shareholders return is preferential because they're paid first.
In case the multiple is high as well before, the VC get always more than founders that have common shares because these preferred shares are more valuable than all common shares or stock options.

Ilya Strebuleav, Finance professor at Graduate School of Business at Stanford University, developed a financial model called GS model[13] that allows to value each common or preferred shares of any VC-Backed company trying to explain what the fair value is if this company were actually traded in the public market.
The information that the model needs to be used are: i) Price of the latest round and ii) The contractual terms for all the shares

As we said before, preferred shares are much more valuable than common shares, but some preferred shares are more valuable than other preferred shares because typically common shares are one vote plus one shares of the exit, preferred shares one vote plus one share of the exit *plus* a guaranteed payback.
But during a valuation, these higher share classes are valued equally to common stock, even though they aren't entitled to the same payoffs, making common stock appear more valuable than it actually is, bloating a company's valuation.
All the contractual terms that all the VC can be use are:

[13] https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2955455

1. **Liquidation preferences (LPs)**: you are guaranteed twice your money back;
2. **Participation:** you get your money back PLUS a share of exit;
3. **Anti-dilution provisions**: you get extra shares if the price drops;
4. **IPO price guarantees or ratchet**: you get extra shares in a low IPO;
5. **Cumulative dividends:** you get extra money every year;

The most important preferences are the ***liquidation preferences*** (LPs) they are referred to govern the distribution of the exit proceeds, so you first get the money back and then the other investors usually the founders. In that sense this is a special preferred treatment able to define the rank order of the distribution "last-in, First out"; this type of preference can be divided in two typology, *single* and *multiple* because defines how many time the invested amount is paid back at exit before anyone else get something and also an important distinction is in *participating or non-participating LPs* defining whether proceeds in earlier steps are taken into account in later steps of the distribution.

Another reason for high valuations is concerned about the accounting practices because private companies aren't subject to strict record than public companies; they are far freer to present investors with nonstandard data that paints a rosier picture of their financial health.

For example, WeWork [14]presented investors with a metric called ***community-adjusted EBITDA***, it excluded of its major expenses, including some rent costs that would usually be reported using Generally Accepted Accounting Principles making the companies losses appear smaller.

In entering public markets, companies agree to report stands numbers based on rules set by the SEC, obviously for the US companies, this enables investors to more accurately compare different firm's finances.

Private market valuations can be a useful data point for investors, but the rude awakening that firms like WeWork has received at times is making many analysts and portfolio managers increasingly sceptical of those big numbers and force unicorns to take a little or a lot off the top.

[14]https://qz.com/1685919/wework-ipo-community-adjusted-ebitda-and-other-metrics-to-watch-for/

2.3 General Issues about the Evaluation methods for high-tech Unicorns

The companies type object of focus in this report is characterized by the dynamism and turbulence of the market, which make it difficult to predict its future trend or competitive dynamics. Just think of how until 10 years ago, there were no companies like Uber, Facebook, Google and Amazon (now bought by Facebook for approx 1 $ / billion), which today are worth tens (or hundreds) of billions.

The main problem in evaluating a startup lies precisely in the fact that this is recent constitution. Historical data, although not always a correct indication of future, contribute to determining the level of risk corresponding to a company e however they can be indicative of future solidity and profitability.

The same fact that a large number of young companies end up failing must be factored into the estimate of the value of a company of this type.

Regarding the tendency of unicorns to be overvalued, as described in the previous paragraph, there are also other problems regarding this type of company which lead to obtaining values that are sometimes discordant from reality.

Primarily, Damodaran[15] identifies 6 main characteristics of young companies that could led to an overestimation:

1. **No history**: Many young companies have a history of only two or three years, which is not enough to understand how these will react in the future to external and internal pressures to which, willingly or not, they will be exposed;
2. **Few revenues or zero revenues / operating losses**: this element increases the risk factors of the assessment, which will be based on a large number of forecasts;
3. **Strong dependence on equity investments (mainly private)**: it becomes fundamental for the founders of startups to find new venture capital capital or private equity, without which they would have no chance of survival;
4. **Many companies do not survive**: increased risk factor for investors (64% of companies fail in the 10 years following the starting);
5. **Clauses imposed by equity investors**: they can bind the company to

[15] Aswath Damodaran, Stern School of Business, New York University, Valuing Young, Start-up and Growth Companies: Estimation Issues and Valuation Challenges.

certain behaviors when selling to new investors (also by imposing certain prices or limiting the circulation of shares as mentioned before about all the possible clause that can be involved for a single financing round);

6. **Illiquid investments**: one of the main points for those who invest in a startup is the way out, not always easy to do due to the illiquid nature of the participation in the company, not yet present in regulated markets.

The sources of uncertainty that can be connected to a startup are certainly many more than to structured companies, existing for a long time. This impacts that evaluation is based much more on forecasts, thereby increasing the risk of due errors to the assumptions.

In addition to what has been mentioned, the life cycle of a high tech company is also much more faster than a traditional company. In evaluating a company of this type, not it is therefore necessary to underestimate the phase of the life cycle in which it is found. In the report called PWC's[16] "birth of the company", which deals with the life cycle of startups is divided into 5 phases, each characterized by certain company performances:

1. **Conception of the Business Idea** (first investments; moderate burn rate);
2. **Development and study of the project** (more substantial investments, sales still nil, capital-intensive);
3. **Launch of the initiative** (start of sales);
4. **First adjustment phase** (Significant increase in sales and reduction of investments; the company begins to approach the breakeven point and to decline the intensity of capital with the increase in financial leverage);
5. **Consolidation of the business** (the cumulative cash flow generated by the company exceeds the financial resources spent; sales stabilize unless there are new investments to attack new markets or carry out new projects).

[16]https://www.pwc.com/it/it/services/transactions/docs/

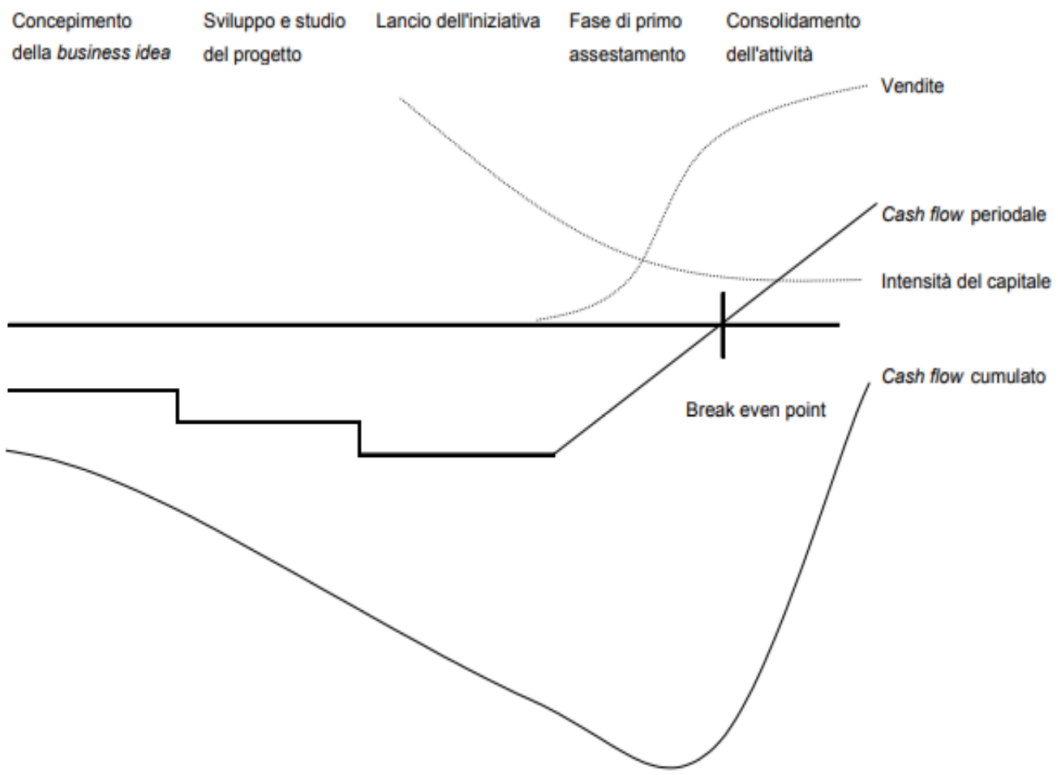

Chart 6: Evolution of the financial profile of the new company

Furthermore, according to a McKinsey study[17] on valuation of high-tech companies, Discounted Cash Flow is regarded as the most reliable valuation method. This because, despite the pitfalls due to the characteristics of the companies in question, the method however, it allows the weighting of scenarios, the taking into account of factors of risk and the precise estimate of future cash flows also based on the business plan.

Gornall & Strebulaev says that: "Despite the growing importance and accessibility of VC investment, **the valuation of these companies has remained a black box.** This is partially due to the natural difficulty of valuing high-growth and illiquid companies. But to a large extent, this is due to the extreme complexity of VC-Backed companies' financial structures. **These financial structures and their valuation implication can be confusing and are grossly misunderstood not just by outsiders, but even by sophisticated insider."**

[17] https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/valuinghigh-tech-companies

This statement emerged from a study conduct in the USA using the option price theory, in order to extract the miss valuation for all of these unicorns. They came up to see that the overvaluation's distribution is due to the fact that every VC doesn't consider all the preferential claim in the valuation giving the same value to the preferred and common shares.

Another study[18] that is analysed is concerned about the European Unicorns by Kaboth and Schwetzler in 2018 they saw that a significant overvaluation depends on the specific set of preferential rights and to extent all the reasons concerning this overvaluation thay accused paramenters like IPO-probability, annual volatility, risk free rate and time of exit.

In conclusion, we can say that the post-money valuation is a function of the contractual terms and promising the VC additional features increases the preferred share price (at the expenses of common shareholders). In addiction if the post money equation is applied for valuation some scepsis is justified but the basic valuation problem is not solved by the proposed adjustment because if the VC investment is fairly priced, the total value of the firm can be valued with different types of valuation's methods like DCF, Multiple and EVA (Economic Value Added) valuation and also for this reason that in third chapter that I will show you my independent valuation of Airbnb trought the first two methods that I mentioned before (Market multiple and the DCF valuation).

2.4 Firm Value valuation methods

In the IPO phase, one of the most crucial elements by far lies in the correct determination of the offer price, which is fundamental for the success of the listing operation both in terms of capital raised and the image of the company being listed.
In this sense we want to give a brief overview here evaluation that can be implemented to evaluate the value of a company and, consequently, also the price of the shares that, in the situation under analysis, it is about to issue.

[18] Kaboth and Schwetzler (2018) Sam esame but different: How preferential claims Skew Return of Venture Capital Investment

In fact, it should be noted that, precisely because of the imminent listing on a regulated market, the value of a company could significantly differ in the switching phase from private to public, causing one of the main diseases of Unicorns or its overvaluation. Therefore, here we will review the different valuation methods most commonly used and known by the financial community, specifically, the most widely used valuation methods are the system of discounted future cash flows (Discounted Cash Flow), the market multiples method and EVA (Economic Value Added).

2.3.1 Discounted Cash Flow Method (DCF)[19]

The discounted cash flow method is inspired by the general concept that the value of a company is equal to the discounted value of the following two elements:

- cash flows that it will be able to generate within the forecast horizon;
- terminal value, ie the value of the business complex deriving from the period beyond of the explicit forecast horizon.

In the approach that considers operating flows (unlevered approach), in order to obtain the economic value of the operating capital ("Enterprise Value"), the cash flows used are the operating Free Cash Flows (FCFO), which are discounted to the WACC ("Weighted Average Cost of Capital").
The value thus obtained is adjusted by the net financial position at the reference date of the valuation and by the amount of the value of any non-operating assets and liabilities ("Surplus Assets / Liabilities") thus obtaining the value of the economic capital ("Equity Value") .
The weighted average cost of capital (WACC) is determined as the weighted average of the cost of equity and the cost of third party capital, net of tax effects.
The cost of equity (Ke) represents the expected return, in conditions not influenced by contingent phenomena, from the sector to which the company belongs and is calculated using the Capital Asset Pricing Model.
The use of this methodology presupposes the estimate of the cost of equity taking into account the risk-free rate, equal to the return offered in the medium-long term by

[19] Jonathan Berk and Peter Demarzo: Corporate Finance

investments such as government bonds, the premium for market risk, expressing the return required by a risk averse investor for an equity investment, and the Beta, which expresses the risk that characterizes the particular company with respect to the financial market.
The cost of financial debt (Kd) is the interest rate at which it is assumed that the company can finance itself. This rate is usually estimated by reference to market rates, considering a spread to reflect the bargaining power of companies vis-à-vis debt capital providers. The cost of debt must be considered net of the tax rate "t", in order to take into account the tax savings generated by the deductibility of financial charges.

2.3.2 Multiple Valuation [20]

The multiples method, in its variant of market multiples, is based on the analysis of the stock prices referring to a selected sample of companies operating in the reference sector (comparable listed companies) and on the subsequent application of the multiples, highlighted by Airbnb's analysis, to the corresponding figures of the company being valued.
The multiples are obtained as the ratio between the stock market capitalization of comparable companies and the income, equity and financial figures deemed significant relating to them.
The scheme of application of this evaluation approach is divided into the following points:

- ***Identification of comparable companies***: the appropriate selection of the sample of comparable companies is one of the main steps underlying this methodology. The significance of the results is strictly dependent on the homogeneity of the sample. In the selection of comparable companies it is customary to take into account various factors, including, the reference sector, the risk of the business, the size of the company, the geographical diversification, the profitability, the reliability of the financial data and the exchange intensity of securities in the stock market.

[20] Jonathan Berk and Peter Demarzo: Corporate Finance

- ***Definition of the reference time interval:*** the determination of the reference time interval usually has the aim of neutralizing exceptional events, short-term fluctuations and speculative tensions; at the same time, it has the task of reflecting the information made available to the market. This phase implies, in particular, the choice between the use of an average relative to a given time interval and the application of a precise value.

- ***Determination of the multiples considered to be the most significant:*** there are numerous relationships that can be used for the application of the market multiples criterion. The choice of the most significant multiples usually takes place on the basis of the characteristics of the sector and the sample under examination.

- ***Application of multiples to the companies in question:*** the multiples obtained from the analysis of the comparison sample are applied to the corresponding income, equity and financial figures of the company being valued.

2.3.3 EVA: Economic Value Added Method[21]

Method implemented by a well-known American consulting firm since the years 1980s, this one procedure entered the panorama of company valuation methods differentiating itself by its extremely innovative character, thus offering a valid alternative to the more standardized operating cash flow system discounted (DCF).
The EVA, which is essentially nothing more than an indicator of performance company, is also defined in the technical jargon as "economic profit" and aims to identify the extra value produced by the company in favor of the shareholders: as easily understood from the name itself, what you want to identify by implementing this method is how much residual in terms of profit once the cost of capital invested, used precisely to reach that particular economic result ,is deducted.
This is most likely a performance measure that is closest to the true wealth produced by the company, in terms not so much of accounting profit, but of economic value actually

[21] Jonathan Berk and Peter Demarzo: Corporate Finance

achieved: in fact, at the basis of this method there is the idea that the company, in addition to covering the relevant costs with the revenues achieved, it must also i) be able to remunerate the risk borne by the different stakeholders involved, and ii) be able to repay the interest on the invested capital.

Only in this case can we speak of a company that has actually created economic value: for this reason we must be wary of the mere reading of the accounting data, since there may be cases of companies that have actually achieved, in accounting terms, a profit, but which in reality they have actually destroyed value.

In mathematical terms, the above can be easily summarized through the following formula according to which the cost representing the return on invested capital (WACC * CE) is deducted from NOPAT, the English abbreviation for operating income after taxes.

$$EVA = NOPAT - (WACC \times CE)^{15}$$

Source: Borsa italiana SPA: Valuation Guidelines

In this writing, the acronym CE indicates the so-called Capital Employed, that is, the net invested capital resulting from the latest financial statements. We are therefore trying to understand if the corporate income generated by operational management alone (gross of financial charges that are not the subject of interest here) is able to face the cost of capital faced by the company, both with reference to equity and to that of third parties.

Finally, it is possible to arrive at the same value resulting from any DCF in terms of enterprise value as shown below:

$$EV = CE + \sum_{t=1}^{\infty} \frac{EVA_t}{(1+WACC)^t}$$

Source: Borsa italiana SPA: Valuation Guidelines

2.4 Dot Com: the first technological bubble

After having given a general explanation of the various evaluation methods used for all Unicorn Companies, in this section we will try to highlight the signs that tend to come to

the conclusion that the technological bubble that burst in 2001, DOTCOM can repeat itself for all current unicorns companies.

Dot Coms are companies whose business is mainly based on the use of the Internet. The downturn in the industry began in 1994 with the listing of Netscape[22], the company that first developed a commercial browser. This speculative bubble has its roots in the enthusiasm of investors for the new phase of development determined by Internet solutions and services applied to every aspect of life, including work, through the creation of the first service providers and the supply of network infrastructures. Investors gave total confidence to the new economy that was forming by investing heavily in it and the collapse was inevitable: we witnessed a rapid collapse of the Nasdaq indices (stock market index of the main technological stocks of the US Stock Exchange), which from the record value of the March 10, 2000 by 5,132.52 points it lost 9% in three days, then triggering the fall in prices that led to the disappearance of many Dot Coms. This cycle ended between 2001 and 2002. However, what happened in March of 2000 can be used as an important lesson for several reasons. First of all because it was the main episode of the increase in market volatility, which in recent decades has generated increasingly violent cycles of growth and decline and then because the collapse of the Nasdaq index that occurred is the emblem of what disruptive innovation may cause. Lessons, however, only partially applicable to the new situation that is being created on Wall Street of which the Unicorn Companies are the protagonists.

2.5 Unicorns as Dot Com once?

In its usual report on IPOs, Ernst & Young reports that since the first half of 2017 there have been 772 new listings for a total collection of 83.4 billion dollars. This growth trend was respected until 2019 despite the fact that there have been and continue to persist tensions and trade wars between the USA-CHINA-EUROPE and with a significant reduction in 2020 caused by the new COVID-19 pandemic crisis, an issue that I will address in the end of the final chapter.[23]

[22] https://www.marketwatch.com/story/netscape-ipo-ignited-the-boom-taught-some-hard-lessons-20058518550
[23]https://www.ey.com/en_gl/news/2020/06/covid-19-pandemic-slows-global-ipo-activity-ytd-2020

A significant fact that emerges from all IPO made in recent years is that most of these companies are part of the technology sector.
More specifically, the most recent data concerning the United States that emerged in the CB Insight "Tech IPO" report show that from January 2019 to date there are 86 private US companies that can be classified as Unicorns that have decided to present an IPO.
Lately one wonders if there is a risk that the Unicorn phenomenon risks becoming a bubble and therefore of exploding. It is the evaluations of the technology start-ups that have been witnessed in recent years that suggest a new technological bubble. In fact, the values attributed seem not to be sustainable in the long term, in addition to the fact that it is not known how reliable they are given the evaluation difficulties described above.
Interestingly, the rate at which their values have risen is three times higher than just a decade ago and thus their average time to reach those ratings was only six years from the date of founding.
There were several reasons that led to this phenomenon:

1. ***Irrational exuberance[24]:*** the social phenomenon of recent years has certainly fueled the financial bubble, which sees with too much enthusiasm everything related to the Internet sphere and new technologies, also thanks to the use by companies of storytelling communication strategies to convince potential investors without too much difficulty of a value that does not actually exist in terms of turnover.

1. ***Central banks[25]:*** the excessive stock market prices of companies operating in the technology sector which began in 2009 and continued until today have also been favoured by the monetary policies of central banks. It was precisely the banks that, by printing money and filling the markets with liquidity, helped the stock exchanges to reach record levels. Although the Fed has raised US interest rates in recent months, other central banks have continued to inject liquidity into the markets and in April they printed a total of $ 350 billion, in May 300 billion and

[24] https://ec.europa.eu/jrc/en/publication/how-catch-unicorn-exploration-universe-tech-companies-high-market-capitalisation

[25] Simon, J. P. (2016). How to Catch a Unicorn. EUROPEAN COMMISSION.

in June over 100 billion. This liquidity injection could however, some global central banks are preparing the ground for the reduction of the latter. This could have a disruptive effect on the stock exchanges unless central banks are able to apply the restrictive monetary policies envisaged without creating negative effects on the economy.

2. ***The role of VCs:*** Venture Capitalists have certainly contributed to inflating the start-up bubble, in fact most Unicorns have mutual funds or banks as shareholders that attribute different prices for the shares of the same start-up by analysing as there are no valid and universal criteria to estimate how much would be received from the sale of unlisted shares. Furthermore, competition between VCs for financing innovative firms can generate impressive valuations. Cogman and Lau (2016)[26] attach great importance to the geographical dimension, arguing that unlike other investment funds, those that deal with technology companies tend more or less all to turn to the few interesting companies and often only those within their geographical area of action. It is clear that there is less flexibility than other forms of investment and this leads to an overvaluation of technology companies which occurs, unlike the bubble of 2000, before the listing on the stock exchange. The substantial difference with the technology bubble of 2000 is precisely this, at that time in fact the super valuations were made on listed companies, therefore by the stock market, while today they are made on companies before listing.

2.6 Conclusions

In summary, the situation should not be underestimated above all because the prices come at a time when many stock exchanges starting from that of the USA are at an all-time high and because the prices of companies are on average very high: the ratio between the price of profits in America is at the highest levels since 2001. Furthermore, the expansionary cycle of the markets was determined by two drivers that may soon no longer exist: the ultra-expansionary policies of central banks and economic growth. The question

[26] https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/the-tech-bubble-puzzle

of whether or not we are facing a new technological bubble is legitimate: it will be interesting to see how the market reacts when the engines will fail.

In conclusion, in the light of the data presented and the considerations made, it seems that all the ingredients for a sort of sectorial (technological) bubble are there and that the excessive optimism in the US market will certainly be appeased with adjustments in valuations that will mainly concern the market deprived of technology companies and the investors who are part of it because they are unlikely compared to reality. For this type of business, potential growth is valued more than actual profitability but outsized valuations such as these need to be reflected in revenues otherwise, they can be very difficult to sustain. Furthermore, the sustainability of valuations will also depend on the ability of central banks to normalize monetary policy by maintaining strong economic growth so as to justif\y them otherwise the bubble will be destined to burst.

Chapter 3: Airbnb Independent Valuation

Airbnb is an online portal and application for mobile devices that connects people looking for accommodation or rooms, with others who have rooms or entire apartments, villas, castles, historic homes and much more. All offered for the most part by simple private individuals. Today it is the world's number one short term rental service, has expanded to more than 81,000 cities and has been used by more than 300 million users.

The company was the second largest start-up in the US in 2017, valued at $ 31 billion according to the Wall Street Journal and currently with a post-pandemic COVID-19 value of $ 18 billion[27].

The original idea for Airbnb was born in 2007 from two young graduates, Brian Chesky and Joe Gebbia, who, cornered by a request for a 25% rent increase, decided to rent the unused spaces of their home by offering three inflatable beds where to sleep and have breakfast.

The occasion came thanks to a very famous annual design conference, during which the city of San Francisco was systematically saturated with reservations. Since they found it too trivial to place an ad on Craigslist, they advertised the offer on a site created by them with related photographs of these inflatable beds, hence the name "air" for the site "airbedandbreakfast.com" at that time still very rudimentary.

They thought that, by renting a room in their house, they would not only have an economic return, but also the possibility of meeting many designers like them to show the city to and make contacts with.

The test went very well, as a result they decided to make this idea a start-up, which today represents one of the most requested technological Unicorns within the stock market.

The business idea and their winning business plan led CEO Bryan Ckesky to publish financial data for listing last August, causing analysts and investors to worry about the hypothetical value of the company and whether it can be considered a 'unicorn overvalued like companies as mentioned in the previous chapter.

In this section, one of the main Silicon Valley unicorns will be examined in detail, highlighting through the two main valuation models used by the private and public world for high growth and high yield companies such as Discounted cash flow (DCF) and the

[27] https://www.wsj.com/articles/airbnb-plans-to-file-confidentially-for-ipo-in-august-11597164041

Multiples of market, what is its real value in terms of Enterprise Value and Equity Value with a focus on its value before and after the COVID-19 pandemic.

3.1 Financial data

Private companies have to be listed in a specific Business Register to be allowed to carry out their business. For example, in Italy all companies are registered in the Business Register where are available reports, financials, resolutions, deed of incorporation and statute. Each Country has an its Business Register, (i.e. UK the Chambre of Houses, in Ireland it is the Companies Registration Office ([CRO]).

In my case study I mention Ireland because Airbnb Inc has its registered office in Ireland and I was able to downloaded the latest financial statement filed from CRO website which highlights the data of 2017 and 2018 I used as starting point to carry out the evaluation exercise.

Analysing the Independent Auditors' report of the financial statement provided by Price Waterhouse Cooper ("PwC"), over the Airbnb International Unlimited Company's Group ("Airbnb") I analysed the following document for financial years 2017-2018:

- Consolidated Balance Sheet ("BS");
- Consolidated Profit and Loss account and comprehensive income/(loss) ("P&L");
- Consolidated cash flows statement ("CFS").

The financial data with reference to the BS, P&L and CFS are shown as presented in the Independent auditors' report provided by PwC.

Balance Sheet (BS) - Airbnb (USD/000)	dic-17	dic-18	Δ
Current asset			
Cash and cash equivalents	335,218	447,304	33%
Trade Debtors	42,937	33,410	-22%
Amount owed by group undertaking	136,555	269,543	97%
Prepayment	60,088	75,033	25%
Other debtors and avanced	3,586	4,901	37%
VAT receivable	19,055	31,270	64%
Prepaid corporation tax	-	497	
Total current assets	**597,439**	**861,958**	**44%**
Non current Asset			
Deferred tax asset non-current	519	861	66%
Other prepayments and deposits/other non current assets	52,184	50,203	-4%
Intangible asset	222,447	159,429	-28%
Tangible asset	30,307	25,767	-15%
Total non current/net fixed asset	**305,457**	**236,260**	**-23%**
Total assets	**902,896**	**1,098,218**	**22%**
Current liabilities			
Trade creditors	16,410	17,758	8%
Short term Debt	495,127	433,731	-12%
Accruals	61,665	78,234	27%
Funds payable and amounts payable to customers	29,012	47,124	62%
Deferred income	223,640	300,760	34%
Other creditors /other current liabilities	32,379	67,126	107%
Withholding tax accruals	60,578	62,388	3%
VAT payable	58,369	69,208	19%
Income tax deducted under payroll taxes and social insurance	3,108	2,540	-18%
Corporation tax	11,086	3,706	-67%
Total current liabilities	**991,374**	**1,082,575**	**9%**
Non current liabilities			
Intercompany loans	301,777	301,777	0%
Interest on intercompany loan	5,026	11,324	125%
Total loan and borrowing or Long term Debt	306,803	313,101	2%
Future host payout	-	-	
Dilapidation provision	1,053	883	-16%
Other creditors	2,712	2,441	-10%
Provision	-	27,065	
Total non current liabilities	**310,568**	**343,490**	**11%**

Capital and Reserves				
Called up share capital presented as equity		-	-	
Capital contribution		24,113	53,670	123%
Share based reserves		1,034	2,646	156%
Translation reserve		1,330	- 5,111	-484%
Accumulated losses	-	425,523	- 379,052	-11%
Total Equity	**-**	**399,046**	**- 327,847**	**-18%**
Total liabilities and equity		**902,896**	**1,098,218**	**22%**

TABLE 2:Airbnb Balance sheet statement

Asset Analysis:

The BS provides, for a specific "reporting date", details about the following items:

- Assets, diversified between current and non-current;
- Liabilities, diversified between current and non-current;
- Equity.

Airbnb registered a +33% increase in the "cash and cash equivalent" (from $ 335 million to $ 447 million, which means that the company has decided not to distribute most of its profits in order to implement of investments activities, especially in 2017, in terms of acquisition of other companies, as highlighted in the item in the cash flow statement "purchase in subsiadiary" which recorded an increase of approximately $142 million.

Current assets registered a +44% increase from 2017 to 2018 mainly thanks to the "amount owed by group undertaking" raise, (from $ 135 million to $269 million), derived from Airbnb stakes increase in the acquired companies.

Non-current assets registered a 23% drop in 2018 compared with 2017 mainly due to the incorporation of the assets of the Canadian company "Luxury Retreats International ULC" in 2017 and this incorporation led to a reduction in investments in 2018.

With regards to current liabilities, short-term debts registered a drop of about $ 62 million, a sign of the company financial solidity in repaying its obligations. The net financial position in the reclassified balance sheet, better show this aspect, given calculated as sum of short-term and long-term debt net of cash.

Finally, taking a look at the shareholders' equity, we note that although there has been a capital contribution by the shareholders of $30 million, it is clear that the company has a negative capital recorded in the financial statements caused by the losses accumulated in the years prior to the valuation. In fact, during 2016 Airbnb recorded losses of $ 328

million which were offset by the reserves present in the company leading to a deficit for 2016 equal to $ 240 Million.

Profit & Loss (P&L) - Airbnb (USD/000)	dic-17	dic-18	Δ
Group turnover	**1,787,525**	**2,416,835**	35%
COGS	1,065,473	1,362,582	28%
Gross Profit	**722,052**	**1,054,253**	**46%**
Administration expenses	777,850	949,187	22%
Other Operating expenses	20,982	2,827	-87%
Operating leases	7,370	10,386	41%
Wages and salaries	86,444	115,450	34%
Social insurance cost	8,731	13,506	55%
Share based payments	224	1,612	620%
Pension fund contribution	532	1,547	191%
Staff costs	103,301	142,501	38%
EBITDA	**597,769**	**908,925**	**52%**
Depreciation of tangible assets	8,964	10,053	12%
Amortization of intangible assets	73,269	62,833	-14%
Impairment of intangible assets	1,520	-	-100%
(Gain)/loss on disposal of tangible and intangible assets	27	- 18	-167%
Auditors' remuneration	237	338	43%
Administration expenses-other charging or crediting	590,532	733,480	24%
Group operating profit/(loss) EBIT	**- 76,780**	**102,239**	**233%**
Interest receivable and similar income	1,491	6,458	333%
Interest payable and similar charges	- 5,491	- 19,968	264%
Net interest expenses	- 4,000	- 13,510	238%
Income before taxes (EBT)	**- 80,780**	**88,729**	**210%**
Tax on profit/loss on ordinary activities	- 16,435	- 42,258	157%
Profit and loss for the financial year	**- 97,215**	**46,471**	**148%**

TABLE 3: Airbnb profit and loss statement

Profit and Loss Analysis

Although the results deriving from the accumulated losses does not seems encouraging, we note that Airbnb through its policy of acquiring new platforms and new companies such as to increase its value in terms of assets has managed to achieve an increase in turnover equal to **35%**. Knowing that the revenue of the sharing economy giant comes from transaction fees calculated as a percentage of the value of bookings made by guests and hosts, according to a study done by AirDNA[28] it has been able to attract many more hosts through a commission reduction policy, thus seeing a significant growth in the

[28] https://boostly.co.uk/airbnb-14-percent-commission-changes/

number of users who decided to rent their properties through the short-term rental platform.

Airbnb has had huge administrative expenses which include salary expenses, personnel costs and rentals in general, leading to a reduction in gross profit of about 90% of its value, thus reaching profit before interest and taxes (EBIT) for 2018 equal to $ 102 million.

Although there has been this reduction, we can see that from 2017 to 2018 the increase in EBIT is equal to 230%, going from a negative value for 2017 of -$76 million to a positive value for 2018 of $ 102 million.

Interest expenses increased from $4 million, in 2017 to $13 million, in 2018, due to the long-term debt increase.

Despite the tax increase of 2018, mainly explained by the fact that income before tax is positive for this year, in the 2018 is reported a positive net income, recovering the bad results of the previous year.

Cash Flow Statement (CFS)-Airbnb (USD/000)	dic-17	dic-18	Δ
Profit and loss for the financial year	- 97,215	46,471	148%
Tax on profit/loss on ordinary activities	16,435	42,258	157%
Depreciation of tangible assets	8,964	10,053	12%
Amortization of intangible assets	73,269	62,833	-14%
Impairment of intangible assets	1,520	-	-100%
Provision for bad debts	19,026	28,962	52%
Net interest expenses	4,000	13,510	238%
Share based payament	224	1,612	620%
(Gain)/loss on disposal of tangible and intangible assets	27	- 18	-167%
Other provision less payament	-	27,065	
Increase in debtors	- 13,415	- 154,025	1048%
Increase in creditors	66,276	34,134	-48%
Currency translation adjustment	2,866	- 6,441	-325%
Exchange rate movements	- 7,787	1,205	-115%
Cash flow from Operation	**74,190**	**107,619**	**45%**
Corporate tax paid	- 4,328	- 23,311	439%
Net cash generated from operating activities	**69,862**	**84,308**	**21%**

Purchase of tangible asset	-	11,172	- 6,414	-43%
Purchase of subsiadiary	-	142,705	-	-100%
Interest received		-	5,951	
Proceeds from disposal of tangible and intangible asset		-	13	
Net cash used in investing activities	**-**	**153,877**	**- 450**	**-100%**
Interest paid	-	888	- 124	-86%
Interest received		1,490	-	-100%
Receipt from intercompany loans		303,639	-	-100%
Repayment from intercompany loans	-	1,862	-	-100%
Capital contribution received		-	29,557	
Net cash generated from financing activities		**302,379**	**29,433**	**-90%**
Net increase/(decrease) in cash and cash equivalent		218,364	113,291	-48%
Effect of exchange rate on cash and cash equivalent		7,787	- 1,205	-115%
Cash and cash equivalent at the beginning of year		109,067	335,218	207%
Cash and cash equivalent at the end of year		**335,218**	**447,304**	**33%**

TABLE 4: Airbnb Cash flow Statement

Cash flow Analysis:

The 45% increase in cash flow from operations comes from a positive increase in profit of 148%, the increase in taxes and as previously said Airbnb has increased its long-term debt.

As mentioned in the analysis of the balance sheet, Airbnb bought a company in 2017 causing a negative increase in the item of "purchase of subordinated companies" so we note that the net cash used in investing activities, from 2017 to 2018, is reduced by almost 100%.

The great financial solidity of Airbnb is especially noticeable in 2017 which collected about $ 303 million following the loans made to subsidiary companies, thus generating a significant increase in cash and therefore a reduction in the net financial position in 2018 which, as we will see in the reclassified financial statements, is will reduce by 36% from 2017 to 2018.

After reporting the financial data in the excel file, the first task that carried out has been the financial statement reclassification to better highlight how the company has actually made its investments and the way they are funded as well as the P&L for the two reference years.

Therefore, the BS has been reclassified in terms of *Net invested capital* and total *sources of financing* for 2017 and 2018.

Balance Sheet (BS) - Airbnb (USD/000)		dic-17		dic-18	Δ
Other non current asset		52,703		51,064	-3%
Other non current liabilities	-	1,053	-	27,948	2554%
Intangible asset		222,447		159,429	-28%
Tangible asset		30,307		25,767	-15%
Net working capital	-	236,738	-	237,128	0%
Deferred tax assets		-		497	
Net Invested Capital		**67,666**	**-**	**28,319**	**-142%**
Total Equity	-	399,046	-	327,847	-18%
Cash and cash equivalents	-	335,218	-	447,304	33%
short term debt		495,127		433,731	-12%
log term debt		306,803		313,101	2%
Net Financial Position		**466,712**		**299,528**	**-36%**
Total source of financing		**67,666**	**-**	**28,319**	**-142%**

TABLE 5:Airbnb's reclassified Balance sheet

The same exercise has been made for P&L as detailed in the table below

Profit & Loss (P&L) - Airbnb (USD/000)		dic-17		dic-18	
Group turnover		**1,787,525**		**2,416,835**	**35%**
COGS	-	1,065,473	-	1,362,582	28%
Gross Profit		**722,052**		**1,054,253**	**46%**
SG&A expenses					
Staff costs	-	103,301	-	142,501	38%
Other Operating expenses	-	20,982	-	2,827	87%
Total SG&A	-	124,283	-	145,328	17%
EBITDA		**597,769**		**908,925**	**52%**
Other charging or crediting		590,532		733,480	24%
D&A	-	84,017	-	73,206	-13%
Group Operating profit/loss EBIT	**-**	**76,780**		**102,239**	**233%**
Net interest expenses	-	4,000	-	13,510	238%
Income before taxes (EBT)	**-**	**80,780**		**88,729**	**210%**
Tax on profit/loss on ordinary activities	-	16,435	-	42,258	157%
Profit and loss for the financial year	**-**	**97,215**		**46,471**	**148%**

TABLE 6: Airbnb's reclassified Profit & Loss Statement

3.2 WACC estimation

The "WACC" worksheet includes the various procedures carried out for calculating the FCFO discount rate. Firstly, a set of comparable companies was chosen, in terms of size, products and operating market, thus the global one.

3.2.1 Benchmark, beta unlevered and D/E ratio

Since I have considered a company that operates internationally, I have preferred to use, as a proxy of the market portfolio, an even wider index, the NASDAQ, which is contributing strongly to the growth of the online booking platform.

The market in which Airbnb is located, is apparently new and innovative, i.e. that of short term rental and in fact as relevant competitors I have used the main players in the market that refer to the various online platforms to book rooms that are hotels and not like Booking, Expedia etc

To select all possible comparable companies, it is customary to take into account various factors, including the reference sector, the risk of the business, company size, geographical diversification, profitability, reliability of financial data and the Stock exchange intensity in the stock market.

Company name (31/12/19) datas	Raw Beta (Damodaran)	Adjusted Beta (Damodaran)	Period Beta	Market cap (USD mln)	Net Debt	Debt/ Equity ratio	Tax rate (t)	UnLevered Beta (Damodaran)
Tripadvisor	1.3	1.18	monthly	3,845.0	-236.0	-0.06	0.21	1.2401
Booking.com	1.1	1.05	monthly	85,960.0	1,318.0	0.02	0.21	1.0341
Expedia Group	1.5	1.30	monthly	15,070.0	1,097.0	0.07	0.21	1.2293
Marriot	1.6	1.41	monthly	49,508.0	10,715.0	0.22	0.21	1.2070
average	**1.35**	**1.24**		38,595.8	3,223.5	**0.06**	**0.21**	**1.18**
Median	**1.36**	**1.24**		32,289.0	1,207.5	**0.04**	**0.21**	**1.22**
Standard deviation	**0.24**	**0.16**				**0.12**		**0.10**
min	**1.07**	**1.05**		3,845.0	-236.0	**-0.06**	**0.21**	**1.03**
Max	**1.62**	**1.41**		85,960.0	10,715.0	**0.22**	**0.21**	**1.24**

TABLE 7: Comparable Companies data from Orbis database

I have extrapolated the Raw Betas (taking into account the benchmark) from the Orbis platform on 31/12/2019, in order to obtain the most updated estimates possible at the valuation date. To improve the valuation, I have obtained the Adjusted betas using the

Damodaran formula (2/3*raw beta+1/3*1) instead to use the raw beta given by the Orbis platform because the Beta obtained from the regression (regression beta) are often characterized by a high "standard error" and in that case the Betas estimated turns out to be erroneous and not suitable for evaluation purposes.

After that using all the D/E ratios, I have deleveraged all the betas levered competitors through the following formula:

$$\text{Unlevered Beta Formula} = \frac{\text{Equity Beta}}{1 + (1\text{-}t)\ \text{Debt/Equity}} \quad [29]$$

Subsequently, in order to follow the Damodaran assumption in which is explained that the clearest valuation through the comparable companies is taking in consideration the median of these values ***(1.22)***, I used that value to estimate the Airbnb levered beta using the following formula:

$$\text{Airbnb Beta Levered} = \text{Median beta unlevered of comparable companies} * (1 + D/E(\text{Airbnb})) \quad [30]$$

I have assumed that the Capital Structure D/E is constant for the entire reference forecast period because as we can see, from the financial statement, the capital structure doesn't change enough, and it seems to be consistent with the financial statement data. In fact, from 31 December 2017 to 31 December 2018 it has changed for the 2017 the capital risk weight E/(D+E) is equal to 0.46 and the financial debt weight D/(E+D) is equal to 0.52 and at the same time we have a both little change equal to 13% in 2018 about these items changing this capital structure to E/(D+E)=0.56 and D/(D+E)=0.48.

Capital Structure	2018	2017	% change in capital structure
Capital Risk Weight E/(D+E)	0.52	0.46	13%
Financial Debt Weight D/(D+E)	0.48	0.54	13%

TABLE 8: Airbnb capital structure

[29] Jonathan Berk and Peter Demarzo: Corporate Finance

[30] Jonathan Berk and Peter Demarzo: Corporate Finance

Another reason that we can use a constant financial structure is that the only significant change in the net financial position between 2017 and 2018 occurs in a significant increase in cash causing an equally significant reduction of the company's debt exposure.

3.2.2 Equity risk premium and Cost of Equity (Ke)

For the equity risk premium estimation, I have considered some suggestions provides by Damodaran applying The Implied risk premium method. He uses the DDM applied at index level to give us an equity risk premium correlated with the market path; in the Airbnb case I have taken in consideration the equity risk premium for a mature market (as US) and its correlated country risk premium.

Starting from the usual formula it has been possible to compute the ERP and ahead, through the "Beta relevering", its cost of equity (Ke).

2019		
Cost of Risk Capital (ke)		
Risk free rate	2.39%	*10Y US Treasury bond yield (Avg 1Y)*
Beta unlevered	1.22	
D/E	0.91	
Beta relevered	2.33	
ERP (equity risk premium)	6.00%	*Damodaran Equity Risk Premium Estimation (US)*
Ke	**16.38%**	

TABLE 9: Airbnb Cost of Risk capital (Ke)

3.2.3 Cost of Debt, Corporate tax and WACC result

The Cost of debt (**Kd)** has been computed using the data provided by Damodaran about the rating of companies based on the Interest coverage ratio (EBIT/net interest expenses). The value expressed in the financial statements (Dec 18) provides a rating of A+ and thus a spread equal to 150 Basis Points. The related Country Risk Premium for US considered as mature market is 0 Basis Points following Damodaran assumptions.

Interest coverage ratio (ICR method)	
Interest coverage ratio	7.6
S&P rating	A+
Risk free rate	2.39%
Spread	1.50%
Cost of debt (gross of taxes)	3.89%

ICR	Rating	Spread
More than 12,5	AAA	0.75%
9,5-12,5	AA	1.00%
7,5-9,5	A+	1.50%
6,0-7,5	A	1.80%
4,5-6,0	A-	2.00%
3,5-4,5	BBB	2.25%
3,0-3,5	BB	3.50%
2,5-3,0	B+	4.75%
2,0-2,5	B	6.50%
1,5-2,0	B-	8.00%
1,25-1,5	CCC	10.00%
0,8-1,25	CC	11.50%
0,5-0,8	C	12.70%
Less than 0,5	D	14.00%

TABLE 10: Damodaran Cost of debt calculation through the Interest coverage ratio (ICR)

The spread's value, added to the risk-free rate, allows us to obtain an appropriate cost of debt before tax that multiplied by the corporate income tax for the US equal to 21% give us Kd after tax=***3.07%***.

Finally, from the consistency of D/E ratio I have calculate the debt and equity values needed for the calculation of the rate. Once all the variables have been determined, a weighted average cost of capital ***(WACC) of 10.02 %*** has been estimated through the known formula after tax.

3.3 Multiple Valuation

The multiples method is based on the analysis of stock market quotations referred to a selected sample of companies operating in the reference sector (comparable listed companies) and to the subsequent application of the multiples, highlighted by this analysis, to the corresponding magnitudes of the company being valued.

The multiples have been obtained as the ratio between the market capitalization of the comparable companies and the income, equity and financial amounts considered significant for them.

The application scheme of this evaluation approach is divided into the following points:

- identification of comparable companies;

- define the reference temporal scheme;
- determination of most significantly multiples for our valuation;
- application of multiples to the company in question.

The two types of multiples most frequently used for company valuation using the market approach are:

1. ***Asset Side***: these are multiple like EV/EBITDA, EV/EBIT and EV/SALES that are calculated taking into account the total value of the company (enterprise value) which estimates the value of the capital ***indirectly.***

2. ***Equity Side:*** In the other hand, multiples as P/E (*price per share/earning per share*), P/BV (*market price per share/Book Value per share)* and P/SALES (*equity book value/sales)* are calculated taking into account the market value of equity alone (P), allowing a direct estimate of equity value.

The Equity side multiples are relevant when you have full knowledge of the information concerning the company which is only published once the same decides to go public, for example in the USA, when a company decides to go public, it delivers all the financial and non-financial data to the SEC, which subsequently publishes ***the prospectus (S-01)*** to the public market. The prospectus indicates all the necessary information, such as the number of outstanding shares, the type of shares if series A, B, C etc., to a hypothetical investor in order to be able to give a fair judgment on what the real value of the company will be once it has reached the public market.

While asset side multiples have the advantage of being more easily comparable to companies with different financial leverage (D/E) and it is precisely for the latter reason that only the results obtained from these multiples will be highlighted in the evaluation.

Now let's have a look on the comparable financial data:

Multiple valuation 31/12/19								
COMPANY NAME	Net debt	Market cap (avg 1Y)	Net income	EBITDA	EBIT	Revenue	Equity Book Value	EV
Tripadvisor	-236.0	3,845.0	126.0	313.0	187.0	1,560.0	1,161.0	3,609.0
Booking.com	1318.0	85,960.0	3,998.0	5,814.0	5,345.0	15,066.0	5,933.0	87,278.0
Expedia Group	1097.0	15,070.0	565.0	1,871.0	961.0	12,067.0	3,967.0	16,167.0
Marriot	10715.0	49,508.0	1,273.0	2,268.0	1,938.0	20,972.0	703.0	60,223.0

TABLE 11: Comparable companies' data from Orbis Database

Having chosen the same set of comparable, the most significant data have been calculated in the "*Multiples Valuation*" worksheet. To this point, on 31/12/19 using Orbis as a research source, data relating to 6 multiples have been extrapolated: P/E, P/BOOK VALUE, P/SALES, EV/EBITDA, EV/SALES and EV/EBIT. The average, the median, the maximum and the minimum have been calculated for these data, in order to estimate the price. The medians have been used as key values, since coherently with the assumptions of Damodaran that is more reliable as an estimate.

	P/E	P/Book Value	EV/EBITDA	EV/SALES	EV/EBIT	P/Sales
	2019	2019	2019	2019	2019	2019
Tripadvisor	9.2x	3.3x	11.5x	2.3x	19.3x	0.7x
Booking.com	1.5x	14.5x	15.0x	5.8x	16.3x	0.4x
Expedia Group	7.0x	3.8x	8.6x	1.3x	16.8x	0.3x
Marriot	0.6x	70.4x	26.6x	2.9x	31.1x	0.0x
Average	4.6x	23.0x	15.4x	3.1x	20.9x	0.4x
Median	4.3x	9.1x	13.3x	2.6x	18.1x	0.4x
Min	0.6x	3.3x	8.6x	1.3x	16.3x	0.0x
max	9.2x	70.4x	26.6x	5.8x	31.1x	0.7x

Table 12: Asset side and Equity side Ratios

The values of EBITDA, EBIT, SALES are then reported and, by carrying out the necessary calculations, different price estimates are obtained but which on average lead to an Equity value for 2019 equal to **$16,4 billions**.

Data Airbnb @ 12/2019 (in 000$)

EBITDA @ 12/2019	1,111,405
EV	14,749,483
NFP @ 12/2019	*239,956*
EqValue	14,509,527

EBIT @12/2019	1,025,938
EV	18,529,756
NFP @ 12/2019	*239,956*
EqValue	18,289,800

Net Revenues @ 12/2019	2,762,194
EV	7,161,059
NFP @ 12/2019	*239,956*
EqValue	6,921,103

Average Equity value of comparables
16,399,663

TABLE 14: Airbnb Multiple results

3.4 Discounted Cash Flow Valuation (DCF)

The discounted cash flow method is inspired by the general concept that the value of a company is equal to the discounted value of the following two elements:

- cash flows that it will be able to generate within the forecast horizon;
- terminal value, i.e. the value of the business complex deriving from the period beyond of the explicit forecast horizon.

I have used the approach that considers operating flows (unlevered approach), in order to obtain the economic value of the operating invested capital ("Enterprise Value"), the cash flows used are the operational Free Cash Flow (FCFO), which are discounted to the WACC ("Weighted Average Cost of Capital"). The value thus obtained is adjusted by the net financial position at the last available audited balance sheet date thus obtaining the value of the economic capital ("Equity Value").

In order to analyze the company through this method, it is crucial to make assumptions that are consistent with both the market, and therefore with comparable companies and at the same time that go in line with the growth or decrease suffered by the company being valued by the individual items present in the financial statement.
Furthermore, it is necessary to consider macroeconomic variables such as the inflation rate which will affect revenues and costs in the analysis of cash flows and the long-term g for the terminal value (TV) estimation.
In this section I will try to extrapolate the value of airbnb in terms of Equity value by seeing what the impact of the same has been caused by the COVID-19 crisis.
Specifically, all the assumptions I used in the evaluation will be presented below.

3.4.1 Revenue, COGS and SG&A

Although the latest data collected by Airbnb date back to 12/31/2017-2018, the analysis carried out starts from 12/31/2019 in order to create forecasts that go up to 2024.

In order to report values that are consistent with both the data available from Airbnb and with those of market comparables, I used the same assumptions for both revenues, costs (COGS) and Operating Expenses also called SG&A.
In order to report values that were consistent in 2019 as regards Airbnb, I hypothesized the same growth, through the CAGR (compounded annual growth rate) which in our case is called Year over Year (YoY) since it reflects the growth of one year to the other of every single item present in the financial statement through the following formula:

$$YoY = [(balance\ sheet\ item_t / balance\ sheet\ item_{t-1}) \wedge (1/2)]$$

Specifically, for 2019, the annual growth of the 3 items previously highlighted, of all competitors and Airbnb was calculated and the average between these values has been subsequently calculated.

YoY 2017/18 comparables	Revenues	COGS	OPEX
Tripadvisor	2.67%	10.06%	2.69%
Booking.com	18.42%	0.00%	19.18%
Expedia Group	17.28%	3.98%	12.72%
Marriot	10.84%	8.75%	14.99%
Average	**12.30%**	**5.70%**	**12.39%**

	Revenues	COGS	OPEX
YoY Airbnb 2017/18	16.28%	13.09%	8.14%

TABLE 13: Airbnb and comparable Revenues, COGS and SG&A (YoY)

While as regards the expected growth rate ranging from 2020 onwards, an average has been made between the average of the expected values of the GDP [31]between 2020 and 2024 ***(-4.87%)*** following the impact caused by COVID-19 and the values previously obtained for 2019.

World Real GDP
(Percent)

	dic-19	dic-20	dic-21	dic-22	dic-23	dic-24
Longer outbreak in 2020	0.00	-2.82	-1.92	-1.44	-1.24	-1.05
New outbreak in 2021	0.00	0.00	-4.75	-3.28	-2.46	-2.15
Longer outbreak in 2020 plus new outbre	0.00	-0.03	-0.07	-0.06	-0.05	-0.04

TABLE 14: Forecast of World real GDP after COVID-19

[31] https://www.imf.org/external/datamapper/NGDP_RPCH@WEO/OEMDC/ADVEC/WEOWORLD

As regards the calculation of the flow regarding the revenues, the COVID-19 impact have had an impact quite significantly, causing a reduction over the years going from an 14.29% growth in 2019 to one of 7.72% from 2020 onwards, therefore, reporting a reduction of almost 50% in revenues.

This seems to be consistent with what stated by Thompson reuters[32] which estimated that in 2020, Airbnb will suffer a loss of about 50.0% compared to 2019 due to the pandemic.

Now let's look more briefly at the data mentioned before:

Revenues 2019			**Revenues from 2020**
Historical average comparable YoY	12.30%	*last year 2y*	7.72%
Airbnb historical YoY	16.28%		
average	14.29%		
COGS			
Historical median comparable YoY	5.70%	*last year 2y*	
Airbnb historical YoY	13.09%		
average	9.39%		
SG&A			
Historical median comparable YoY	12.39%	*last year 2y*	
Airbnb historical YoY	8.14%		
average	10.27%		

TABLE 15: Summary of Revenues, COGS and SG&A assumptions

In this last table I wanted to summarize all the assumptions made for revenues, costs and operating expenses, which as mentioned previously were calculated by averaging the values of the comparables (YoY) from 2017 to 2018 and the values of Airbnb and which will be used as growth indices for the entire evaluation period, therefore until 2024.

3.4.2 Capital Expenditure (CAPEX), D&A, Net working Capital (NWC) and Taxes

In this section I will start from the assumptions made for capital expenditure in order to be able to estimate the value of D&A for each year; then the conditions regarding the NWC foreseen in the evaluation years and for the use of taxation will be set out.

[32] https://seekingalpha.com/news/3559459-airbnb-expects-54-revenue-drop-in-2020-report

For the reason why the CAPEX value was not stated in the financial statement, it was calculated as follows:

$CAPEX_{2018}$= Tangible $Asset_{2018}$-Tangible $Asset_{2017}$+Depreciation of Tangible $Asset_{2018}$

Subsequently it was calculated in which ratio in 2018 the capex was part of the total value of revenues this because through this index it is possible to demonstrate how much a company re invests its earnings in productive assets.[33]

In the case of Airbnb, having an index equal to **0.23%**, we are able to say that the re-investment in its productive assets does not produce a significant profit, but this index will be significant in order to be able to determine, during the forecasted period, the CAPEX amounts.

To compute **the growth rate for the forecasted D&A** over the years, I have considered the average between 2017 and 2018 of the ratios: **depreciation of tangible assets / total tangible assets** and **depreciation of intangible assets / total depreciation of intangible assets** equal to 35%.

After that, in order to determine the value of the prospective D&A, this average as previously calculated was multiplied with the prospective gross fixed assets given by the sum of the capex (always prospective), calculated as previously mentioned, and the non-current assets or net fixed assets.

	dic-19	dic-20	dic-21	dic-22	dic-23	dic-24
CAPEX	6,301	7,201	8,230	9,406	10,750	12,287
D&A	(85,467)	(57,890)	(40,392)	(29,474)	(22,877)	(19,145)
gross fixed asset	242,561	164,295	114,635	83,649	64,926	54,335
net fixed asset	157,094	106,405	74,243	54,175	42,049	35,190

TABLE 16: Capex and D&A assumptions

From the theory we know that the net working capital (***NWC)*** represents all that operating capital available in the short term and in the case of Airbnb it is composed of a series of balance sheet items such as trade receivables and payables and VAT payable and credit, but as you can see within the financial statements, the difference between 2017 and 2018 is equal to only **$ 370 thousand** which compared to the majority of financial data is

[33]https://ycharts.com/glossary/terms/capex_to_revenue#:~:text=The%20Capex%20to%20Revenue%20ratio,revenue%20back%20into%20productive%20assets.

almost negligible as a figure therefore we will assume that this difference will be constant over the evaluation period.

The corporate income tax *(Taxes)* has been computed taking in consideration the Airbnb average tax rate 2017-2018 (ratio between income tax expenses and income before tax). After that by averaging this value (33%) and the Irish corporate income tax **(12.5%)** trying to give a consistent value for the forecasted taxation until 2024.

3.4.3 Macroeconomics Assumptions

Inflation rate and long period growth rate

As previously mentioned, following the impact caused by COVID-19, the inflation rate will lead to a significant reduction in revenues of about 50% compared to 2019 and this effect, even if in a less drastic way, will be visible at least until 2023, in which is estimated that the growth rate of the global gross domestic product returns to the levels of 2019 equal to 3.60%[34] annually.

Inflation rate	2017	2018	2019	2020	2021	2022	2023	2024
Inflation rate (including Covid-19)	1.9%	1.3%	1.4%	-11.5%	9.0%	-5.1%	-5.1%	-5.1%
Inflation factor			1	0.885	0.96	0.92	0.87	0.83

TABLE 17: Inflation rate[35]Economic volume outlook 2020

As we can see the hypothesis of inflation rate shortfall for 2020 due to Covid-19 outbreak, with a jump in 2021 and from 2022 onwards we will have the same level pre-crisis.
The forecasts given by the International Monetary Fund from 2019 to 2023 estimated growth equal to 3.60% so in the calculation of the terminal value we will calculate this value in its perpetual growth in order to give an almost positive estimate by the market.

[34]https://www.imf.org/en/Publications/WEO#:~:text=Global%20growth%20is%20forecast%20at,%2Dthan%2Danticipated%20global%20activity.
[35] https://read.oecd-ilibrary.org https://read.oecd-ilibrary.org/economics/oecd-economic-outlook-volume-2020-issue-1_38369400-en#page3

3.4.4 Results from DCF Method

DCF valuation without COVID-19 Impact

DCF - Airbnb (USD/000)	dic-18	dic-19	dic-20	dic-21	dic-22	dic-23	dic-24
Net Revenues		**2,762,194**	**3,156,903**	**3,608,016**	**4,123,591**	**4,712,840**	**5,386,291**
COGS	-	1,490,543 -	1,630,520 -	1,783,643 -	1,951,145 -	2,134,378 -	2,334,819
Gross Margin		**1,271,651**	**1,526,383**	**1,824,373**	**2,172,445**	**2,578,462**	**3,051,472**
SG&A	-	160,246 -	176,696 -	194,833 -	214,833 -	236,886 -	261,203
EBITDA		**1,111,405**	**1,349,688**	**1,629,539**	**1,957,612**	**2,341,575**	**2,790,270**
D&A	-	85,467 -	57,890 -	40,392 -	29,474 -	22,877 -	19,145
EBIT		**1,025,938**	**1,291,798**	**1,589,147**	**1,928,138**	**2,318,699**	**2,771,124**
Taxes	-	238,457 -	300,250 -	369,363 -	448,154 -	538,931 -	644,088
NOPAT		**787,481**	**1,049,437**	**1,260,177**	**1,509,458**	**1,802,644**	**2,146,182**
D&A	-	85,515 -	58,033 -	40,678 -	29,958 -	23,621 -	20,225
NWC	- 237,128 -	237,128 -	237,128 -	237,128 -	237,128 -	237,128 -	237,128
delta NWC		**-**	**-**	**-**	**-**	**-**	**-**
Capex		**6,301**	**7,201**	**8,230**	**9,406**	**10,750**	**12,287**
FCFO		**866,696**	**1,100,269**	**1,292,625**	**1,530,010**	**1,815,515**	**2,154,120**
Terminal value						**27,989,976**	**34,734,400**
FCFO + Terminal value	**(0)**	**866,696**	**1,100,269**	**1,292,625**	**1,530,010**	**29,805,491**	**36,888,520**

EV	**47,283,110**
NFP	**299,528**
EQ 1	**46,983,582**
EQ 2	**31,691,623**

TABLE 18*: DCF valuation without COVID-19 Impact*

The connection between the balance sheet and the profit and loss account makes it possible to establish a relationship between specific flows of results, measured in economic terms, and specific resources used.

After having reviewed all the assumptions for the future cash flow forecasts I have considered an *unlevered approach* therefore with the aim of arriving at the FCFO added to the terminal value in 2024, I was able to determine the enterprise value through the formula of the net present value (NPV).

From the NPV formula the Enterprise value is $ 47,2 billion and subtracting the Net Financial Position (NFP), that represents the algebraic sum between long- and short-term Debt net of cash and cash equivalent, which for 2019 is $ 299 million, I obtained a result of $ 46,9 billion;

To find a **possible fair value of Equity value** I averaged the equity value of comparable companies which was $ 16,4 billion with the $ 46,9 billion (EQ1) obtained with the DCF method reaching Airbnb's value for 2019 equivalent to **$ 31 billion.**

This approach, that is to calculate an average between the two methods, appears to be common in private equity funds, mainly in the so-called Venture Capital method, as

explained by Eugenio Morpurgo CEO of Fineurop Soditic SpA and full professor of Investment banking at SDA bocconi[36] , which highlights that the two methods, although they can be distinguished in terms of assumptions and considerations, go exactly hand in hand, therefore in order to give an almost fair value it is crucial to apply this small calculation.

In the other hand, the Equity Value founded before seems to be consistent with what the market currently said specifically according to what is reported by Statista[37], the Wall Street Journal and Thompson Reuters[38].

As mentioned in the previous chapter, unfortunately ***the valuation of these companies has remained a black box***. This is partly due to the natural difficulty of valuing high-growth and illiquid companies. But to a large extent, this is due to the extreme complexity of the financial structures of High growth VC-Backed companies.

Therefore in this section I have tried to make some assumptions I believe they have been consistent in order to find the fairest and "right" value of one of the most important unicorns of our times.

Subsequently the prospective DCF will be reported regarding the assessment carried out with the impact of COVID-19.

[36] https://www.aifi.it/private_capital_today/3128123-il-punto-di-eugenio-morpurgo-ceo-di-fineurop-soditi
[37]https://www.statista.com/statistics/339845/company-value-and-equity-funding-of-airbnb/
[38] https://seekingalpha.com/news/3559183-airbnb-valuation-nearly-halved-in-latest-round-reuters

DCF with COVID-19 Impact

DCF - Airbnb (USD 000)	dic-18	dic-19	dic-20	dic-21	dic-22	dic-23	dic-24
Net Revenues		**2,762,194**	**2,975,337**	**3,091,633**	**3,330,197**	**3,587,170**	**3,863,972**
COGS	-	1,490,543 -	1,630,520 -	1,783,643 -	1,951,145 -	2,134,378 -	2,334,819
Gross Margin		**1,271,651**	**1,344,817**	**1,307,990**	**1,379,052**	**1,452,792**	**1,529,153**
SG&A	-	160,246 -	176,696 -	194,833 -	214,833 -	236,886 -	261,203
EBITDA		**1,111,405**	**1,168,121**	**1,113,157**	**1,164,218**	**1,215,905**	**1,267,950**
D&A	-	85,540 -	58,107 -	40,828 -	30,215 -	24,022 -	20,815
EBIT		**1,025,865**	**1,110,014**	**1,072,328**	**1,134,003**	**1,191,883**	**1,247,135**
Taxes	-	238,440 -	257,999 -	249,239 -	263,574 -	277,027 -	289,869
NOPAT		**787,425**	**910,123**	**863,917**	**900,644**	**938,878**	**978,081**
D&A	-	85,540 -	58,107 -	40,828 -	30,215 -	24,022 -	20,815
NWC	- 237,128	- 237,128 -	237,128 -	237,128 -	237,128 -	237,128 -	237,128
delta NWC		**-**	**-**	**-**	**-**	**-**	**-**
Capex		**6,301**	**6,787**	**7,052**	**7,596**	**8,183**	**8,814**
FCFO		**866,664**	**961,442**	**897,693**	**923,262**	**954,718**	**990,082**
Terminal value						**14,961,667**	**15,964,711**
FCFO + Terminal value	**(0)**	**866,664**	**961,442**	**897,693**	**923,262**	**15,916,384**	**16,954,794**

EV	**24,543,209**
NFP	**1,299,528**
EQ 1	**23,243,681**
EQ 2	**19,821,672**

TABLE 19: DCF valuation with COVID-19 Impact

Airbnb had this value until the pandemic broke out but exactly for this crisis, the best s Silicon Valley Unicorn received a new funding round on April 6, 2020 out of $ 1 billion in debt at an almost high rate of around 11% per annum.[39]

This increase in debt in the coffers of Airbnb will see an increase of the same value in the net financial position of exactly $1 billion dollar and applying the same reasoning for the calculation of the Equity value without considering the impact of COVID-19 but with the assumptions ranging from 2020 onwards we are able to estimate its value with that impact which will have a value almost equal to **$ 18 billion.**

This seems to be consistent with what the major valuation platform like Bloomberg and Thompson Reuters says immediately after Airbnb received this funding from the Silver Lake and Sixth Street partner.

The reduction in its value is so exponential not only because it has received 11% funding but also because, following the global economic uncertainty caused by the pandemic,

[39] https://www.businessinsider.com/airbnb-raising-1-billion-debt-second-funding-deal-two-weeks-2020-4?IR=T

Airbnb will pay an additional 7.5% interest rate on the five-year loan, in addition to the London interbank offered.

3.4.5 Sensitivity Analysis

	Eq Value value range	g Long Period									
	19,821,672	1%	1.50%	2.00%	2.50%	3.00%	3.60%	4.10%	4.60%	5.10%	5.60%
WACC	5%	25,972,367	27,426,520	29,365,389	32,079,807	36,151,434	44,876,347	61,033,595	117,583,962	(391,369,342)	(52,067,139)
	6.00%	23,366,280	24,237,377	25,326,249	26,726,226	28,592,863	31,859,477	36,157,654	43,525,957	59,081,263	113,524,835
	7.00%	21,563,531	22,135,537	22,821,946	23,660,889	24,709,568	26,375,117	28,289,541	31,001,642	35,141,165	42,237,490
	8.00%	20,223,757	20,623,446	21,089,749	21,640,835	22,302,138	23,294,092	24,353,872	25,725,352	27,569,757	30,182,663
	9.00%	19,176,528	19,468,640	19,802,482	20,187,684	20,637,087	21,286,224	21,948,608	22,761,535	23,782,905	25,104,677
	10.02%	18,307,736	18,527,159	18,773,924	19,053,483	19,372,837	19,821,672	20,265,142	20,790,359	21,422,219	22,196,875
	11.02%	17,601,686	17,772,190	17,961,587	18,173,200	18,411,183	18,739,071	19,055,713	19,421,639	19,849,326	20,355,849
	12.02%	16,998,971	17,134,329	17,283,190	17,447,679	17,630,394	17,878,279	18,113,523	18,380,449	18,685,921	19,038,938
	13.02%	16,475,377	16,584,747	16,704,038	16,834,663	16,978,318	17,170,823	17,351,016	17,552,597	17,779,614	18,037,206
	14.02%	16,014,025	16,103,716	16,200,865	16,306,444	16,421,599	16,574,366	16,715,782	16,872,201	17,046,147	17,240,740
	15.02%	15,602,761	15,677,247	15,757,451	15,844,059	15,937,869	16,061,280	16,174,478	16,298,533	16,435,088	16,586,132

Table 20: Airbnb Sensitivity Analysis (USD/000)

This type of analysis consists in evaluating the effects on the results provided by a model (i.e. by the function that does it analytically describes) induced by changes in the values of the input variables. The sensitivity analysis, therefore, primarily aims to improve the decision-making process, especially through a evaluation of the robustness of the decision taken. It also highlights the factors whose value is worthwhile better estimate, and those that it is appropriate to keep under strict control during the execution of the project.
In my analysis, it was carried out by placing the change in the Equity value as a relevant variable by changing 2 elements of important interest in the work carried out, called:

- Long-term growth rate **(g);**
- Wacc.

Through the support of the Double Data Table function of excel, it is possible to notice the significant dependence of the Equity value with respect to these 2 elements, in which, despite the fact that these are small variations, they lead to a completely different final result compared to that obtained through the application of the previous method.
This therefore shows the normal high degree of volatility that the company presents when estimating its real value.

3.5 What will happen in the Airbnb's Future?

After having specifically analysed and evaluated Airbnb, obviously trying to show what its real and fairest value was possible according to certain assumptions, in this last paragraph I will try to show all the strategies implemented by Airbnb during the pandemic in order to receive a billion dollar loan, previously announced and why it has decided to publish the data to the SEC for its imminent listing.

3.5.1 Airbnb and the strategies against the stop of the covid19 pandemic

Airbnb has implemented strategies [40] to deal with the COVID-19 pandemic, which broke out on 11 March 2020, which have allowed it to receive trust from the financial markets and in particular from some private equity funds such as Silver lake and Sixth Street partner i which have invested a total of $1 billion dollar the CEO of Silver Lake[41] on its business model stated that "Airbnb's diversified, global and resilient business model is particularly suited to thrive in the future that awaits us, therefore we believe that the company may have performance that goes beyond beyond all expectations."

1. **Fund of $250 million dollars to help hosts**

Among the most important strategies implemented by the Silicon Valley company is to have reimbursed cancellations made by May 31 due to the blocking of the pandemic by allocating a fund of 250 million dollars to help hosts who have suffered losses following the numerous reservations.

The fund made available by the platform would in fact serve to help hosts through the possibility of receiving 25% of the cancellation amount or in receiving a travel credit that can be spent when the host requests it, therefore with unlimited time.

2. **Reception for the health personal**

Airbnb has also responded to the ***health system emergency*** which required an exceptional recruitment of resources in the medical and nursing fields.

To meet the demand for housing for off-site health professionals (and not only), the portal has been transformed into a platform capable of bringing together hosts with available

[40]https://www.professione-host.it/airbnb-e-le-strategie-contro-lo-stop-da-pandemia/
[41]https://techcrunch.com/2020/04/06/airbnb-turns-to-private-equity-to-raise-1-billion/

housing with doctors and nurses. The initiative makes it possible to reconcile a demand with an offer of accommodation available for free or at symbolic prices. In fact, on both sides it is possible to make their situation known through formal requests screened and accepted on the basis of criteria of type of accommodation and availability of it.
The possibility of helping those who are fighting on the front line against the disease is certainly a huge help even for those who choose responsibly to isolate themselves even from the family to avoid any risk. On the side of the hosts, the possibility is offered to rent a house without commission and information to sanitize the accommodations.

3. The Opportunity for long term Stay

One of the most interesting proposals is that of long-term rentals with cost advantages well above expectations for all those who during the pandemic have experienced smartwork, therefore remote work, creating the appropriate conditions so that all subjects involved can feel safe in places that are comfortable and to their liking.
The real advantage, for example, is seen in terms of cost for the customer who decides to rent the house for a period of approximately one month, generating a cost saving almost equal to 50% of the cost that airbnb had in normal conditions then before. for the pandemic to break out.

4. Launch of online experience[42]

After witnessing the boom in experiential tourism made by Airbnb with its activities related to the knowledge of the territories, today it is possible to meet the novelty of online experiences, designed to experience emotions and discoveries directly from home.
This novelty, however, was not born as a mere opportunity for gain in difficult times, but as a solution to the most fragile categories affected by loneliness caused by social isolation. As stated on the official page[43], in fact, Airbnb collaborates with voluntary associations that facilitate the possibility of remote interaction even for the elderly.
The initiatives we have talked about show a willingness to tackle the problem. Certainly it is not easy to find a solution for everyone, but certainly there is a series of possible actions to propose, at least trying to raise some very difficult situations. An opening that

[42] https://www.airdna.co/covid-19-data-center
[43] https://www.airbnb.it/s/experiences/online

perhaps no major tourism industry has yet used to meet the hosts who, in fact, bring huge profits even to the largest OTAs used throughout the Western world.
However, Airbnb did its part and proved to be there with a human and direct communication from Brian Chesky who undoubtedly showed how a world platform (born in response to the 2008 crisis) is able to know how to move towards within an epochal crisis like the one we are experiencing.

3.5.2 Airbnb IPO

Despite the COVID-19 pandemic having considerably affected all sectors of the global economy and consequently forcing the home-sharing giant to cut 25% of the workforce and halve revenue growth expectations compared to 2019, Airbnb last August 20, presented the necessary documentation for the start of the IPO to the SEC, the Securities and Exchange Commission, the US body that regulates entry into the stock market.
The listing data and the share value that will be put on the market remain shrouded in secrecy, due to the method chosen by the Californian company, even if everything suggests that Brian Chesky, CEO of the company, will ring the Wall Street bell by the end of the year.
After the intention made official last year and the obligatory rescheduling of the plan caused by the health emergency that broke out all over the world, one of the main companies symbolizing the sharing economy is preparing to take the big step, well sooner than expected after the collapse of bookings and revenues started in March, in symbiosis with the lockdown and the forced stop to air travel.
A Forbes article [44]highlights a question that would arise spontaneously to anyone: "why in the midst of a global pandemic Airbnb has proposed a public debut considering that it has fired a quarter of its staff and has recorded a loss of worth $ 31 billion to $ 18 billion? According to what was reported by the main global banking players such as Morgan Stanley and Goldman Sachs, if the transaction is confirmed, it would send a double signal: i) the expectation of a restart of global mobility much faster than expected and ii) a further push to the IPOs market that in America is already doing very well, with over $60 billion

[44] https://www.forbes.com/sites/jenniferleighparker/2020/08/28/airbnbs-ipo-opens-path-to-market-dominance/#791f1e6699a2

raised since the beginning of 2020, the highest since the Internet boom in 2000, supported precisely by expectations of a V-shaped rebound after the recession induced by the virus.
Another reason why Airbnb could be such a big success in the public market came from a new industry study done by AirDNA which compared the performance of hotels and short-term rentals in 27 markets around the world.
Their results show stark differences between traditional and alternative accommodation, mainly due to a shift in travel patterns away from urban markets and to regional destinations.
Indeed, while COVID-19 has plunged average daily rates of traditional hotels, especially in urban centers, the vacation rental sector, dominated by Airbnb and Vrbo (owned by Expedia Group), has seen a rebound from April to July equal to 257% increase in bookings globally.
This tells us some key things about the rental housing sector. First, it quickly adapts to changes in travel behavior. Second, when social distances and border restrictions impact corporate conferences and group travel, national short-term rental industry sales propositions become strengths.
And it is from this study that Jim Cramer[45] in his "Mad Money" program stated that the Airbnb IPO could be the "IPO of the century" precisely because of the revolution created by the same company and the exogenous events that are currently taking place.
He also explains that hypothetically it will be able to conquer the entire market, more than it has already done up to now, both for the fear of people to stay in hotels, and because it will have the possibility of attracting more users due to the current depression of the economy of the United States, as more people could try to rent their rooms and houses in exchange for some extra money.

One wonders how Wall Street will read these financial and other data, also in light of the difficulties faced by other "unicorns" in 2019 such as WeWork, Uber and Lyft. Therefore, one wonders if the Californian company will follow the path trodden by Uber and Lyft, landed on the stock market with disappointing performance or will it have a positive response from the markets? Another question that arises is:

[45] https://markets.businessinsider.com/news/stocks/airbnb-ipo-steal-of-the-century-jim-cramer-2020-8-1029530752#

"Is Airbnb another overvalued unicorn?"

Market experts, however, are convinced that Airbnb could receive a warm welcome from investors, considering that its financials seem more stable than other Internet unicorns recently landed on the market. Certainly, its reputation is better than that of many other companies in the sharing economy and in its 11-year history the company has accumulated a large amount of capital.

Conclusions

The speculative bubble of the first internet companies (DOT COM crisis), the financial crisis of 2007 and the great recession that followed are still fresh events in the memory of many investors, who have seen their portfolios lose considerable value. Instead of acting rationally during a crisis, many people overreact; however, while many panicked people felt compelled to sell their assets at low prices, a small group of more patient individuals saw the stock market crash as an opportunity. Investing in a crisis is risky, as the recovery timeline is uncertain, yet these investors who are able to invest in a crisis without succumbing to the irrational fear that generally engulfs individuals can reap substantial returns.

So while most investors are plagued by the crisis, others decide to get involved by investing in companies, or by creating new ones.

Therefore companies like Airbnb were born, precisely during the years of the great recession (2007) by two young graduates.

The company brings something new to a market now saturated with ideas and in which the declining economy blocks ideas in the bud due to fear of an apparently certain risk. By accepting the challenge in countering the negativity of the market, Airbnb has managed to obtain numerous consents on the market, as is evident from the huge investments made by private investors.

This allowed the company to become a Unicorn and reach a valuation that exceeds $1 billion which according to experts was valued at around $ 31 billion in early 2020 and subsequently with the outbreak of the new COVID-19 crisis and with having received a full debt financing, worth $ 18 billion.

After explaining the new trend of unicorn companies to remain private through private IPOs and the reasons why VCs tend to overestimate such unicorns, the main goal of my paper was to replicate the possible Airbnb Enterprise Value that was the as consistent as possible in terms of assumptions and coherent with other studies already published. Airbnb value has been extrapolated by applying the two valuation methods used by the public and private sector to evaluate these types of companies that are the i) Market Multiples and ii) Discounted Cash Flow (DCF).

The result of my analysis shows that the value of Airbnb in terms of Equity Value, pre and post COVID-19, is equal to $ 31 billion and $ 19 billion, almost in line with what is predicted by the financial community (such as the Wall Street Journal and Bloomberg News). However, both due to the lack of information available regarding Airbnb and to what happened last year to some companies in the sharing economy such as Uber, We Work, Domo, which lost on average about 40% of their expected value during listing, the volatility and uncertainty around is higher compared with a traditional company valuation.

But in the end can we say that **Airbnb could not be considered an overvalued Unicorn** because for example, from the analysis carried out through market multiple, for example show a consistency between Airbnb and comparable.

With regards to P/E ratio index, that highlights any overvaluation or undervaluation, we note that these are on average tending to be consistent with each other, i.e. the comparables have a P/E that fluctuates around 4.3x while Airbnb for 2018 has a P/E of 7.02x.
This highlights that although we are in an era characterized by the trade war between the US and China and a pandemic has broken out which has caused an unprecedented crisis, Airbnb could have paved the way in the stock market by positioning itself as the main player of the new post era-COVID-19.

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Thesis Summary

Introduction

Starting from the 2000s, the Unicorn outbreak has been one of the relevant topic faced in the financial markets.

Unlike the mythological creature, in finance the word Unicorn means a startup whose valuation reaches one billion dollars deciding to not go public.

What has allowed this phenomenon spread so exponentially is partly due to the different attitudes of investors. The reason behind Unicorns capability to reach such conspicuous valuations has to be found in the huge risk capital faced by Venture Capitalist companies and large private investors, in particular the scenario has been transforming over time, changing its actors, involving also investors who traditionally not active on the market aggressive way .

On the other hand, joining the Unicorns club is a great motivational source, whose goal is mainly to achieve this status which is quite rare for a company, especially if it is private. Regarding the Unicorn's status means be part of a selected range of company with some reflection in both financial market and valuation, especially for those developed in few years.

The aim of this dissertation is to provide the fairest value of Airbnb based on the most updated financial data, macroeconomics. In addition, has been carried out a sensitivity analysis including the effect of the pandemic outbreak occurred in March 2020.

Specifically, the main paper aspect is about my own **Financial Valuation model for Airbnb** trying to predict, through consistent assumptions, both with the reference market and with the financial data of the company itself, what its value in terms of Equity Value both before and after the impact of COVID-19.

Furthermore, the paper will be focused on other two important aspects, which analyzed in the 1st and 2nd chapter respectively, better clarifying the rationale behind the Airbnb evaluation:

The first one is to explain the actual transition that these unicorns have had in remaining private companies longer than was done thanks to the support of Private Equity funds through and large the investment capability made in particular through PIPOs (private IPOs) giving the possibility to the specific company to grow in terms of volumes and

investments avoiding the problems of being a public company such as excessive regulation, excessive costs and related risks.

The second aspect analyzed is focuses on the explanation of a possible overvaluation of unicorns made by the market and the reasons why Venture Capital usually tend to overestimate them. From the analysis will emerge that the Unicorns' overvaluation is mainly due to the fact that each Venture Capital does not consider important aspect evaluating a start-up company. One of the most important refers to the non-inclusion of all the preferential claims such as liquidation preferences **(LPs)** or anti-dilution provision in the valuation, therefore giving the same value to both common and preferred shares. As stated by "Gornall and Strebulaev" in a Stanford research, the fair valuation of these companies remains a "**black box**" due to both the difficulty of evaluating companies with high growth rates and the complexity of financial structure.
Also, the paper analyses some aspects trying to find a correlation between the overvaluation of current unicorns and the speculative bubble that occurred in 2000 with Internet Companies (called "Dot Com").

In the third and final chapter, after reporting the financial data, an analysis of Airbnb has been carried out through the different valuation methodologies most commonly used in Corporate Finance, more specifically: i) Method of Market multiples and ii) method of Discounted Cash Flow (DCF) with the relative assumptions.
Additional to the base case valuation, different scenario analysis have been investigated, for example, including the strategies implemented and the company capability to face one of the largest crises in modern history such as that caused by COVID-19, as well as its recent delivery of financial data to the SEC (Security Exchange Commission) for its debut in public markets.

Chapter 1: The Change

The first chapter, has an introductory function regarding the reasons that induce a company to go public on the public market, the choice of which obviously can have pros, such as access to a wider and more diversified number of capitals, increased visibility of the company globally and obviously greater liquidity and cons such as the loss of control of corporate ownership, the dilution of the value of the shares and finally the high costs deriving from management and overheads.

But starting from the beginning of 2000 ', after the approval of some laws such as the Sarbanes Oxley Act[46], which significantly increased the costs for listing, the phenomenon of Unicorn companies began to spread, which are defined as such as they reach a value equal to or greater than $ 1 billion.

The peculiar characteristic of Unicorns companies is that of being ***private***, a completely distinct scenario from what happened previously that, in order to reach a state of international relevance, it was essential for a company to be listed on the stock exchange through the classic IPO method. In the case of a Unicorn, the capital is founded through the so-called PIPOs, i.e. private IPOs, which allow the company to remain private longer, avoiding the risks and costs that it could incur if it appeared on the public market. During the chapter, the contribution of Private Equity investments in spreading this trend highlights the benefits of the governmental structure of a Private Equity company, which will reduce the risks of a typical public company.

Through a PIPO the company remains private for a longer period of time, thus maintaining the organizational structure of the Private Equity, from which it can benefit. The set of benefits brought by the private market means that the phenomenon has already spread globally.

The following analysis present the sectors in which the number of Unicorns is greater, as well as the geographical areas in which they are distributed. Being a recent phenomenon, the analysis continues focusing on the economic forces that have contributed to the boom of this trend, especially the market demand (investors) and supply (companies).

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[46] *The Sarbanes-Oxley Act effectively increased the compliance costs of going public and being a reporting public company. Passed in 2002, it may have helped depress the initial public offering market, with only 87 IPOs completed in the US in 2003*

Chapter 2: The Unicorn's Overvaluation

In this chapter, there is a focus on the anatomy of technological unicorn valuation and its overvaluation analysing all innovative start-ups that have suffered this process trying to show if we will go back to the same technological bubble as we have seen during the Dot Com bubble.

So, the real question is: "What do investors think about the Unicorn's valuation"? are they overvalued? Fairly valued? Or Undervalued?"

A survey done by ***Ilya Strebulaev***, Full Professor, Finance & Venture Capital, Graduate School of Business, Stanford University shows that about more than thousand venture capitalists exactly 92% of those VCs said the ***Unicorns are Overvalued***, 75% believe that Unicorns are very significantly overvalued. Analysing all the most important overvaluation cases for example, **Uber** saw an "IPO Haircut" in 2019 from an initial valuation of 68 billion dollars to a 40 billion dollar after its listing; cloud computing company **DOMO** took over $1,7 billion dollars off the top in 2018; one of the most important high-profile haircut came in 2019 from **WeWork** lowering its valuation by 32 billion dollars before the company withdrew its IPO. Mostly what you see whenever a value is communicated is directly connected with financing rounds, for example UBER last financing round allow it to be valued $ 62 billion, Airbnb with the 2017's financing round was valued at $ 31 billion and with last one received, during COVID-19 crisis, from a private equity finance the valuation dropped to $18 Billion dollar.

From the analysis will emerge that the Unicorns' overvaluation is mainly due to the fact that each Venture Capital does not consider important aspect evaluating a start-up company. One of the most important refers to the non-inclusion of all the preferential claims such as liquidation preferences **(LPs)** or through the accounting practices that are able to exclude all the major expenses, including rent costs and therefore giving the same value to both common and preferred shares.

As stated by "Gornall and Strebulaev" in a Stanford research, the fair valuation of these companies remains a "**black box**" due to both the difficulty of evaluating companies with high growth rates and the complexity of financial structure

As well as, Damodaran also identifies 5 main characteristics that lead to an overvaluation of high-growth companies: i) no history, ii) zero or few revenues, iii) the strong independence of equity investment, iv) clauses imposed by equity investor and, v) illiquid investment.

After having analysed all the overvaluations' reasons I will review the different valuation methods most commonly used and known by the financial community, specifically, the most widely used valuation methods are the system of discounted future cash flows (Discounted Cash Flow), the market multiples method and EVA (Economic Value Added) and in the end the most reliable valuation method considered by the financial community is the DCF because, as stated by a the McKinsey report[47] despite the pitfalls due to the characteristics of the companies in question, the method allows the weighting of scenarios, the taking into account of factors of risk and the precise estimate of future cash flows also based on the business plan.

Also, the paper analyses some aspects trying to find a correlation between the overvaluation of current unicorns and the speculative bubble that occurred in 2000 with Internet Companies (called "Dot Com"). in the light of the data presented and the considerations made, it seems that all the ingredients for a sort of sectorial (technological) bubble are there and that the excessive optimism in the US market will certainly be appeased with adjustments in valuations that will mainly concern the market deprived of technology companies and the investors who are part of it because they are unlikely compared to reality. For this type of business, potential growth is valued more than actual profitability but outsized valuations such as these need to be reflected in revenues otherwise, they can be very difficult to sustain.

Chapter 3: Airbnb Independent Valuation

Airbnb is an online portal and application for mobile devices that connects people looking for accommodation or rooms, with others who have rooms or entire apartments, villas, castles, historic homes and much more. The company was the second largest start-up in

[47] https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/valuinghigh-tech-companies

the US in 2017, valued at $ 31 billion according to the Wall Street Journal and currently with a post-pandemic COVID-19 value of $ 18 billion[48]. In this section, one of the main Silicon Valley unicorns is examined in detail, highlighting through the two main valuation models used by the private and public world for high growth and high yield companies such as Discounted cash flow (DCF) and the Multiples of market, what is its real value in terms of Enterprise Value and Equity Value with a focus on its value before and after the COVID-19 pandemic. Additional to the base case valuation, different scenario analysis have been investigated, for example, including the strategies implemented and the company capability to face one of the largest crises in modern history such as that caused by COVID-19, as well as its recent delivery of financial data to the SEC (Security Exchange Commission) for its debut in public markets.

For the Airbnb evaluation I downloaded the report from the Irish Chamber of Commerce called (CRO) analyzing the following data: i) consolidated financial statements, ii) consolidated income statement and iii) consolidated cash flow statement. In order to give a more accurate analysis of the data, I have reclassified the balance sheet in terms of sources and commitments in order to highlight what kind of investments Airbnb has made and with which sources of funding. Below we will look at the assumptions made for both valuation methods to find the fairest possible Airbnb value.

Multiple Valuation

The multiples method is based on the analysis of stock market quotations referred to a selected sample of companies operating in the reference sector (comparable listed companies) and to the subsequent application of the multiples, highlighted by this analysis, to the corresponding magnitudes of the company being valued.

The multiples have been obtained as the ratio between the market capitalization of the comparable companies and the income, equity and financial amounts considered significant for them. The application scheme of this evaluation approach is divided into the following points:

[48] https://www.wsj.com/articles/airbnb-plans-to-file-confidentially-for-ipo-in-august-11597164041

- Identification of comparable companies
- Define the reference temporal scheme
- Determination of most significantly multiple for the valuation
- Application of multiples to the company in question

Now let's have a look on the comparable financial data:

Multiple valuation 31/12/19								
COMPANY NAME	Net debt	Market cap (avg 1Y)	Net income	EBITDA	EBIT	Revenue	Equity Book Value	EV
Tripadvisor	-236.0	3,845.0	126.0	313.0	187.0	1,560.0	1,161.0	3,609.0
Booking.com	1318.0	85,960.0	3,998.0	5,814.0	5,345.0	15,066.0	5,933.0	87,278.0
Expedia Group	1097.0	15,070.0	565.0	1,871.0	961.0	12,067.0	3,967.0	16,167.0
Marriot	10715.0	49,508.0	1,273.0	2,268.0	1,938.0	20,972.0	703.0	60,223.0

TABLE 1: Comparable companies' data from Orbis Database

To this point, on 31/12/19 using Orbis as a research source, data relating to 6 multiples have been extrapolated: P/E, P/BOOK VALUE, P/SALES, EV/EBITDA, EV/SALES and EV/EBIT. The average, the median, the maximum and the minimum have been calculated for these data, in order to estimate the price. The medians have been used as key values, since coherently with the assumptions of Damodaran that is more reliable as an estimate.

	P/E	P/Book Value	EV/EBITDA	EV/SALES	EV/EBIT	P/Sales
	2019	2019	2019	2019	2019	2019
Tripadvisor	9.2x	3.3x	11.5x	2.3x	19.3x	0.7x
Booking.com	1.5x	14.5x	15.0x	5.8x	16.3x	0.4x
Expedia Group	7.0x	3.8x	8.6x	1.3x	16.8x	0.3x
Marriot	0.6x	70.4x	26.6x	2.9x	31.1x	0.0x
Average	4.6x	23.0x	15.4x	3.1x	20.9x	0.4x
Median	4.3x	9.1x	13.3x	2.6x	18.1x	0.4x
Min	0.6x	3.3x	8.6x	1.3x	16.3x	0.0x
max	9.2x	70.4x	26.6x	5.8x	31.1x	0.7x

TABLE 2: Asset Side and Equity side Ratio

For the reason why the asset side multiple have the advantage of being more easily comparable to companies with different financial leverage(D/E) follow we will find all the results related to the EBITDA, EBIT and SALES (Revenue) and carrying out the necessary calculation, we obtain an Equity value for the 2019 of Airbnb equal to **$16,4 billions**.

Data Airbnb @ 12/2019 (in 000$)

EBITDA @ 12/2019	1,111,405
EV	14,749,483
NFP @ 12/2019	*239,956*
EqValue	**14,509,527**

EBIT @12/2019	1,025,938
EV	18,529,756
NFP @ 12/2019	*239,956*
EqValue	**18,289,800**

Net Revenues @ 12/2019	2,762,194
EV	7,161,059
NFP @ 12/2019	*239,956*
EqValue	**6,921,103**

Average Equity value of comparables
16,399,663

TABLE 4: Airbnb Multiple results

WACC estimation

The "WACC" worksheet includes the various procedures carried out for calculating the FCFO discount rate in the DCF analysis. First of all, a benchmark of comparable operating in a similar or apparently similar market was selected since Airbnb, in terms of business model, is absolutely innovative, so I used platforms such as Booking or Expedia as its real competitors and we will see the scheme below necessary to arrive at the calculation of the unlevered beta of the market which will subsequently be applied to our financial structure (D/E) to obtain the so-called Beta relevered.

Company name (31/12/19) datas	Raw Beta (Damodaran)	Adjusted Beta (Damodaran)	Period Beta	Market cap (USD mln)	Net Debt	Debt/ Equity ratio	Tax rate (t)	UnLevered Beta (Damodaran)
Tripadvisor	1.3	1.18	monthly	3,845.0	-236.0	-0.06	0.21	1.2401
Booking.com	1.1	1.05	monthly	85,960.0	1,318.0	0.02	0.21	1.0341
Expedia Group	1.5	1.30	monthly	15,070.0	1,097.0	0.07	0.21	1.2293
Marriot	1.6	1.41	monthly	49,508.0	10,715.0	0.22	0.21	1.2070
average	**1.35**	**1.24**		38,595.8	3,223.5	**0.06**	**0.21**	**1.18**
Median	**1.36**	**1.24**		32,289.0	1,207.5	**0.04**	**0.21**	**1.22**
Standard deviation	**0.24**	**0.16**				**0.12**		**0.10**
min	**1.07**	**1.05**		3,845.0	-236.0	**-0.06**	**0.21**	**1.03**
Max	**1.62**	**1.41**		85,960.0	10,715.0	**0.22**	**0.21**	**1.24**

TABLE 5: Comparable companies' data from Orbis Database

Subsequently, in order to follow the Damodaran assumption in which is explained that the clearest valuation through the comparable companies is taking in consideration the median of these values (1.21), I used that value to estimate the Airbnb levered beta using the following formula:

Airbnb Beta Levered=Median beta unlevered of comparable companies*(1+D/E(Airbnb));

This value will be of vital importance in the calculation of the cost of risk capital (Ke) given by the formula of the CAPM (Capital Asset Pricing Model) which we will see below as it will be calculated.

2019		
Cost of Risk Capital (ke)		
Risk free rate	2.39%	*10Y US Treasury bond yield (Avg 1Y)*
Beta unlevered	1.22	
D/E	0.91	
Beta relevered	2.33	
ERP (equity risk premium)	6.00%	*Damodaran Equity Risk Premium Estimation (US)*
Ke	**16.38%**	

TABLE 6: Airbnb Cost of Capital (Ke)

I have assumed that the Capital Structure D/E is constant for the entire reference forecast period because as we can see, from the financial statement, the capital structure doesn't change enough, and it seems to be consistent with the financial statement data. In fact, from 31 December 2017 to 31 December 2018 it has changed for the 2017 the capital risk weight E/(D+E) is equal to 0.46 and the financial debt weight D/(E+D) is equal to 0.52 and at the same time we have a both little change equal to 13% in 2018 about these items changing this capital structure to E/(D+E)=0.56 and D/(D+E)=0,48.

Capital Structure	2018	2017	% change in capital structure
Capital Risk Weight E/(D+E)	0.52	0.46	13%
Financial Debt Weight D/(D+E)	0.48	0.54	13%

TABLE 7: Airbnb Capital Structure

After identifying the cost of risk capital, the WACC provides for the calculation of the cost of debt which, according to the estimates made by Damodaran, we will calculate through the formula of the Interest Coverage ratio (EBIT/ net interest expenses) which we will show below:

Interest coverage ratio (ICR method)	
Interest coverage ratio	7.6
S&P rating	A+
Risk free rate	2.39%
Spread	1.50%
Cost of debt (gross of taxes)	3.89%

ICR	Rating	Spread
More than 12,5	AAA	0.75%
9,5-12,5	AA	1.00%
7,5-9,5	A+	1.50%
6,0-7,5	A	1.80%
4,5-6,0	A-	2.00%
3,5-4,5	BBB	2.25%
3,0-3,5	BB	3.50%
2,5-3,0	B+	4.75%
2,0-2,5	B	6.50%
1,5-2,0	B-	8.00%
1,25-1,5	CCC	10.00%
0,8-1,25	CC	11.50%
0,5-0,8	C	12.70%
Less than 0,5	D	14.00%

TABLE 8: Damodaran Cost of Debt calculation through the Interest Coverage Ratio

Finally, from the consistency of D/E ratio I have calculate the debt and equity values needed for the calculation of the rate. Once all the variables have been determined, a weighted average cost of capital (WACC) of (10.02 %) has been estimated through the known formula after tax.

Discounted Cash Flow (DCF) Valuation

The discounted cash flow method is inspired by the general concept that the value of a company is equal to the discounted value of the following two elements:

- cash flows that it will be able to generate within the forecast horizon;
- terminal value, i.e. the value of the business complex deriving from the period beyond of the explicit forecast horizon.

I have used the approach that considers operating flows (unlevered approach), in order to obtain the economic value of the operating invested capital ("Enterprise Value"), the cash flows used are the operational Free Cash Flow (FCFO), which are discounted to the WACC ("Weighted Average Cost of Capital"). The value thus obtained is adjusted by the net financial position at the last available audited balance sheet date thus obtaining the value of the economic capital ("Equity Value") Specifically, all the assumptions I used in the evaluation will be presented below.

In order to report values that are consistent with both the data available from Airbnb and with those of market comparable, I used the same assumptions for both revenues, costs (COGS) and Operating Expenses also called SG&A.

YoY 2017/18 comparables	Revenues	COGS	OPEX
Tripadvisor	2.67%	10.06%	2.69%
Booking.com	18.42%	0.00%	19.18%
Expedia Group	17.28%	3.98%	12.72%
Marriot	10.84%	8.75%	14.99%
Average	**12.30%**	**5.70%**	**12.39%**

	Revenues	COGS	OPEX
YoY Airbnb 2017/18	16.28%	13.09%	8.14%

TABLE 9: Airbnb and comparable Revenues, COGS and SG&A (YoY)

In the previous table is show each YoY= [(balance sheet item$_t$ / balance sheet item$_{t-1}$) ^ (1/2)], for Airbnb and the comparable companies. As regards the calculation of the flow regarding the revenues, using the forecast of World real GDP after the pandemic outbreak (-4,87% on average until 2024), will suffer a reduction over the years going from an 14,29% growth in 2019 to one of 7,72% from 2020 onwards, therefore, reporting a reduction of almost 50% in revenues. Below you will find briefly the data mentioned before which will be used as growth indices for the entire evaluation period until 2024.

Revenues 2019			**Revenues from 2020**
Historical average comparable YoY	12.30%	*last year 2y*	7.72%
Airbnb historical YoY	16.28%		
average	14.29%		
COGS			
Historical median comparable YoY	5.70%	*last year 2y*	
Airbnb historical YoY	13.09%		
average	9.39%		
SG&A			
Historical median comparable YoY	12.39%	*last year 2y*	
Airbnb historical YoY	8.14%		
average	10.27%		

Table 10: Summary of Revenues, COGS and SG&A assumptions

After having estimated the growth of the items described above, we move on to the assumptions regarding CAPEX, D&A, NWC, Taxes and Macroeconomics. As for the CAPEX, since they were not mentioned in the financial data they were calculated as follows:

$CAPEX_{2018}$= Tangible $Asset_{2018}$-Tangible $Asset_{2017}$+Depreciation of Tangible $Asset_{2018}$

Subsequently it was calculated in which ratio in 2018 the capex was part of the total value of revenues this because through this index it is possible to demonstrate how much a company re invests its earnings in productive assets equal to 0.23%, seems that does not produce a significant profit but will be significant in order to estimate the growth rate for the D&A. To compute the growth rate for the forecasted D&A over the years, I have considered the average between 2017 and 2018 of the ratios: depreciation of tangible assets / total tangible assets and depreciation of intangible assets / total depreciation of intangible assets equal to 35%. After that, in order to determine the value of the prospective D&A, this average as previously calculated was multiplied with the prospective gross fixed assets given by the sum of the capex (always prospective), calculated as previously mentioned, and the non- current assets or net fixed assets.

	dic-19	dic-20	dic-21	dic-22	dic-23	dic-24
CAPEX	6,301	7,201	8,230	9,406	10,750	12,287
D&A	(85,467)	(57,890)	(40,392)	(29,474)	(22,877)	(19,145)
gross fixed asset	242,561	164,295	114,635	83,649	64,926	54,335
net fixed asset	157,094	106,405	74,243	54,175	42,049	35,190

TABLE 11: CAPEX and D&A assumptions

As we can see from the balance sheet reclassified the difference between 2017 and 2018 of **NWC** is equal to $370 thousand, so compared to the majority of financial data is almost negligible and for this reason will be consider constant over the evaluation period. The corporate income tax (Taxes) has been computed taking in consideration the Airbnb average tax rate 2017-2018 (ratio between income tax expenses and income before tax). After that by averaging this value (34%) and the Irish corporate income tax (12.5%) trying to give a consistent value for the forecasted taxation until 2024 that is **23.2%**. Due to the outbreak of pandemic the drastic effect of the inflation rate and the long period growth will be visible, according to the forecasts of the International Monetary Fund only in 2024 will we be able to return to the levels we had in 2019 so as regards the long-term growth we make an assumption that the market will recover to these levels while between 2020 and 2024, every year there will be a reduction in revenue growth of 50% on average. Now let's have a look on the DCF results without and with COVID-19 impact.

DCF without COVID-19 impact

DCF - Airbnb (USD/000)	dic-18	dic-19	dic-20	dic-21	dic-22	dic-23	dic-24
Net Revenues		**2,762,194**	**3,156,903**	**3,608,016**	**4,123,591**	**4,712,840**	**5,386,291**
COGS	-	1,490,543 -	1,630,520 -	1,783,643 -	1,951,145 -	2,134,378 -	2,334,819
Gross Margin		**1,271,651**	**1,526,383**	**1,824,373**	**2,172,445**	**2,578,462**	**3,051,472**
SG&A	-	160,246 -	176,696 -	194,833 -	214,833 -	236,886 -	261,203
EBITDA		**1,111,405**	**1,349,688**	**1,629,539**	**1,957,612**	**2,341,575**	**2,790,270**
D&A	-	85,467 -	57,890 -	40,392 -	29,474 -	22,877 -	19,145
EBIT		**1,025,938**	**1,291,798**	**1,589,147**	**1,928,138**	**2,318,699**	**2,771,124**
Taxes	-	238,457 -	300,250 -	369,363 -	448,154 -	538,931 -	644,088
NOPAT		**787,481**	**1,049,437**	**1,260,177**	**1,509,458**	**1,802,644**	**2,146,182**
D&A	-	85,515 -	58,033 -	40,678 -	29,958 -	23,621 -	20,225
NWC	- 237,128 -	237,128 -	237,128 -	237,128 -	237,128 -	237,128 -	237,128
delta NWC		**-**	**-**	**-**	**-**	**-**	**-**
Capex		**6,301**	**7,201**	**8,230**	**9,406**	**10,750**	**12,287**
FCFO		**866,696**	**1,100,269**	**1,292,625**	**1,530,010**	**1,815,515**	**2,154,120**
Terminal value						**27,989,976**	**34,734,400**
FCFO + Terminal value	**(0)**	**866,696**	**1,100,269**	**1,292,625**	**1,530,010**	**29,805,491**	**36,888,520**

EV	**47,283,110**
NFP	**299,528**
EQ 1	**46,983,582**
EQ 2	**31,691,623**

DCF with COVID-19 impact

DCF - Airbnb (USD 000)	dic-18	dic-19	dic-20	dic-21	dic-22	dic-23	dic-24
Net Revenues		**2,762,194**	**2,975,337**	**3,091,633**	**3,330,197**	**3,587,170**	**3,863,972**
COGS	-	1,490,543 -	1,630,520 -	1,783,643 -	1,951,145 -	2,134,378 -	2,334,819
Gross Margin		**1,271,651**	**1,344,817**	**1,307,990**	**1,379,052**	**1,452,792**	**1,529,153**
SG&A	-	160,246 -	176,696 -	194,833 -	214,833 -	236,886 -	261,203
EBITDA		**1,111,405**	**1,168,121**	**1,113,157**	**1,164,218**	**1,215,905**	**1,267,950**
D&A	-	85,540 -	58,107 -	40,828 -	30,215 -	24,022 -	20,815
EBIT		**1,025,865**	**1,110,014**	**1,072,328**	**1,134,003**	**1,191,883**	**1,247,135**
Taxes	-	238,440 -	257,999 -	249,239 -	263,574 -	277,027 -	289,869
NOPAT		**787,425**	**910,123**	**863,917**	**900,644**	**938,878**	**978,081**
D&A	-	85,540 -	58,107 -	40,828 -	30,215 -	24,022 -	20,815
NWC	- 237,128 -	237,128 -	237,128 -	237,128 -	237,128 -	237,128 -	237,128
delta NWC		**-**	**-**	**-**	**-**	**-**	**-**
Capex		**6,301**	**6,787**	**7,052**	**7,596**	**8,183**	**8,814**
FCFO		**866,664**	**961,442**	**897,693**	**923,262**	**954,718**	**990,082**
Terminal value						**14,961,667**	**15,964,711**
FCFO + Terminal value	**(0)**	**866,664**	**961,442**	**897,693**	**923,262**	**15,916,384**	**16,954,794**

EV	**24,543,209**
NFP	**1,299,528**
EQ 1	**23,243,681**
EQ 2	**19,821,672**

Conclusions

The speculative bubble of the first internet companies (DOT COM crisis), the financial crisis of 2007 and the great recession that followed are still fresh events in the memory of many investors, who have seen their portfolios lose considerable value. Instead of acting rationally during a crisis, many people overreact; however, while many panicked people felt compelled to sell their assets at low prices, a small group of more patient individuals saw the stock market crash as an opportunity. Investing in a crisis is risky, as the recovery timeline is uncertain, yet these investors who are able to invest in a crisis without succumbing to the irrational fear that generally engulfs individuals can reap substantial returns.

So, while most investors are plagued by the crisis, others decide to get involved by investing in companies, or by creating new ones. Therefore, companies like Airbnb were born, precisely during the years of the great recession (2007) by two young graduates. The company brings something new to a market now saturated with ideas and in which the declining economy blocks ideas in the bud due to fear of an apparently certain risk. By accepting the challenge in countering the negativity of the market, Airbnb has managed to obtain numerous consents on the market, as is evident from the huge investments made by private investors. This allowed the company to become a Unicorn and reach a valuation that exceeds $1 billion which according to experts was valued at around $ 31 billion in early 2020 and subsequently with the outbreak of the new COVID-19 crisis and with having received a full debt financing, worth $ 18 billion. After explaining the new trend of unicorn companies to remain private through private IPOs and the reasons why VCs tend to overestimate such unicorns, the main goal of my paper was to replicate the possible Airbnb Enterprise Value that was the as consistent as possible in terms of assumptions and coherent with other studies already published. Airbnb value has been extrapolated by applying the two valuation methods used by the public and private sector to evaluate these types of companies that are the i) Market Multiples and ii) Discounted Cash Flow (DCF).

The result of my analysis is shows that the value of Airbnb in terms of Equity Value, pre and post COVID-19, is equal to $ 31 billion and $ 19 billion, almost in line with what is

predicted by the financial community (such as the Wall Street Journal and Bloomberg News). However, both due to the lack of information available regarding Airbnb and to what happened last year to some companies in the sharing economy such as Uber, We Work, Domo, which lost on average about 40% of their expected value during listing, the volatility and uncertainty around is higher compared with a traditional company valuation.

But in the end can we say that **Airbnb could not be considered an overvalued Unicorn** because for example, from the analysis carried out through market multiple, for example show a consistency between Airbnb and comparable.

With regards to P/E ratio index, that highlights any overvaluation or undervaluation, we note that these are on average tending to be consistent with each other, i.e. the comparable have a P/E that fluctuates around 4.3x while Airbnb for 2018 has a P/E of 7.02x. This highlights that although we are in an era characterized by the trade war between the US and China and a pandemic has broken out which has caused an unprecedented crisis, Airbnb could have paved the way in the stock market by positioning itself as the main player of the new post era-COVID-19.