LUISS

Department of Business and Management

Chair of Advanced Corporate Finance

The Initial Public Offering: The Underpricing Practice
Empirical Evidence from Italian Stock Exchange

Prof. Pierluigi Murro
SUPERVISOR

Prof. Federico Merola
CO-SUPERVISOR

Giuseppe Romeo - 707031
CANDIDATE

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Abstract

The aim of this elaborate is to deal with the initial public offering (IPO) process and, specifically, with the practice of underpricing. My thesis is going to be divided in two sections and can be further divided in four chapters;

Section I, that includes chapter I and II, will deal with the IPO process in general:

- Chapter I is dedicated to the different types of IPO that a firm may conduct and which are, in the case in point, the challenges of going public and then being public. IPO, in fact, is a process that bring a lot of changes in the enterprise, internally and externally; there are new players/subjects involved in the decisions that have to be taken. The end of the chapter is dedicated to the advantages and disadvantages of the process;
- In Chapter II the aim is to instruct the readers on how a firm starts preparing for going public; so, the phases of an IPO. More specifically, the moment when the firm decide in which financial market is better to go public, the method to find the optimal price range for your stocks and the problem that may incur post – quotation.

Section II, comprehensive of chapter III and chapter IV, is about the underpricing practice and the empirical evidence on the Italian Stock Exchange during the time period from 2008 and 2019:

- Chapter III deals with the different theoretical approaches to the phenomenon of underpricing, where I am going to make a comparison between different threads. In particular, I am going to analyze mainly the asymmetric information package of theories, which is the biggest and the most commonly known, together with the institutional threads;
- Once everything on the literature about IPO process and underpricing practice will be explained, Chapter IV will be about the analysis on the Italian Stock Exchange I am going to make, which aim is to find and verify the level of underpricing and also find the reasons that stay behind it. To do that, I will use banks of data such as Bloomberg and Thomson Reuters and then I will run my analysis based on the methodologies seen in previous studies.

Chapter 1. Initial Public Offering

"Few events in the life of a company are as great in magnitude and consequence as initial public offering (IPO)" (Draho J.)[1]. But, what is an **Initial Public Offering**? An IPO is the public offering of securities of a company that wants to be listed on a regulated market. Generally, it is promoted by an undertaking firm or a group of undertaking firms whose capital is usually held by one or more shareholders, or by small groups of shareholders or even by the State, in the case of privatization projects[2]. Through the IPO, the company spreads its shares through public group of investors creating the floating capital[3], that is the number of shares issued by the company for the negotiation on the chosen financial market. The floating capital is also a useful index for the evaluation of the stock. The higher, the more liquid is the stock. The process of going public is a very complex and articulated, it may require months to take place.
It is different between different financial markets, since they may have different listing requirements, procedures and relative costs, which will be better analyzed in Chapter 2.

1.1 Different types of offerings

After the decision of going public, one of the most important subject in the process is the underwriter, that usually is an investment bank. The role of the underwriter is to design and structure the offering. The offering may be of different types: could concern new shares to raise capital, in this first case we talk about a **primary offering** (*offerta publica di sottoscrizione*), or could deal with existing shares held by shareholders (*offerta publica di vendita*). In the latter case we refer to this type as **secondary offering**[4]. Aside from the nature of the shares issued, the type of offering can be distinguished also by the mechanism the financial advisor will choose to sell them.
The most used mechanism is the **best effort** one, frequently used for smaller[5] IPOs. The best effort mechanism imply that the "underwriter or placement agent does not commit contractually to purchase or place any securities, and that the actual closing, or sales of securities pursuant to the offering is contingent on the occurrence of a particular event, most often the receipt of orders for a minimum aggregate amount of the securities by a certain offering expiration date" (Robbins R.). So, it means that the underwriter will try its best to sell the stock for the best possible price, instead of guarantee the actual selling of the stock.

[1] The IPO decision: Why and how companies go public (2004), Library of Congress Cataloguing in Publication Data.

[2] https://argomenti.ilsole24ore.com/parolechiave/ipo.html

[3] https://argomenti.ilsole24ore.com/parolechiave/flottante.html

[4] Berk J. & DeMarzo P., Corporate finance IV Edition p. 873, Pearson, 2017.

[5] Robbins R.B., 2013. Structuring Best Efforts Offerings and Closings Under Rules 10b-9. The American Law Institute.

That is, mainly, the reason why these type of offering have an all-or-non clause; thus, if the stock is not completely sold, the deal will be resolved. They are useful to facilitate the raising of capital, since there is no purchase in advance that has to be made by the participants. The participants themselves know that, unless the minimum amount concorded is reached, the purchase will not be accepted[6].

As we said above, best effort solution is more used for small IPOs; for the one with bigger size, **firm commitment**[7] IPO is preferred. The process starts with the underwriter that, in this case, guarantees that the stock will be sold at the offer price. He is the one that buy all the stocks issued, at lower price than the fixed price, and then sells them at the offer price concorded. He will, of course, gain on the difference between purchase price and sell price. However, if the underwriter is not able to sell of the stock, he is obligated to sell the remaining amount of shares at a lower price, incurring a loss.

One last type of offering is the **auction**, a mechanism that "specifies a possible sale of the stock and a transfer from the buyers to the seller"[8] (Spatt C. & Srivastava S.). It started with WR Hambrecht & Co., an investment bank, in the late 1990. It was the first to sell its new issued stocks to the investors through an online auction mechanism "called OpenIPO" (Berk & DeMarzo, p.874). According to this method, the price should be set by the market itself through the auctioning. In this way, the investors bid during a determined period of time. One of the main problem behind the auction theory is the discretionary behavior[9]. Theorist look at it in a negative way cause "because incentives to bid aggressively are easily distorted if bidders cannot be sure how the seller will respond to their bids" (Wilhelm J.W.). The OpenIPO qualifies itself like a traditional auction where the highest bidders win in an, but the OpenIPO auction is private, and winning bidders all pay the same price per share, that is the IPO price.

1.2 What does it mean going public?

So, what happens when a company decide to start the process of going public? Every company has to prepared because this procedure may require months. As Jason Draho (2004) said in its work "*The IPO decision: Why and how companies go public*", "going public is a complex and time consuming process…

[6] Robbins R.B., 2013. Structuring Best Efforts Offerings and Closings Under Rules 10b-9. The American Law Institute.

[7] According to Bochner S. E., Avina J. C. & Cheng C. Y. in the *Guide to the Initial Public Offering,* firm commitment offering in preferred to best effort and auction offering, due to the fact that, historically, firm commitment's IPO had a greater success thanks to an accurate selection of underwriter.

[8] In Spatt & Srivastava's paper, there are further consideration on the auction mechanism compared to a posted price mechanism, and if these price allocation method are efficient in conjunction with preplay communication and participation restriction.

[9] Wilhelm J.W. Jr, 2005. Book building, Auction and the future of the IPO Process. Journal of Applied Corporate Finance, 17 (1).

which internal preparation can begin up to two years prior to the offer date". Generally, the process of going public require adequate coordination between internal and external players[10].

1.2.1 Internal Players

The company's board of directors and its management: the main character usually are the CEO, CFO and the counsel. They are responsible for the decisions about timing and structuring the offering in the cleanest way possible in such a way to describe the business of the company precisely.
CFO and general counsel are usually involved in the Due Diligence process, working with the auditors. "As a result of corporate governance reforms, the independent members of a company's board of directors have a significantly expanded role to play both during and after the offering" (Bochner S. E., Avina J. C. & Cheng C. Y.), that is due to the fact the in both phases they have to meet determinate criteria in order to maintain their position in the company during and after the listing.
The company's counsel is usually the subject that "drive" the company through the entire process. His position is fundamental since his role is also of coordination between the company and the Securities Exchange Commission (SEC) and the Financial Industry Regulatory Authority (FINRA), United States of America's institution; if we talk about Italian authority, we have to refer to the CONSOB. For the Asian market, the authority of reference is the China Securities Regulatory Commission (CSRC); I will make further consideration about these authorities in Chapter 2.
The company's auditors: its role is strictly related to financial statements (income statement and balance sheet). They, together with the CFO, are responsible for the due diligence and, once the preparation phase is terminated, are responsible for the delivering of a "comfort" letter to all the parts involved, in order to state their objectivity and transparency of their works[11].

1.2.2 External Players

The majority of IPOs are made thanks to the presence of an underwriter (usually an investment bank). Of course the bigger the size of the IPO, the more convenient is having a group of underwriter, between 20 and 30. The group of underwriters is essential for the spreading of the syndication strategy, in order to get a more wide audience. "The underwriter will spend considerable time analyzing how to "position" the company with investors to achieve a successful offering" (Allison S., Hall C., & McShea D., p.8).

[10] Bochner, S. E., Avina, J. C. & Cheng, C. Y., 2016. Guide to the Initial Public Offering (8th ed.).

[11] Bochner, S. E., Avina, J. C. & Cheng, C. Y., 2016. Guide to the Initial Public Offering (8th ed.).

Underwriters, as well as every other player involved in the IPO process, must satisfy criteria of[12] [13]:

- Independence;
- Experience and reputation;
- Absence of conflict of interest (or at least it has to be properly mitigated);
- Financial soundness;
- Track record;
- Aftermarket support (based on previous IPOs guided by that underwriter;

According to the model developed by Chitru Fernando, Vladimir Gatchev and Paul Spindt (2005)[14], the choice of the underwriters by the firm is mutual, considered a "more natural… than a one-sided mechanism because it more accurately reflects the actual institutional situation" (Fernando C., Gatchev V. & Spindt P., p.2438). The findings of this empirical study could summarized "issuers and underwriters will associate with different partners for subsequent offerings if changes in issuer quality and/or underwriter reputation are large enough" (Fernando C., Gatchev V. & Spindt P., p. 2465).

The underwriter's counsel: he is the representant of the totality of the underwriters and he is responsible accordance of the prospectus and, consequently, the offering with the authorities' rules and laws.

1.2.3 Going public and Being public

Here in this paragraph, I am going to point out the differences between "going public" and "being public". Both conditions are strong challenges for company, and sometimes firms are not able to overcome them, causing the failure or the abandonment of the IPO process. To help my analysis I am going to use different guides published by some of the BIG 4 consulting firm (PWC, KPMG, Ernst & Young) in which they bring out all the problems related with the process. Knowing that, why do firms still want to go through these challenges? EY's report states that the most common cases of IPO are related to[15]:

- Companies with a high growth;
- IPO used by private equity and venture capital owners in order to "further fund growth of portfolio companies" (EY's guide to going public, p. 4);

[12] Gatti Stefano, Project Finance in Theory and Practice, Second Edition.

[13] Allison S., Hall C., McShea D., 2008. The Initial Public Offering Handbook: A Guide for Entrepreneurs, Executives, Directors and Private Investors, St. Paul Minnesota: USA, Perkins Coie LLP.

[14] For further information on the relationship firm – underwriter, Wanna Dance? How Firms and Underwriters Choose Each Other. The Journal of Finance, vol. 60, pp. 2437-2469.

[15] Ernst & Young, 2013. Limited, 2013, EY's guide to going public.

- Family businesses that want to separate management from ownership in order to better manage the succession;
- Public companies that use IPO to privatize.

As I said before, the process of going public is really long and articulated.

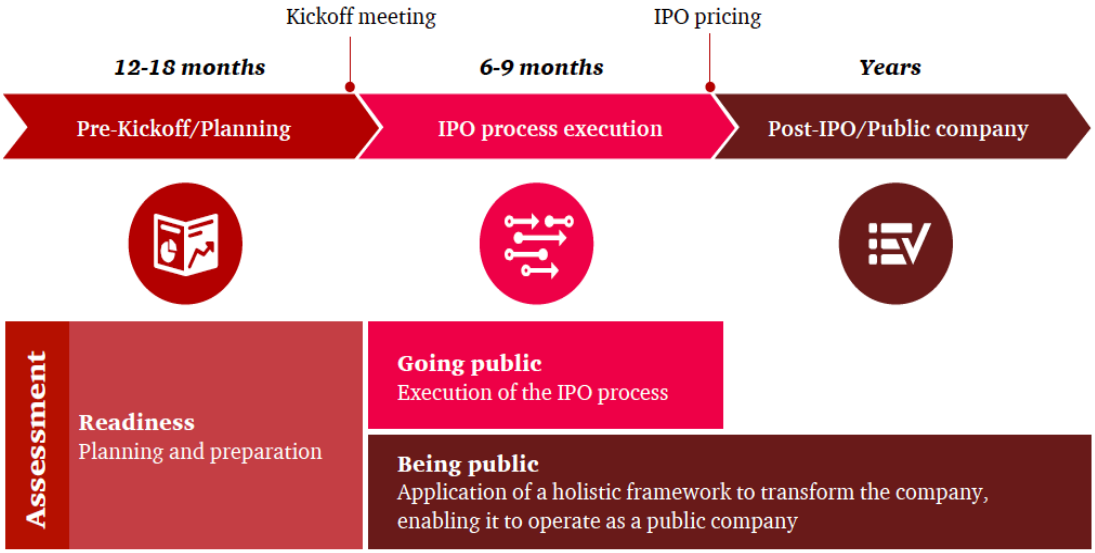

Figure 1 PWC Deals, November 2017, Considering an IPO to fuel your future's company?

Every decision has to be taken carefully even though "setting and maintaining a sustainable pace is critical to the success of an IPO" (KPMG)[16]. The timing is essential and a firm should consider three main point to verify if it is the right moment to go public:

1. The economic environment (the presence of investors and consequently of equity; the sector trend);
2. If the company is ready to meet the market standards (internal resources; previous financial reports; the amount of change necessary to fit in the market or markets);
3. The actual length of the IPO process (i.e. is the firm going to list in one or more markets?; the experience of the advisors chosen).

Which are the challenges of both conditions (*going and being public*)?[17]

Going public means starting and finishing the IPO process, with all the phases included such as: the drafting of the Prospectus and the registration with the national authority responsible, the preparation and the audit

[16] KPMG, 2015, From private to public. KPMG's guide to go public. As well as the other "BIG 4" consulting firm, KPMG published a guide to help firm in the process pre and post IPO.

[17] For a more adequate lecture about the differences in going and being public, I suggest the reading of "PWC Deals, November 2017, Considering an IPO to fuel your company's future? Insight into the costs of going public and being public."

of the financial documents necessary and, as I overmentioned before, the choice of the players (underwriters and advisors).

Being public could be defined as the "application of a holistic framework to transform the company enabling it to operate as a public company" (PWC Deals). This statement refers to the transformation that the company have to undertake in order to adapt its strategy, corporate governance, control and coordination (accounting, tax, legal, human resources, risk management) to the new environment where it will operate from now on.

I will analyse the most important advantages and disadvantages of this process in the next paragraphs (1.3 and 1.4).

Now I am going to summarize the major theories on why firms go public, thanks to different authors, such as James Brau (Why do firms go public, 2010)[18] and Marco Pagano, Fabio Panetta and Luigi Zingales (Why do Companies go public? An empirical analysis, 1998)[19].

"If entrepreneurs were asked why they took their firms public, they may not be as opens as Jim Clark[20] was in the opening quote. A typical reply might be, <<We needed money>>" (James Brau, 2010).

One of the main question behind the reasons, that has to be separated from the timing (since there are positive correlation between long period of high underpricing with the choice of firms to go public[21] is related to the difficulties in explaining why a firm should choose equity as an form of financing/funding, even if it is the riskiest one and, also, in terms of priority[22] rights is usually the last form the be repaid in case of liquidation, if any.

Modigliani and Miller were the first to introduce the "Optimal capital structure/Minimize cost of capital[23]" theory, with their I proposition, stating that "the market value of any firm is independent of its capital structure" (1958), and, after the introduction of taxes with the consequently tax shied of debt, with the II

[18] Brau James C., 2010. Why do firms go public?. Oxford Handbook of Entrepreneurial Finance.

[19] Pagano M., Panetta F., Zingales L, 1998. Why Do Companies Go Public?An Empirical Analysis. The Journal of Finance.

[20] Entrepreneurs and computer science professor, founder of Netscape.
Fun fact: after Netscape's IPO, Jim Clark was finally able to buy his own yatch.

[21] Brau James C., 2010. Why do firms go public?. Oxford Handbook of Entrepreneurial Finance, p. 3.

[22] The concept of seniority refers to the order of repayment in case of bankruptcy or liquidation:
1) Senior Debt
2) Junior Debt
3) Subordinated Debt/Mezzanine Equity
4) Preferred stock
5) Common stock.
Gatti Stefano, Project Finance in Theory and Practice, Second Edition.

[23] Brau James C., 2010. Why do firms go public?. Oxford Handbook of Entrepreneurial Finance, p.4-5.

proposition (1963), stating that the optimal capital structure is achieved through a 100% debt financing. M&M's theory is our starting point; after the introduction of the cost of bankruptcy, Baxter first (1967) and Stiglitz then (1969) stated that if there is too much debt financing, the value of the firm will be too much affected by the increased financial distress costs. So, the optimal structure stays in a debt to equity ratio (D/E) that minimize the weighted average cost of capital (WACC, cost of capital that takes into account both debt holders and equity holders). A lot of theories are related to the positive effect that the WACC has on the value of firm, such as the one by the Professors Alan Kraus Robert Litzenberger (1973). According to them, firms will issue equity in order to minimize the WACC and, consequently, maximizing the value of the firm.

Another theory starts from the stereotype that a firm goes public because it is a stage of the growth cycle of a company itself. This statement is easily disputable; just think of examples of firms in large developed markets, like the ones Pagano *et al.* (1998) cite in their article. In fact, United Parcel Service (UPS), in 1992, already had $16.5 billion in sales and more than 200.000 employees, and still decided on not going public. But of course there are exceptions, whose reason to go public is mainly "To overcome borrowing constrains/Increase bargaining power with banks" [24]. For the overcoming hypothesis, Pagano *et al.* found that, in their sample of firms, the ones with high capital expenditure and high leverage do not undertake the IPO as much as the ones with high market to book ratio (M/BV).

For reducing the bargaining power of banks, they states that firms with higher interest rates and lots of source of credit seem to go public more.

"To establish a market price for subsequent sell-out"[25] is one of the most interesting theory. It states that the owners of a private company might want to go public in order to estimate a market price for their company for cashing out; then the ultimate step would be selling – out immediately the firm at a higher market value. This theory finds its base on the fact that owners are risk averse and, thus, they want to transfer the control once a price has been fixed.

But, using the data on US IPOs from 1985-2003, James Brau *et al.* found out that on a sample of more than 4000 companies, only the 3% became a target of potential new owners within the first year. According to Pagano *et al.*, and their studies on a sample of Italian companies, that the percentage in higher in that economic context, around 14%. These findings, though, are not sufficient to demonstrate the theory since they do not prove if the previous owners had in mind to make a sell – out.

Even if it is not to make a sell – out, it happens that owners decide to launch an IPO in order to have less responsibility in the company, allowing a "dispersion" of the ownership among different investors. Using

[24] Pagano M., Panetta F., Zingales L, 1998. Why Do Companies Go Public?An Empirical Analysis. The Journal of Finance.

[25] Brau James C., 2010. Why do firms go public?. Oxford Handbook of Entrepreneurial Finance, p. 8.

the data of Pagano (1998), on average, among the Italian companies in the sample, the owners retain nearly the 60% of the property.

According to a total different theory, Maksimovic and Pichler (2001), firms may launch an IPO to make the first move, and so, to be the leader in their specific sector, or just to increase their reputation.

First of all, according to the theory, from the market point of view is better a firm looking per equity, by issuing stocks, rather than issuing debt.

In this scenario, the underpricing theory finds a big and interesting space, in order to increase the "mystery" and the interest in the company.

It is not possible to notice the effect of the underpricing with the samples presented above (James Brau or Mario Pagano's one), but an interesting study conducted by Demers and Lewellen[26] (2003) permitted to use the website traffic to measure and to have a nearly precise estimation of media and investors' interest in the IPO. We are dealing with big increase:

- On average, the medias' interest increase more than 100% (the measure has been estimated by the amount of articles about the IPO in the month of launching);
- On average, the visitors' interest increase more 20% (the number refers to the number of visitors in the month of the launching).

Underpricing plays a key role, "a 1% increase in underpricing generates 1.754 unique visitors on average" (Demers and Lewellen, 2003).

"The acquisition currency theory"[27] is based on the hypothesis that IPOs are helpful for M&As, or at least can give the opportunity to companies in collecting funds in order to acquire/invest in new activities or other existing firms. In the sample analysed by Brau *et al.* is possible to notice how, in the years immediately after the IPO, more than 20% of the companies in the sample became acquirers, whereas only a scarce 3% became a target for acquisitions.

Other "minor" theories are related to:

- The so called "Windows of Opportunity", during which smart owners will sell overvalued stocks, but, in reality, the company will underperform during the next years;
- The analyst coverage. It states that in first years after the IPO, the company will have a more favourable analyst coverage;
- "Because the others have gone public" theory, that can be related to the first mover advantage. Firms that go public immediately after a competitor will probably experience the problems for being the second mover (or for being a sheep that follows the pioneer).

[26] Demers E., Lewellen K., 2003, The marketing role of an IPO, Journal of Finance.
[27] Brau, Francis & Kohers (2003)

1.3 Advantages of an IPO

Up to this point of this elaborate, it should be very clear the reasons why a private company decides to go public. But, if the readers still have doubts an analysis by Franck Bancel and Usha Mittoo in 2009[28] brought out the point of view of the Chief Financial Officers in order to have an internal perspective and, for sure, have a better understanding.

The paper is based on the interviews conducted on 12 different European countries on about 1800 companies (even if the percentage of the responses was a lot lower than the totality of the sample).

The main benefits on why firms do go public emerged from the analysis are related to:

- Visibility of the company;
- Access to new form of funding/financing.

It is interesting noticing how firms of the same continent could have different motivations based mostly on the legal system and, consequently, on the countries and, more obvious, across continents (Europe and US specifically).

Some of the theories I have mentioned above, which did not always have found a concrete findings at the time, found some veracity thanking Bancel and Mittoo's paper. Other than the two main benefits above, for example, some of the most frequent reasons are:

- To increase the shareholders' base;
- To increase the liquidity of the firm;
- To acquire new investors, especially the institutional ones;
- To be identified as a major player by the financial community;
- To make easier mergers and acquisitions;
- To facilitate business operations.

These are the ones I highlighted as relevant since they were considered important (with a value $0 < x \leq 2$) by, at least, the 50% of the European respondents.

For what concerns the cross – continent analysis, it was interesting how, sometimes, a benefit for Europeans companies is perceived as cost or irrelevant for US firms, such as every "Non – financial reasons, […] increased publicity, play only a minor role for most US firms; absent cash considerations, most entrepreneurs would rather just run their firms than concern themselves with complex public market process" (Ritter and Welch, 2002).

[28] I will just briefly summarize the results of the paper. For a further understanding I strongly recommend: Bancel, F., & Mittoo, U. R., 2009. Why European Firms Go Public. European Financial Management, 15(4), 844-884.

When a private company goes public is, inevitably, more exposed to public authorities and it needs to be transparent since the monitoring is tougher. This is perceived as an indirect cost for US companies, whereas European CFOs' think that this loss of confidentiality (more transparency) is a major benefit, as well as the external monitoring.

These differences can be explained because of the high direct costs US companies have to face in order to launch their IPOs, making every other indirect cost dispensable.

In Europe, especially in Italy[29], there have been some important and favourable measure to help little-medium companies to go public. With the Budget Law of 2018, a fund of 80 millions of euro has been created, available for the period 2019-2021. This fund helps each firm, up to an amount of 500.000,00 €, to cover the consulting costs associated to the IPO. The manoeuvre was thought to help creating an open environment more favourable to new investments and to those little-medium companies, according to European Union definition, so:

- With a number of employees in between $10 < n < 250$;
- With a turnover each year in between $2 < x < 50$ millions of euro.

So, a firm may cover nearly all type of fixed direct costs (financial advisor, consultant, tax and legal costs, etc…) associated with the IPO in every regulated and non-regulated market.

1.4 Disadvantages of an IPO

After that, the reason and pros on an Initial Public Offering should be very clear.

Of course, when we mention some pros, we should consider also the cons. Often when an IPO is not well planned the cons can outscore the pros, making the process really difficult. Other than the mentioned costs, which can be seen again in the Figure 2:

[29] Lambiase A., 2018. Quotazione in Borsa PMI: 50% credito d'imposta sui costi IPO https://www.fiscoetasse.com/approfondimenti/12958-quotazione-in-borsa-pmi-50-credito-d-imposta-sui-costi-di-ipo.html

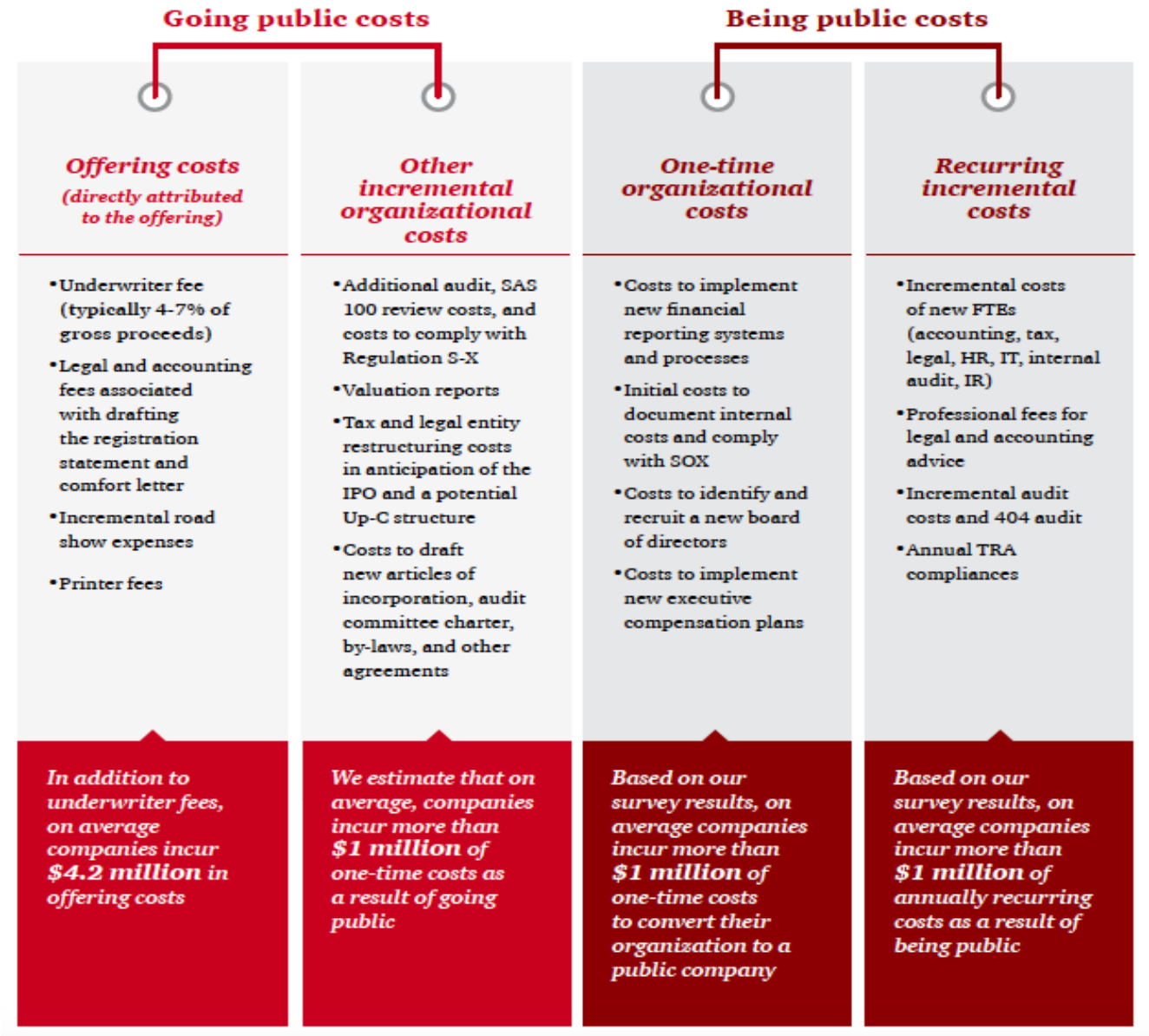

Figure 2 PWC Deals, November 2017, Considering an IPO to fuel your future's company?

During this chapter I may have presented some cons, now I am going to explain them better and why they are considered so.

The cons related to an IPO may be[30]:

- Time/Cost involved: I opened the elaborate with the fact that IPO are time consuming, not only the process to launch them, but also the post-IPO life of the company. The management must face a growing pressure especially for what concerns the reporting;

[30] For the part concerning the cons I will be using the guides written my different Consulting Firms, such as:
Ernst & Young, 2013. Limited, 2013, EY's guide to going public;
KPMG, 2015, From private to public. KPMG's guide to go public.

- Periodic reporting and pressure to deliver: this point is strictly connected to first one, since with going public there are more data to collect, more deadlines to respect and of course more controlling from authorities;
- Greater public transparency and public disclosure: in this particular phase, a lot of private information can go public causing not few problems;
- New investors with different rights: this will cause a loss of control, increasing the time of the decision making process, which speed could be fundamental in some cases;
- Stock prices are too volatile for a lot of endogenous factors, such as government policy[31]. This may cause huge losses during all the company's lifetime. It has been estimated that, on average, stock price always have a fall when there is the announcement of a policy change from the government. The sudden the change is, the huger is the negative impact of stock prices.

After this general presentation of what an IPO is, with the subjects involved and its pro/cons analysis, in Chapter 2, I am going to analyze how firms prepare for the IPO.

[31] Pástor L. and Veronesi P., 2012. Uncertainty about Government policy and Stock Prices.. Journal of Finance 67: 1219-1264.

Chapter 2. How do you prepare for an IPO?

I have already dealt with the subjects that are necessary to start and launch an IPO. The aim of this chapter is to let the readers know how, once the management of the company has chosen the advisors, the underwriters, the auditors and the others, the process is structured. I may distinguish the entire process in three main phases:

1. Planning phase;
2. Execution phase;
3. Realization phase.

Each of them has main aspects characterizing the phase.

2.1 The Planning phase and the choice of the financial markets

During the planning phase, the companies is interested in starting the IPO process. In order to do so, the first step to be taken is the choice of the players that are going to prepare the firm to face up to the iter[32]. Usually, "in a nutshell, the IPO process entails the company working with its underwriters and advisors – primarily company counsel, underwriters' counsel and the company's auditor – to" (Allison S., Hall C. & McShea D., 2008):

- After the nomination of the players in order to draw up the prospectus for the offer;
- Consultant run the Due Diligence;
- File the prospectus and the registration document to the relative authority (SEC, Consob, CSRC);
- Admission to the relative Stock Exchange. It is necessary, of course, to satisfy the listing requirement of the Exchange the company is going to be listed on.

According to *Borsa Italiana* official glossary, the Due Diligence is the process through which there is the acquisition of important and necessary information as a means to prepare all the documents needed for the offering[33].

In particular, it is the combination of actions by the underwriter and other players as a way to verify and control the quality and the truthfulness of the proposal. To make this process easier, it has been introduced the Data Room[34], that refers both to the procedure of collecting data and the space where all the documents are stored. Every access to the Data Room is registered, and the person in charge has to follow some rules

[32] Allison S., Hall C., McShea D., 2008. The Initial Public Offering Handbook: A Guide for Entrepreneurs, Executives, Directors and Private Investors, St. Paul Minnesota: USA, Perkins Coie LLP.

[33] https://www.borsaitaliana.it/borsa/glossario/due-diligence.html

[34] Ernst & Young, 2013. Limited, 2013, EY's guide to going public.

on consultation of the files, other than rules on privacy of all the information, especially before the filing of the preliminary prospectus.

In the US, the preliminary prospectus gets the name of "red herring", due to the SEC's requirement of writing it with red ink on the left side[35]. The color means that the company has already filed the prospectus to SEC, but it not effective yet.

Usually, the first prospectus is not the final one, indeed, first thing first, it has to pass some controls about its truthfulness and clarity about the information and also it may happen that the company wants to adjust its proposal and create another draft to be filed.

There are parts, in particular, that must be present in the Prospectus:

- Summary of the Prospectus itself;
- Risk Factors;
- Financial data;
- Management's discussion and analysis of financial conditions
- Business;
- Management;
- Other;
- Financial Statements;
- Graphics (usually a will of the underwriters).

These information cannot be missing because they are necessary for potential investors.

Of course, there can be other specification; for example, in case of a US company, filing at SEC, it must specify if there are some indicators or measurement in a Non-GAAP method, such as "Earnings Before Interests, Taxes, Depreciation & Amortization" (EBITDA) and the Adjusted EBITDA[36].

Below, here is an example of Prospectus content filed to SEC, regarding Kura Sushi USA (whose IPO has been in 2018):

[35] https://www.investopedia.com/terms/p/preliminaryprospectus.asp

[36] Kura Sushi USA's Prospectus: https://sec.report/Document/0001193125-19-211012/#toc

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Figure 3 Kura Sushi USA Prospectus

2.1.1 Listing Requirements

Once the Prospectus is filed, the listing process can start. But how to choose the financial market? Which one in more convenient? Which one can bring more liquidity?

Unfortunately, there is not a right answer to those questions. In these cases, it is always useful consulting your advisors and underwriters and, of course, see if your company may satisfy the listing requirements of one exchange with regard to another one.

I have chosen four different exchanges where to list a company:

- *Borsa Italiana* S.p.A.;
- The New York Stock Exchange (NYSE);
- National Association of Securities Dealers Automated Quotations (NASDAQ);
- Shanghai Stock Exchange (SEE).

2.1.2 Borsa Italiana S.p.A.

With the legislative decree n. 415 of the 23rd of July 1996, it began the privatization of the Italian stock exchange market, leading to the creation of *Borsa Italiana S.p.A.;* its role is to manage the stock exchange headquartered in Milan.

This society started operating effectively from the 2nd of January 1998, combining together all the pre-existing minor trading venues (that used to operate in the region in which they were located): i.e. *Borsa Valori di Roma, Borsa Valori di Milano, Borsa Valori di Genova; Borsa Valori di Venezia; Borsa Valori di Firenze; Borsa Valori di Napoli; Borsa Valori di Palermo.* The goal of the Exchange is to develop markets, maximizing the liquidity, the transparency, the efficiency and the competitiveness.

In 2007, the London Stock Exchange and *Borsa Italiana* S.p.A. merged to create the holding London Stock Exchange Group.

Borsa Italiana S.p.A is the responsible for monitoring for a correct trading, it establishes the listing requirements and the conditions to stay in market for societies. It organizes and manage the entire market through a digital and electronic system of trading to permit the execution of trading as they happen.

Borsa Italiana S.p.A. manages different segments, for examples:

MTA – *Mercato Telematico Azionario*: It is a regulated market that meets the best international standards where shares, convertible bonds, option rights and warrants are traded. Within it, the STAR segment is dedicated to companies committed to excellence in terms of liquidity, transparency of information and corporate governance;

AIM *Italia*: it is the Multilateral Trading Facility (MTF) dedicated to the small – medium Italian companies that want to invest in their growth;

MIV – Investment Vehicle Market: is the regulated market created to offer with a clear strategic vision, capital, liquidity and visibility to investment vehicles;

EuroTLX Equity: This is the segment of the EuroTLX multilateral trading facility that allows traders and investors to trade in shares and certificates representing shares belonging to the main lists of OECD countries;

There are, also, Bond Markets and fixed income, the Exchange Traded Product Market and the Derivatives Market, but since this elaborate deals with the IPO process, I will limit the description to the stock/shares market.

The negotiation of the different markets may happen with the help of some specialized intermediaries, especially after the MiFID directive of 2007. The directive permitted to banks and investment firm to build and operate in their own securities exchange circuit, in trading facilities called multilateral trading facilities. Of course, to do so, they have to respect some transparency constraints.

For what concerns the supervisory function, it belongs to the CONSOB and to Bank of Italy.

Regarding the admission to the stock negotiation, *Borsa Italiana* must verify if there are the sufficient and necessary conditions to ensure that those stocks could be traded fairly and efficiently. Indeed, stocks must have the following requirements:

1. A market capitalization at least equal to 40 millions of euro, even though the Exchange might admit stocks with a minor capitalization in case it is thought that for those stocks a sufficient big market will be created;
2. There is enough diffusion, reached when at least the 25% of the capital is owned by professional investors;
3. For newly issued shares of the same class and characteristics, with the exception of dividend entitlement, with respect to those already listed, the provisions of paragraph 1 above shall not apply. *Borsa Italiana* may arrange for their admission to trading on a separate line, taking into account the size and circulation of the shares issued, as well as the expected duration of the separate line;
4. With the exception of the shares of cooperative banks and cooperative societies authorized to exercise insurance, classes of shares without voting rights at ordinary shareholders' meetings may not be admitted if shares with such rights are not already traded or are not the subject of simultaneous admission to trading;
5. *Borsa Italiana* may admit to listing on the Stock Exchange financial instruments intended for a public offer on the Stock Exchange in the short term and for which it is reasonable to expect that the offer will achieve sufficient diffusion among the investors indicated in the articles of reference.

These were the conditions for stocks to be admissible, but, of course, there are some conditions that the issuer must respect:

1. Shares representing the capital of issuers that have published and filed, in accordance with national law, the financial statements, including consolidated financial statements, for the last three financial years, of which at least the last one is accompanied by an opinion expressed by a statutory auditor or a firm of statutory auditors registered in the register kept by the Ministry of Economy and Finance, in accordance with Legislative Decree no. 39 of 27 January 2010 or the corresponding rules of applicable foreign law, may be admitted to listing. No listing may be ordered if the statutory auditor or audit firm has expressed an adverse opinion or has declared itself unable to express an opinion;
2. Companies resulting from extraordinary transactions or which have undergone, during the financial year preceding that in which the application was made or subsequently, substantial changes in their capital structure must produce, in addition to the provisions of paragraph 1:
    i) the pro forma profit and loss account for at least one financial year closed prior to the date of submission of the application for admission;

ii) the pro forma balance sheet relating to the closing date of the financial year preceding the application for admission if the extraordinary transactions or substantial changes occurred after that date;

iii) the additional interim pro forma documents specified in the Instructions.

In case the preparation of the pro-forma documents may result unreliable about the accounting data contained therein, *Borsa Italiana* reserves the right to accept different historical accounting reconstructions, upon justified request of the issuer.

3. The accounting documents referred to in paragraph 2 must be accompanied by the report of a statutory auditor or audit firm who has adequate knowledge of the persons involved and who bases his or her opinion on appropriate verifications. The report shall contain the results of the verification activity on the reasonableness of the basic assumptions for the preparation of the pro-forma data, on the correct application of the methodology used and on the correctness of the accounting principles adopted for the preparation of the same acts. A similar report must be issued by the statutory auditor or audit firm on historical accounting reconstructions other than pro-forma data; any limitations or impediments to the expression of the opinion must be justified;
4. The annual financial statements and consolidated financial statements and the annual financial statements that form the basis of the pro-forma data referred to in paragraph 2 must be subject, for a large part, to a full audit. In the event of objective impossibility, Borsa Italiana reserves the right, upon justified request of the issuer, to accept that only a preponderant part of the data be subject to a full audit;
5. Exceptionally, by way of derogation from paragraph 1, a smaller number of financial statements may be accepted, possibly supplemented by the documents referred to in paragraph 2 accompanied by the provisions of paragraphs 3 and 4, or, in the case of issuers who have never published and filed an annual financial statement, the documents referred to in paragraphs 2, 3 and 4. This derogation must in any case be in the interests of the issuer and investors and the latter must have all the information necessary for an assessment of the issuer and the instruments for which admission is sought;
6. The issuing company and its main group companies must adopt a management control system such as to enable those responsible to obtain at regular intervals and in good time a sufficiently comprehensive picture of the economic and financial situation of the company and of the main group companies belonging to it, if any, and to enable them to do so properly:

   - the monitoring of the main key performance indicators and risk factors affecting the company and its main group companies;

- the production of data and information with particular regard to financial information, according to analysis dimensions appropriate to the type of business, organizational complexity and the specific information needs of management;

- the processing of the prospective financial data of the business plan and budget as well as the verification of the achievement of the company's objectives through an analysis of the deviations.

To this end, the issuer prepares a Memorandum, approved by its administrative body, in which it describes the Management Control System adopted by the issuer and the main companies of the group it heads. The Memorandum must briefly but exhaustively describe the components of the system, the persons responsible, the information content with particular regard to the indicators used to monitor the main key performance indicators and corporate risk factors;

7. The issuer must exercise, directly or through its subsidiaries and under conditions of management autonomy, an activity capable of generating revenue.

   In assessing the existence of the conditions of managerial autonomy, *Borsa Italiana* verifies that there are no obstacles to maximizing the economic and financial objectives of the issuer. If *Borsa Italiana* deems elements that could potentially hinder the achievement of management autonomy, it requires that adequate information be provided to the public at the time of admission to listing and, if necessary, on an ongoing basis.

Sometimes, it may happen that immediately after the admission to the stock market, the company will ask for the STAR qualification, even if it is necessary to respect other conditions, more transparency and even more reports (i.e. it is required a floating greater than 35% just for the admission), but at the same time, being listed in the STAR segment may diminish moral hazard risk (consequently, requiring a minor initial underpricing due to the less risk that may be faced).

2.1.3 NYSE & NASDAQ

NYSE is the acronym for New York Stock Exchange; **Nasdaq** is the acronym for National Association of Securities Dealers Automated Quotations. Both exchanges are located in New York City, but the main difference[37] is that the Nasdaq is an electronic trading system, founded in 1971, whereas NYSE is way older than the former one (1817) and its functioning is based on a continuous auction during the opening of the exchange. Nowadays, also NYSE is on an electronic basis, and with an amount of 1860 listed domestic[38] companies is the second largest exchange trading center.

[37] https://www.okforex.it/investimenti/nasdaq-nyse-differenze/1125/

[38] PWC Capital Markets, 2012, Listing in the US. A guide to a listing of equity securities on NASDAQ and NYSE.

These exchanges are the "dream" of every company, in fact, even though there several stock exchanges in the US, every firm want to be traded in those two. Being the favorite, of course, imply a lot of requirements necessary to be admitted for the listing process.

NASDAQ

"At Nasdaq, we're relentlessly reimagining the markets of today. Not by chasing the possibilities of tomorrow. But by creating them." (Nasdaq Initial Listing Guide)[39].

Is thank to the Nasdaq exchange if the digital/technological firm were introduced in the stock market. Facebook has been the pioneer, and, after that, several technological firms have been listed through Nasdaq (i.e. Amazon, Google).

To be process a listing application it usually takes between four and six weeks, broken down like so:

Week 1: submission of the application;

Week 2-3: staff completes the revision of the application and prepare the comment letter;

Week 3-4: the company deals with any matter raised by the staff, if any;

Week 5-6: the review is completed, and the company is ready for the listing.

Nasdaq Stock Market is divided in three different tiers:

1) The Nasdaq Global Market: is the tier where, usually, medium capitalization firms are listed;
2) The Nasdaq Capital Market: the tier with financial, liquidity and corporate governance requirements that are the least strict of the Nasdaq exchange. It is, in fact, "reserved" to small market capitalization firms;
3) The Nasdaq Global Select Market: is the one with the strictest and toughest criteria to be met. It is reviewed every October and is the tier with big market capitalization firms.

For each of them, there are financial, corporate governance and liquidity criteria to satisfy in order to be approved. The absence or the lack in respecting those criteria may cause the exclusion from the listing, since it may be dangerous for investors and public interest.

[39] Nasdaq, 2020, Initial Listing Guide.

Requirements	Income Standard	Equity Standard	Market Value Standard*	Total Assets/ Total Revenue Standard
Listing Rules	5405(a) and 5405(b)(1)	5405(a) and 5405(b)(2)	5405(a) and 5405(b)(3)	5405(a) and 5405(b)(4)
Income from continuing operations before income taxes (in latest fiscal year or in two of last three fiscal years)	$1 million	---	---	---
Stockholders' Equity	$15 million	$30 million	---	---
Market Value of Listed Securities	---	---	$75 million	---
Total Assets and Total Revenue (in latest fiscal year or in two of last three fiscal years)	---	---	---	$75 million and $75 million
Unrestricted Publicly Held Shares	1.1 million	1.1 million	1.1 million	1.1 million
Market Value of Unrestricted Publicly Held Shares	$8 million	$18 million	$20 million	$20 million
Bid Price	$4	$4	$4	$4
Unrestricted Round Lot Shareholders**	400	400	400	400
Market Makers	3	3	4	4
Operating History	---	2 years	---	---

Figure 4 Nasdaq Global Market Financial & Liquidity Requirements. Source: Nasdaq Listing Guide 2020.

Generally, companies must meet all the criteria at least one of the four standards above and, in case a traded company is qualified only under the Market value standard, it must respect the $75 million "Market value of listed securities" and the bid price of $4 for 90 days before it is possible to apply.

Requirements	Equity Standard	Market Value of Listed Securities Standard*	Net Income Standard
Listing Rules	5505(a) and 5505(b)(1)	5505(a) and 5505(b)(2)	5505(a) and 5505(b)(3)
Stockholders' Equity	$5 million	$4 million	$4 million
Market Value of Unrestricted Publicly Held Shares	$15 million	$15 million	$5 million
Operating History	2 years	---	---
Market Value of Listed Securities	---	$50 million	---
Net Income from Continuing Operations (in the latest fiscal year or in two of the last three fiscal years)	---	---	$750,000
Unrestricted Publicly Held Shares	1 million	1 million	1 million
Unrestricted Round Lot Shareholders**	300	300	300
Market Makers	3	3	3
Bid Price OR Closing Price***	$4 $3	$4 $2	$4 $3

Figure 5 Nasdaq Capital Market Financial & Liquidity Requirements. Source: Nasdaq Listing Guide 2020.

The particularity of this tier in that a company may qualify under the "Closing price" of $3 instead of the "Bid price" of $4, such as the other tiers. This special condition may occur only if the considered company have, at least, one of the following measure:

- For a period of three years, an average annual revenues equal to $6 million;
- Net tangible assets for an amount of $5 million;
- Net tangible assets equal to $2 million and a 3 year operating history.

Financial Requirements	Standard 1: Earnings	Standard 2: Capitalization with Cash Flow	Standard 3: Capitalization with Revenue	Standard 4: Assets with Equity
Listing Rules	5315(e) and 5315(f)(3)(A)	5315(e) and 5315(f)(3)(B)	5315(e) and 5315(f)(3)(C)	5315(e) and 5315(f)(3)(D)
Pre-Tax Earnings (income from continuing operations before income taxes)	Aggregate in prior three fiscal years ≥ $11 million and Each of the prior three fiscal years ≥ $0 and Each of the two most recent fiscal years ≥ $2.2 million	---	---	---
Cash Flows	---	Aggregate in prior three fiscal years ≥ $27.5 million and Each of the prior three fiscal years ≥ $0	---	---
Market Capitalization	---	Average ≥ $550 million over prior 12 months	Average ≥ $850 million over prior 12 months	$160 million
Revenue	---	Previous fiscal year ≥ $110 million	Previous fiscal year ≥ $90 million	---
Total Assets	---	---	---	$80 million
Stockholders' Equity	---	---	---	$55 million
Bid Price	$4	$4	$4	$4

Figure 6 Nasdaq Global Select Market Financial Requirements. Source: Nasdaq Initial Listing Guide 2020

As we may notice thanks to the figure above, it is pretty clear how Nasdaq Global Select Market has the strictest requirements to be achieved in order to be admissible to the listing. That is because of the size of companies in this tier, usually big capitalization (at least greater than $550 million).

Liquidity Requirements*	Initial Public Offerings and Spin-Off Companies	Seasoned Companies: Currently Trading Common Stock or Equivalents	Affiliated Companies	Listing Rule
Unrestricted Round Lot Shareholders** or Total Shareholders or Total Shareholders and Average Monthly Trading Volume over Past Twelve Months	450 or 2,200	450 or 2,200 or 550 and 1.1 million	450 or 2,200 or 550 and 1.1 million	5315(f)(1)
Unrestricted Publicly Held Shares	1,250,000	1,250,000	1,250,000	5315(e)(2)
Market Value of Unrestricted Publicly Held Shares or Market Value of Unrestricted Publicly Held Shares and Stockholders' Equity	$45 million	$110 million or $100 million and $110 million	$45 million	5315(f)(2)

Figure 7 Nasdaq Global Select Market Liquidity Requirements. Source: Nasdaq Initial Listing Guide 2020.

For what regards the liquidity requirements from the figure above, the readers must focus on the first column, since is the one dedicated the Initial public offering, central theme of this elaborate.

Although the different liquidity and financial requirements for each tier, there are also corporate governance criteria to respect, but they are the same for every tier, such as:

- Distribution of Annual or interim reports;
- Independent Directors;
- Audit Committee;
- Compensation of Executive officers & Nomination of directors;
- Others[40].

[40] For further information, the lecture of Nasdaq Initial Listing Guide 2020 is recommended.

NYSE

As overmentioned, New York Stock Exchange is one of the oldest exchanges, being founded in 1817, and also the second biggest stock market in world.

NYSE comprehend some of the most important and antique brand, such as Walmart, Coca Cola, and with a capitalization of nearly $28.528.761 (data from 2018; Source: NYSE website[41]) is the biggest exchange in terms of capitalization.

NYSE AMERICAN INITIAL LISTING STANDARDS

Required to meet one of the following:

	Standard 1	Standard 2	Standard 3	Standard 4a	Standard 4b
Pre-tax income[1]	$750,000	-	-	-	-
Market cap	-	-	$50MM	$75MM	-
Total assets and total revenue[1]	-	-	-	-	$75MM
Market value of public float	$3MM	$15MM	$15MM	$20MM	$20MM
Stockholders' equity	$4MM	$4MM	$4MM	-	-
Minimum price	$3	$3	$2	$3	$3
Operating history	-	2 years	-	-	-

And one of the following:

	Option 1	Option 2	Option 3
Public shareholders[2]	800	400	400
Public float[2]	500,000	1,000,000	500,000
Daily trading volume (6 months prior)	-	-	2,000 shares

Figure 8 NYSE Listing Requirements for American Companies. Source: NYSE website

Each standard correspond to a specific rule:

Standard 1: Earning test rule;

Standard 2: Global Market Capitalization test rule;

Standard 3: Real Estate Investments trusts rule;

Standard 4a: Closed-end Management Investment Companies rule;

Standard 4b: Business Development Companies rule.

[41] https://www.nyse.com/market-cap

All the standards are the same for both American and Non-American firms that want to be listed in the US, even if the rule for Non-American firms are slightly different:

Required to meet one of the following financial standards

Financial Standards	Standard I: Earnings Test 103.01B(I)	Standard II(a): Valuation/ Revenue with Cash Flow Test 103.01B(II)(a)	Standard II(b): Pure Valuation/Revenue Test 103.01B(II)(b)	Standard III: Affiliated Company Test[2] 103.01B(III)
Adjusted Pre-tax Income	Aggregate for last three fiscal years >= $100 mm[1]; Each of the two most recent fiscal years >=$25mm			
Adjusted Cash Flows		Aggregate for last three fiscal years >= $100 mm[1]; Each of the two most recent fiscal years >= $25mm		
Global Market Capitalization[3]		$500 mm	$750 mm	$500 mm
Revenues		$100 mm (most recent 12-month period)	$75 mm (most recent fiscal year)	
Operating History				12 months

Required to meet all of the following distribution standards

Distribution Standards 103.01A	Affiliates[2]	All other listings
Round Lot Shareholders[4]	5,000 worldwide	5,000 worldwide
Publicly Held Shares[5]	2.5 mm worldwide	2.5 mm worldwide
Market Value of Publicly Held Shares[5]	$60 mm worldwide	$100 mm worldwide
Minimum Share Price	$4.00	$4.00

Figure 9 NYSE Listing Requirements for Non-American Companies. Source: NYSE website.

Other differences between the exchanges deal with the entry fee:

- $250.000 for NYSE with a yearly fee that is fixed to a maximum cap of $500.000;
- In between $50.000 and $75.000 for the Nasdaq's entry fee. The yearly fee is around $27.500.

Listing fees are very useful for both NYSE and Nasdaq, due to the huge amount of revenues that bring to the exchanges (in the hundreds of millions of dollars). The Securities and Exchange Commission (SEC)[42] is the American equivalent of Consob. Its main responsibility is to keep the market stable and to raise capital, it is concerned with the regulation of the market so as to protect investors.

[42] https://www.sec.gov/

The SEC requires companies to provide information prospectuses so that investors are always and constantly informed and allow them to make accurate decisions on which investments to make. In 1993, SEC and Consob signed an agreement in order to cooperate with the aim of ensuring mutual assistance so as to sanction and avoid offences on the financial markets by enforcing the transparency obligations imposed.

2.1.4 Shanghai Stock Exchange

The Shanghai Stock Exchange (SEE) is the second biggest Asian stock exchange, after the one in Tokyo. The birth of SEE took place during a long period of reform (in the '70) whose aim was to diminish the government's presence in the industrial sector. So, the creation of a stock market was seen as a necessary move, also because there was the intention to find new source of financing other than banks.

Shanghai and Shenzhen (SZSE) were the first two exchanges born as a result of this period of reforms. Both exchange were initially created with a temporary nature[43], since the stock market was not thought as sustainable or functional solution in the long run.

The SEE is a non-lucrative entity, completely independent from the government and under the jurisdiction of the China Securities Regulatory Commission (CSRC).

The interesting part that, I want to highlight in the elaborate, is that the SEE does not have anything to do in matter of acceptance of an initial public offering (IPO). Instead, the admission and the listing is a responsibility of the CSRC.

The SEE rapidly changed in order to "compete" with others in terms of technology and digitalization, in fact, all the transaction happen with a paperless system, in such a way to be totally automatic and fast. According to the exchange website, the possible amount of transaction per second on the platform is close to 8.000. The principle behind the negotiations is based on time and price priority.

A company that applies to the SEE for launching its IPO shall meet the following requirements:

1) the approval of the CSRC;
2) total share capital that is not minor than CNY 50 million;
3) the amount of stocks offered accounts for more than 25 percent of its total stocks. For total share capital that exceeds CNY 400 million, the percentage is lowered to 10%;
4) the firm is not in charge of major illegal acts (especially for falsehood in its financial documents), during the last three years;
5) the Exchange may impose other requirements in case it is thought as necessary.

After CSRC's approval, the issuing firm shall file a listing application with the following documents:

[43] Deng Xiaoping's speech in 1992.

- listing application;
- CSRC's approval document;
- Board of Directors' and Shareholders' Meeting resolutions regarding the IPO and listing;
- Photocopy of the company's business license along with the articles of association of the company;
- Financial documents of the last three years properly overhauled;
- Others[44].

Every member of the company must guarantee the truthfulness, transparency and accuracy of the documents filed for the listing application.

There some limitation that the issuing company must follow: for example, the stocks issued by before the IPO shall not be transferred within one year since the listing of its stocks; or after the application to the Exchange for listing, the main shareholder and, consequently, controller shall not transfer any stocks issued before the IPO is launched, within 36 months of listing of the issuer's stocks, managing them directly or indirectly.

Finally, the Exchange has a Listing Committee that is in charge of the review of the listing application, deciding whether or not accepting the application. The Exchange and the Listing Committee's judgement must be unanimous. However, it is not guaranteed that meeting all the conditions will make the application accepted.

Once the proposal has been accepted, the company must publish the last tranche of documents, within five trading days before the listing, using the designated media or on the Exchange's website:

- listing announcement;
- the articles of association;
- letter of listing sponsorship;
- legal opinion;
- other documents as requested by the exchange itself[45].

2.2 The Execution phase; the evaluation of companies' target price range

During this phase, immediately after the planning one, there is usually the informal evaluation of the company[46] by the investment bank. The evaluation is informal since the company cannot publish or do

[44] for a deeper knowledge on how to launch an IPO in SEE the following document is suggested: http://english.sse.com.cn/start/rules/sse/trading/c/4962524.pdf

[45] http://www.csrc.gov.cn/pub/csrc_en/

[46] Damodaran A., 2012. Relative Valuation and Private Company Valuation. NYU Stern.

anything due to the so called "cooling off period"[47]. The *ratio* with which the entire process is conducted depends on the success of the operation and to a large extent on the image of the listed company in relation to the financial community and all other stakeholders. A valid premise for the use of all methods concerns the need to ensure rationality and transparency in the entire evaluation process, adequately justifying the main choices made. Moreover, the evaluation should be carried out by giving priority not only to the financial perspective, but to the estimate of an industrial value, starting from the assumptions contained in the plan.

After the authorization of the regulatory commission of reference, the company can start its road show promotion for the IPO, that is the "marketing process" of the offering, where the firm presents its process to potential investors, receiving responses in order to evaluate the "appeal" of their offer.

After that, the last step is to publish the Final Prospectus, that contains all the definitive information about the price, the number of share, and all the financial information useful to investors.

The aim of this paragraph is to highlight the main methods of evaluation for a company, with their pros and limits, and, in the end, to deal with the bookbuilding allocation.

The methods I am going to analyze are:

- Discounted Cash Flow Method (DCF);
- Multiple Method;
- Total Payout Model.

2.2.1 Discounted Cash Flow Method[48]

The Discounted Cash Flow method is recognized as the most trusted method by modern business theories that correlate company value to the ability to produce a level of cash flow adequate to meet an investor's remuneration expectations.

The DCF is one of the most used method to estimate the value of the firm for all investors, both equity and debt holders:

$$Enterprise\ Value = Market\ Value\ of\ Equity + Debt - Cash$$

Enterprise Value = EV

Market Value of Equity = MV

Debt – Cash = Net Debt

[47] This is the rule established by the authorities in charge and consists of a period between "the filing of the preliminary prospectus and actual offering". Source: Cooling-off period. (n.d.) *Financial Glossary*. (2011). Retrieved August 16 2020 from https://financial-dictionary.thefreedictionary.com/Cooling-off+period

[48] Guida di Valutazione, Listing guides, in Pubblicazioni Borsa Italiana, Milano, luglio 2004

We may define the Enterprise Value as the "net cost of acquiring the firm's equity, taking its cash, paying off all debt, and owning the unlevered business" (Berk J. & DeMarzo P.)

The method is called "discounted cash flow" because the value of the firm is given from:

$$Value\ of\ the\ Firm\ (V(0)) = PV\ (Future\ Free\ Cash\ Flow)$$

Then, to obtain the Price per Share:

$$P = \frac{V(0) + Cash - Debt}{Number\ of\ Shares\ Outstanding}$$

The discount rate, in this case, has to be a weighted rate because we are considering the value of the firm for both holders of debt and equity. The cost of capital to be used is the so called Weighted Average Cost of Capital ($\mathbf{r_{wacc}}$).

The Free Cash Flow is calculated with the following formula:

$$FCF = EBIT\ x\ (1 - Tax\ Rate) + Depreciaton - Capital\ Expenditure - \Delta\ Net\ Working\ Capital$$

Usually, the WACC cost of capital is estimated thanks to: **re*E/V + rd *D/V*(1-tax rate)**.

As we may notice from the formula, it consists in calculating the weight of Equity and Debt, respectively, on the Value (V) of the firm.

The equity cost of capital ($\mathbf{r_e}$) is equal to the sum of the risk-free rate and the product between the beta relevered and market risk premium: $Re: risk\ free\ rate + Beta * Market\ Risk\ Premium$

The risk free rate[49] ($\mathbf{r_f}$) represents the return of a risk free asset, typically 10 years government bonds, that are actually the safest form of financing, with almost no risk. More specifically it measures the impact of a change in a country factor where the project is set on the rate of return.

The market risk premium (**MRP**) represent the additional return for those investors that are more risk favourable and bear an extra risk. It depends on the sector and on the assets. It is used to evaluate the additional risk bear on the risk free asset and depends on the market rate of the sector considered and the asset ($r_m - r_f$).

The Beta ($\boldsymbol{\beta}$) is a measure of volatility, or systematic risk, of a security or a portfolio in comparison with the market value as a whole. Beta is calculated using a regression analysis of a security's returns to respond to swings in the market. A security's beta is calculated by dividing the covariance between security returns and benchmark returns by the variance of benchmark returns over a specified period. A fair approximation could be an average of some listed companies' beta. Usually, the most common method is the Bottom up approach, that follows these steps:

1) Look for a panel of listed comparable firms (similar for dimension, sector in which they operate), making sure they were listed on the same Exchange where the firm is going to launch its IPO;

[49] Berk J. & DeMarzo P., Corporate finance IV Edition, Pearson, 2017

2) The selection of the Return can be on a Weekly or Monthly basis. To obtain a "fair" Beta Estimation, weekly returns for the last two years or monthly returns for the last five years should be considered;
3) Thanks to the Hamada formula, once the beta of the comparable firms are obtained, the Beta Unlevered of each comparable can be calculated;
4) Then, through the average of Unlevered Beta, you obtain the Beta Asset of your company;
5) Finally, through the relevering process, you have estimated your Beta Levered.

The cost of debt (**r_d**) represents the average cost of debt at which a firm may ask debt, considering the tax leverage.

Of course, although, a theoretical validity, the DCF method is subject to different drawbacks.

1) It is too dependent from the input given by the company and, thus, to be able to find cash reasonable cash flow; in fact, the cash flow are based on assumptions made by the company, but at the same time they have to be sustainable, coherent and transparent;
2) Another one is the capability to find a significant Beta, in order to measure risk. The problem is related, especially, to non-listed firm, where it does not exist a Beta given from the market, and it is not always possible find a comparable with a similar risk profile;
3) Temporal horizon;
4) The estimation of the Terminal Value, due to its relevance on the Enterprise Value, every hypothesis has to be done with caution.

2.2.2 Multiple Method[50]

Multiple method is based on the estimation of the enterprise value of the firm thanks to the value of other, comparable companies (similar in growth rate, dimension, size, sector).

"Multiples are useful in a second stage of the valuation: after performing the valuation using another method, a comparison with the multiples of comparable firms enable us to gage the valuation performed and identify differences between the firm valued and the firms it is compared to" (Fernàndez Pablo, 2001).

[50] Fernandez P., 2001. Valuation using multiples. How do analyst reach their conclusion?. IESE Business School.

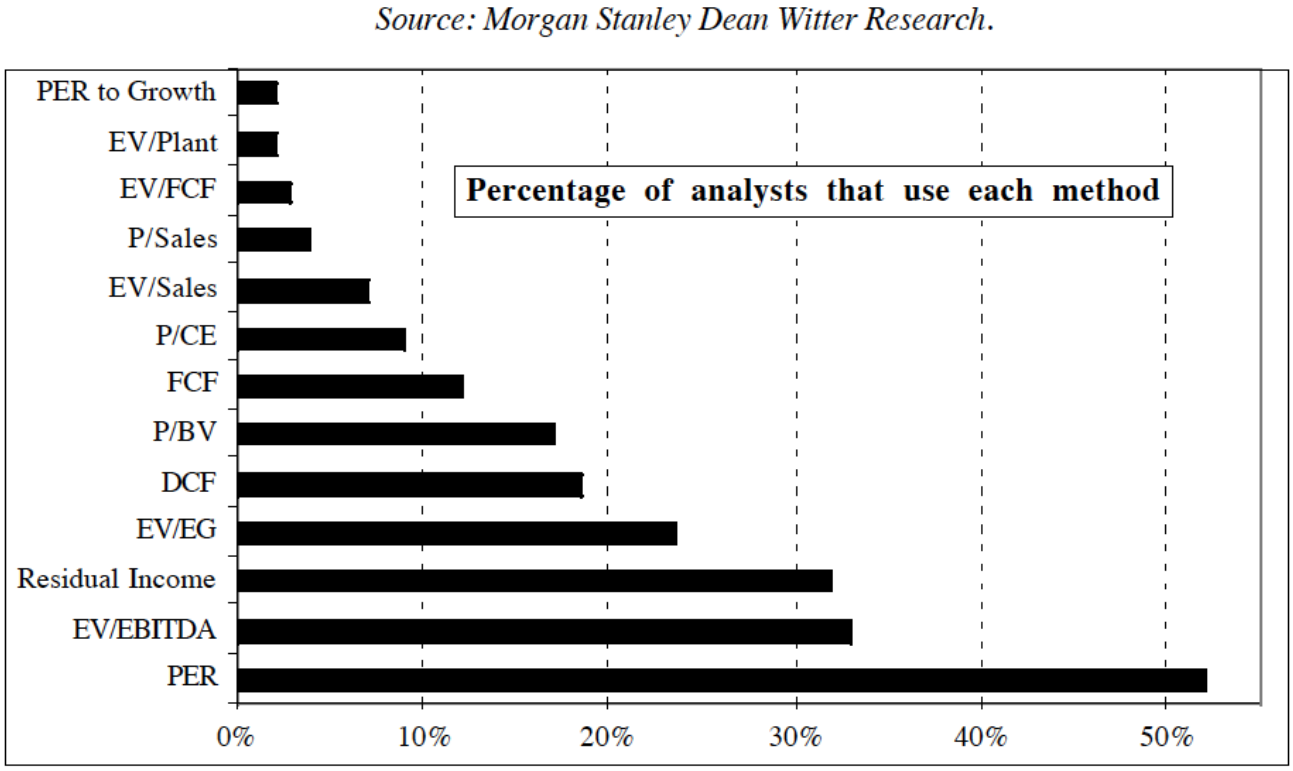

Figure 10 Most widely used valuation method. Source: Morgan Stanley Dean Witter[51].

Multiples can be from the asset side of the company of from the equity side. Usually, the most used and common are:

1) From the Asset side:
    a. Enterprise Value/Ebitda[52]
    b. Enterprise Value/Sales
    c. Enterprise Value/Ebit[53]
2) From the Equity side:
    a. Price/Earnings
    b. Price/Book Value
    c. Price/Cash Flow

How do you choose your comparable firms?

The comparable approach usually follows four steps:

1) Selection of your comparable firms (through Size, Growth, Degree of Risk);

[51] The acronym PER stands for the P/E ratio (price on earnings ratio).

[52] Earnings before interest taxes depreciation & amortization.

[53] Earnings before interest and taxes.

2) Selection of your significant multiple and calculation (Equity side or Asset side);

3) Application of the results to your firm;

4) Eventually discounting.

The analyst has to be careful when selecting the multiples, in fact those that are related to particular accounting voices (subject to fiscal policies) are more exposed to distortion risk, conducting to untruth and unreliable results.

Also the multiples method presents some drawbacks:

1) There is no clear guidance about how to adjust for differences in expected future growth rates, risk, or differences in accounting policies;
2) Comparable multiples just provide information regarding the value of a firm relative to other firms, usually in same sector, but this will not help us understand if an entire industry is overvalued. That is because for each industry there some more used multiples with respect to another one. The figure below will help us understand:

Industry	Sub-Sector	Most commonly used multiples
Automobiles	Manufactures	P/S
	Components	P/CE relative and P/S
Banks		P/BV
Base Materials	Paper	P/BV
	Chemicals	EV/EBITDA, EV/S, P/CE
	Metals & Mining	P/LFCF and EV/EBITDA
Building & Construction		P/LFCF, EV/FCF, PER and EV/EBITDA
Business Services		EV/EBITDA, ROCE, P/LFCF, PER and PER to growth
Capital Goods	Engineering	PER, EV/EBITDA and EV/S
	Defence	PER, EV/EBITDA and EV/S
Food, Drink & Tobacco	Food Producers	EV/EBITDA and EV/CE
	Brewers & Pubs	ROCE, PER to growth and PER relative
	Alcoholic Beverages	EV/EBITDA
	Tobacco	ROCE
Healthcare		PER, PER relative to S&P and EV/EBITDA
Insurance		P/AV
Leisure		EV/EBITDA
Media		PER relative and EV/EBITDA
Oil & Gas	Integrated	PER and EV/CE
Real Estate		P/FAD, EV/EBITDA and P/NAV
Retail & Consumer Goods	Clothing	PER relative to market and sector, EV/EBITDA
	Food	PER relative
	Luxury Goods	PER, PER to growth, EV/S and EV/E to EBITDA growth
Technology	Software, equipment & semiconductors	PER y PER relative
Telecoms		EV/E to EBITDA growth, EV/S and P/customer
Transport	Air	EV/EBITDA
	Travellers through road	P/S
Utilities		PER and P/CE

Figure 11 Most common used multiples. Source: Pablo Fernàndez, 2001.

So, it is very difficult finding some objective multiples to use as a comparable to your firm, that's the reason why multiples method is suggested as a second stage valuation.

2.2.3 Total Payout Model

Total payout model is really useful due to the fact that it allows us to ignore the firm's choice between dividends and repurchase when estimating the company's stock price. The total payout, in fact, values all the firm's equity rather than the single share, as it happens for the dividend discount model.
In terms of calculation, all the future dividends and the yearly stock repurchases should be discounted for the return of equity.
This model, in order to be effective, requires the earnings growth rate to be smaller than the equity cost of capital.
For *share repurchase* is meant when the firm uses excess cash to buy back its own stock. The more cash is used for this action, less dividends will be available at the end. But, at the same time, through repurchasing, the firm diminish its number of share outstanding, and consequently increases its earning per share (EPS) and dividend per share (DPS).

2.2.4 Road Show and allocation: Book Building

Every firm wants, of course, to acquire the biggest amount of investors and capitals possible; in such a way, it could maximize its stock price. Which is the best way to do this?
After the valuation of the potential price of company's stock, there is the "marketing phase" of the IPO, known as "Road Show". The Road Show is one of few ways through which the investor can acquire information on the company and, consequently, on where is going to invest money.
They are the meetings that characterize the final phase of the institutional marketing process of an equity offering and are organized by the global coordinator. They take place both in Italy and abroad and are the first public presentation of the company and its management to the financial community. The meetings are attended not only by institutional investors and the main exponents of the company, but also by representatives of the global coordinator. (*Borsa Italiana, Glossario*).
It includes a series of meetings with investors to present the offer; generally, it is the phase where institutional investors indicate to the subscribing banks the amount of securities they are willing to buy; some may also indicate the maximum price at which they are willing to buy, others the fixed amount of shares regardless of the price of the shares. These offers allow issuers to get some idea of the price range and, above all, to identify the maximum price. The meetings give the possibility to see the appeal of your offering, and help to establish a final price, but the final price is however determined only at the end of the offer immediately before the securities are placed on the market. The roadshow phase is identified as a real business marketing to allow the company to meet and marry the will of investors. During the roadshow the top management with the support of the global coordinator meets with groups of investors or individual

investors (one-to-one meeting). This phase is very important thanks to the global coordinator and the financial advisor who carry out an intense activity of training towards the company that is about to be listed in order to carry out these meetings in the best possible way. The Road Show has an importance that is statistically proven. According to Ernst & Young, the majority of the investors interviewed have said that their decision whether or not to buy was affected also by the Road Show (meant as non-financial measure). The global coordinator[54] is an intermediary who takes on coordination and advisory duties in a placement transaction. Its activity is fundamental, and it usually starts with a feasibility study on whether or not continue with the process.

If there is a positive outcome, the global coordinator then carries out all the coordination function he is responsible for. In fact, he is in charge for the management of the relations between the issuer, the market management company, and the supervisory authority, and, sometimes, it can assume the role of Sponsor.

Given his coordinating role, the global coordinator is present in all phases of the operation: the preparation of the prospectus, the organization of the road show, the bookbuilding, determination of the offer price and stabilization of the share on the market in the period following listing.

Once the IPO order book is built, the next and crucial step is to set the price, in order to be optimal for all the players involved.

The Book Building process is one way to help underwriters to try to find the price. "Book building involves the submitting of (legally) non-binding bids by a relatively exclusive group of institutional investors. The book manager, in consultation with the issuing company, uses this crude approximation of the market demand curve to establish the price at which the share offering is sold and exercises considerable discretion in the allocation of shares" (Wilhelm J.W. Jr, 2005). Book Building is a practice mainly used in US, but also in Europe it is used in a mix with, usually, the fixed price procedure. This means that for a selected amount of share, reserved to retail investors, will be set a fixed price. Generally, the Book Building procedure, regardless the higher costs, is preferred to the other possible method, such as auction. But, still presents a lots of drawbacks, starting from the excessive discretion over pricing and allocation of the underwriters, that may act in order to exclude some investors in favour of others. Once the Book Building phase is ended, there is the final price estimation, that is responsibility of an investment bank (in this case is called "book runner") chosen by the company itself. The book runner is the intermediary in charge of collecting and centralizing all purchase/subscription orders proposed by institutional investors regarding the securities being offered. Its activity makes it possible to estimate the supply and demand curves of the securities being offered and, in this way, helps to determine the placement price.

[54] The role of global coordinator may be performed by Italian or foreign investment banks authorised to provide placement services in accordance with the Consolidated Banking Act (Legislative Decree 385/1993) or by any other financial intermediary included in the special list of Article 107 of the Consolidated Banking Act. (*Borsa Italiana*)

2.3 The Realization phase and the anomalies post-execution phase

The last phase of the process starts immediately after the pricing and allocation of the stocks up to 24 months after the IPO. In this step, the company end its "going public" process and begins its "being public" state. The company finds itself in a very delicate situation, where every move has to be thought and taken carefully. There some "readiness steps" (Ernst & Young, 2016) that are necessary to survive in this new world:

- Develop an efficient after-market strategy in order to attract continuously new investors, in a way to make your company profitable in the long term;
- Develop a strict relationship with your analysts. In this way, they will better understand your business, and they could help the company better;
- Respect all the promises made before, quarter by quarter, because public market is "an unforgiving place" (Ernst & Young, 2016).

Among all the guides to go public published by the major consulting firm, I have preferred the one of Ernst & Young[55], for its clarity and for its better illustrations and advises. For example, on how to mitigate some of the major risks (Financial, Strategic, Compliance, Operating):

Risk	Examples	Strategy
1. Financial	Accounting and reporting, market, liquidity and credit, tax, capital structure	Set realistic financial targets. Your new stakeholders will want your business to meet expectations and to be financially transparent. Do not surprise the market. Market confidence can slip in the face of surprises, whether good or bad – along with your credibility and share price!
2. Strategic	Planning and resource allocation, communications, investor relations, major initiatives, competitive market dynamics, M&A, divestitures, macro-market dynamics	Don't lose sight of your strategy. Be careful and well considered as you approach new initiatives to accelerate your growth, such as acquisitions or rapid expansion into new geographical markets. A robust approach to corporate development is essential.
3. Compliance	Governance, regulatory, legal, code of conduct	Investors are becoming increasingly focused on corporate governance. As a newly public company, you have to comply with a host of new regulations, legislation and filing deadlines. Thus, you need to get the right controls in place and communicate clear policies and procedures.
4. Operational	IT, physical assets, sales and marketing, people, R&D, supply chain, hazards	You need to reconsider your current infrastructure, systems and controls, as you now need to provide timely and appropriate information to your stakeholders. Keep your team focused and fully aware of their new or expanded responsibilities.

Figure 3 Areas of Risk Post-IPO. Source: EY's guide to go public.

Generally, the main anomalies that may happen in this phase are related to window of the market (Hot and Cold market issue) and how can affect the short term run (Underpricing, positive or negative) and the long run (Long Run Underperforming). The aim of the final paragraph of this chapter is to highlight, briefly, these anomalies and then focusing on the underpricing phenomenon (Chapter 3).

[55] Ernst & Young, 2016. EY's guide to going public.

2.3.1 Long run underperformances

As well as the other anomalies, there are different explanations, definitions, theories and reasons behind Long-run underperformances. One of the first theorist has been Jay Ritter[56] in 1991, that is when, by analyzing a sample of US companies that went public between the '70s and the '80s, he found out that in the next 3 years after the IPO, those firms were underperforming with respect a set of comparable firms. He highlighted several reason on why an underperforming period may happen:

1) An excessive optimistic view from investors, that look for abnormal returns from young public firms;
2) There is no clear information on aftermarket performances, creating doubts on the efficiency of the IPO market;
3) The "window of opportunity" may affect, both negatively and positively, the performance. According to Ritter hypothesis, if there is a high volume period and, simultaneously, a scarce presence of long run underperforming, it means that issuers may have guessed the timing of the offering;
4) The cost of external equity, that is lowered in case low returns are earned by investing in those firms.

The analysis of Ritter on a sample of 1.526 new public firms (gone public in the period mentioned above) has shown that the ratio between the closing price on the first day of trading and the market price on the third year post-IPO is equal to 0,831; meaning that for every $1 invested, they would have been remunerated with nearly $0,83. Thus, in the long run, all the sample considered has underperformed.

According to Stoll and Curley (1970), afterwards repeated by Ibbotson (1975), for all the firms analyzed, at some point after the initial offering, the abnormal return will low up to the point of being a negative one. Nevertheless, Ibbotson's test was the most satisfactory, the small sample of firms used (120) leave space to a too big standard error.

Generally, different explanations can be used to explain this anomaly, for example:

- An error in the measurement of risk;
- Bad luck;
- Fads and Overoptimism[57].

However, often, all the causes of underperforming are related to a specific period of the market and to the life cycle of the industry. Also, according to Ibbotson's paper, where he analyzes the performances over a

[56] Ritter J. R., 1991. The Long-Run Performance of initial Public Offerings. The Journal of Finance.

[57] From the investors point of view, there are different biases that can affect negatively investors' judgement over an investment, overoptimism is one of them.

five years period, in the last year of the period (fifth year) there were no sign of underperformance, meaning that is not a phenomenon that last beyond 4-5 years after the offering.

There have been lots of opinions, analysis on the underperformances of US firms, but this is not a phenomenon geographically[58] related. In 1993, for example, Levis examined 712 UK IPOs in the '80s finding an underperforming between 8% and 23%. Long run underperforming is not related, also, to developed countries. Several analyses have been conducted in Brazil, Chile, but also in the oriental continent (Honk Kong, Malaysia) and trace of underperformance were found everywhere, over a period of five years. The limits of those analysis are related to the impossibility of adjusting them for risk (no trading history, no measurement), so the only thing to do is a comparison with other stock.

Another theory is the one of Edward Miller (2000), in which it is stated that the divergence of opinion is the cause of underperformance, especially in those firms with a short operating history, along with low sales and prestige, high volatility and high underpricing.

Divergence of opinion among investors is not something difficult to believe, due to the impossibility of finding the value of a stock. But the divergence causes the price to raise and the return to low. The valuation of optimistic investors (who will probably buy the stock) is, usually, higher with respect to the pessimistic one. Normally, after few years of operating, during which a firm develop a trading history, divergence of opinion should decline, narrowing the divergence, causing the price to adjust to the average valuation of the investors.

2.3.2 Hot and Cold market issue

"The initial public offering market follows a cycle with dramatic swings, often referred to as **hot and cold** markets" (Helwege J., Liang N., 2002). As the reader can imagine, as hot market is meant an unusual high volume of IPO (especially underpriced and referred to particular industries). Ritter, in 1984, noticed that in the hot market of 1980-1981 the natural resources sector was characterized by an important volume of underpriced IPO. A cold market, in contrast, is the opposite of the one mentioned above. Thus, it has less volume of IPO that are not underpriced. Some theories discuss about what can lead firms into the public market and how a market is characterized as hot or cold. Allen and Faulhauber (1989), such as Welch (1989), stated that a hot market is when a huge number of important and profitable firms decide to became public. The driver of the decision is because the set price is really close to the real value, in order to avoid the potential underestimation of possible cold period.

[58] Miller Edward M., 2000. Long run underperformance of initial public offerings: an explanation. Department of Economics and Finance Working Papers, 1991-2006. Paper 16. https://scholarworks.uno.edu/econ_wp/16

Professor Edward Miller believe that in some ways, new product or new technologies may be the spark to create a hot market, opening the way to other industries related to the new product (in the paper, PC and its components were taken as example).
It may happen that a market may turn from hot to cold suddenly, as it happened in 1998 with Russia's default, that drove the hot market of, especially, Internet related industries (generated by Netscape's IPO in 1995) to turn cold and, consequently, causing an important lowering in the number of IPO, the volume and the relative return.
There are different models and theories that try to explain the cycle of hot and cold market. Allen and Faulhauber's model was the basis for Choe, Masulis and Nanda's (1993) model on Seasoned Equity Offerings (SEOs), based on asymmetric information. So, when there an economic growth, all firms expect higher future cash flows for their new project, making the problem of asymmetric information dispensable. Other theories are based on the irrationality and the long term underperformance (argument treated above). One of the most interesting studies is the one made by Ljungqvist, Nanda and Singh (2002). This deals about the correlation between the presence of biased investors that lead to a hot market and the worsening of long term performances.

2.3.3 Underpricing

According to financial glossary of *Borsa Italiana S.p.A*, the **underpricing** is a typical phenomenon that happens when the placement price is inferior to the market price of the stock during the trading. It could be applied on a voluntary basis by the company itself or it may happen due to a less demand with respect of the offer.
As I said at the beginning of the paragraph 2.3, the underpricing will be better analyzed in the Chapter 3 (definitions, reasons, theory).

Chapter 3. Underpricing phenomenon

The aim of this chapter is to identify the main reasons and model behind the underpricing practice. This phenomenon is, again, related to the initial public offering (IPO), and is about an IPO that set the initial price at a price below its real value in the stock market. When a new stock closes its first day of trading above the set IPO price, the stock is considered to have been underpriced[59]. The underpricing practice is related to the short-term, due to the fact that the investors' demand will market value of the stocks increase. Sometimes, it is frequent finding trace of underpricing in the hot market, analyzed defined in chapter 2. That is related to the fact that underpricing may be an appealing instruments for investors that wants to earn a lot, an in a period of hot market, in which there a lot of initial public offering, it is more probable to find underpriced offerings.

I have already said that underpricing could be done on a voluntary basis or it may happen that underpricing is a choice made by the company's underwriter, as a strategic move, or just because the underwriter underestimated the value of the stock. It may also happen that is the investment bank choice to underprice, since more shares will probably be sold and the bank will probably earn much more, due to the fee on every share.

I have defined the underpricing as the difference between the final price and the opening price during the first day of trading; analytically[60]:

$$IR_i = P_{i,t} - E_i$$

- IR_i = Initial Return;
- $P_{i,t}$ = the trading price (P) of the share (i) on the secondary market;
- E_i is the issue price (E) of the share (i).

Some authors prefer using another notion to calculate the underpricing, adjusting it for the return of the market in that day:

$$UP_i = IR_i - M$$

- UP_i = Underpricing of share (i) adjusted;
- M = Return of market.

Even though underpricing is a well-known phenomenon, although the several models and theories trying to explain it, it does not have a definitive explanation.

[59] https://www.investopedia.com/terms/u/underpricing.asp

[60] http://www.ipo-underpricing.com/UP/Underpricing/Basics/e_upbasics2analytik.html

One of the first to study and find empirical evidence was Ibbotson, in 1975, surveying initial public offerings of newly common stock issued between the period 1960-1969. A lot of studies had been conducted since then; for example Booth and Chua (1996), used by Hahn *et al.* in 2013[61], that had the aim to understand why for some investors is not a problem "leaving money on the table"[62], in fact, it is said "issuers underprice to promote oversubscription, which allows broad initial ownership, and, in turn, increases secondary market liquidity[63]". By boosting the secondary market liquidity, and, thus, having to possibility to earn higher profits, issuers are not upset to "leave money on the table". This study, together with Mantecon and Poon (2009), found a positive correlation between underpricing and liquidity of the secondary market. The model of Hahn *et al.* is based on view of initial returns as exogenous (as in Booth and Chua's model) and endogenous (as in Ellul and Pagano's model, 2006). In the former case, the higher the underpricing, the higher the liquidity. Because for them, a broader spectrum of shareholder (that is usually correlated to a higher underpricing) may leads to a higher secondary market liquidity. In the latter case, initial return is considered as an endogenous factor, and it will be affected by the expected liquidity. The problem with this view is related to the difficulty in finding a way to measure the expected liquidity. The studies of the sample (2.693 firms) brought out an average initial return of 27,8%[64]. Adjusting the number without including internet-bubble period[65], the final result is 15,5%, which is still high enough to be compared to the other underpricing studies.

Underpricing must not be confused with the concept of "excess returns". The former is the return compared to the average market return, whereas the excess returns is defined as "the IPO return relative to the fundamental value, i.e. the constant sum of (discounted) expected future dividends" (Fullbrun S., Neugebauer T. & Nicklisch A.)

Most of the studies regarding underpricing phenomenon deal with the US IPO market, and especially with referring to mid '90s to the early 2000s.

But underpricing analysis is not constrained to developed countries, but also to developing and emerging countries.

For example, even though it is not yet possible to determine the single factors that may affect the level of underpricing in each country, an empirical research on the Malaysian Stock Exchange (MSE) tried to find

[61] Hahn TeWhan & Ligon, James A. & Rhodes, Heather, 2013. "Liquidity and initial public offering underpricing," Journal of Banking & Finance, Elsevier, vol. 37(12), pages 4973-4988.

[62] This expression refers to the fact that an excessive underpricing practice may also cause an important loss of money by the issuers, that is renouncing to an immediate higher profit.

[63] Where higher profits can be made by trading after the IPO.

[64] The analysis is made for the period 1988-2009, so this results is obtained also considering the internet-bubble period, where returns were a lot higher.

[65] Alone, the bubble period accounts for nearly 70% on underpricing level.

and understand the reason that cause the difference in underpricing between *Shariah* and *non-Shariah* companies[66]. In 2011, the *Shariah* company listed on the stock exchange were 420, whereas the *non-Shariah* company listed, over the same period, were just 56. This data are important due to the approval and introduction of *shariah-compliant* securities, that may be a reason to explain these numbers. Other reasons, that are investigated in the sample, could be the price of the offering, the size of the offering, the underwriter reputation and its capability to formulate the offering and the type of the market (the main example could be the internet market, referring to the famous internet bubble).

For the Malaysian Stock Market the sample of 420 firms was created by considering IPOs from 2000 to 2011 and by taking into accounts:

- Offer price (OP);
- Company age (CA);
- Offer size (OS);
- Types of market (TM);
- Types of industry (TI);
- Types of oversubscription (TOS);
- Underwriter reputation (UR).

Abu Bakar & Uzaki (2013) used this formula to estimate the level of underpricing in the first day of trading:

$$UP_i = \frac{CP_i - OF_i}{OF_i}$$

Where:

- UP_i = underpricing in firm i;
- CP_i = closing price in firm i;
- OF_i = offering price in firm i.

Then they conduct a multiple linear regression, in order to see how the seven characteristics mentioned above influence the level of underpricing. This has been estimated thanks to this equation:

$$UP = \alpha + \beta_1(UR) + \beta_2(TM) + \beta_3(TI) + \beta_4(TOS) + \beta_5(OP) + \beta_6(OS) + \beta_7(CA) + \varepsilon$$

Where ε stands for the other factor that may affect the results. The final level of underpricing for the Shariah-compliant companies was equal to 28.82% (very similar to non Shariah-compliant equal 26.63%). This number is significant since it is a lot lower with respect the other previous studies on MSE, that reported level of underpricing between 81% and 166,7%. This low level of underpricing could mean that

[66] Shariah compliant company means a company which is conducting its business according to the principles of Shariah (Source: Lawinsider).

the practice of the Initial Public Offering is becoming more efficient, especially since the Securities Commission liberalized the market based pricing method.

The underpricing practice is also present in the Occident, it is not just a U.S centric phenomenon, although most of the studies regards American Exchange (probably it is explained by the huge number of IPO in those exchanges over the years).

An interesting study conducted by Cassia L. *et al.*[67] showed that, over a sample of 182 IPOs listed from 1985 to 2001 on the Italian Stock Exchange[68], the average level of underpricing was equal to 21.87%.

A particular aspect that I want to underline is related to the fact that, as opposed to the United States, the level of underpricing in Italy has a downward trend, especially in the late '90. This comparison is of particular interest[69], because in that period the internet bubble exploded, and the level of underpricing, everywhere, was huge[70].

The reduction is particularly evident in the last years of the analysis (2000 – 2001) and could be the result of the change in the pricing strategy[71] or the results of the new segment appropriately created for the growing and high tech firms (*Nuovo Mercato).*

During the '80s the most used form of initial public offering was the Firm Commitment one[72] but, starting with larger IPOs, in the '90s, Italy started using the bookbuilding method, helping the underwriter to estimate the appeal of the offer, making a list of potential buyers and have a nearly final estimation of the price. An implementation of the bookbuilding practice, "bookbuilding with open price" (Cassia L. *et al.*), has been used starting from 1999 till nowadays. In this case, the final price is made after the bidding process made by investors.

The empirical analysis conducted in the paper by Cassia L. *et al.* take into consideration 182 IPOs, between 1985 and 2001, but particularly in this time period, two different periods, as can be seen from the figure below:

[67] Cassia L., Giudici G., Paleari S., Redondi R., 2004. IPO underpricing in Italy, in Applied Financial Economics.

[68] The Italian Stock Exchange will be object of further discussion and the main part of my analysis in Chapter

[70] In the U.S only, the internet related firm had a level of underpricing equal to nearly 78%.

[71] According to the paper of Cassia et al. there have been the passage from the fixed price to the bookbuilding practice (that was more utilized in the U.S).

[72] With which I have dealt in the first chapter of the elaborate. Briefly, the investment bank agrees to purchase all the shares issued by the firm, reselling them to the public.

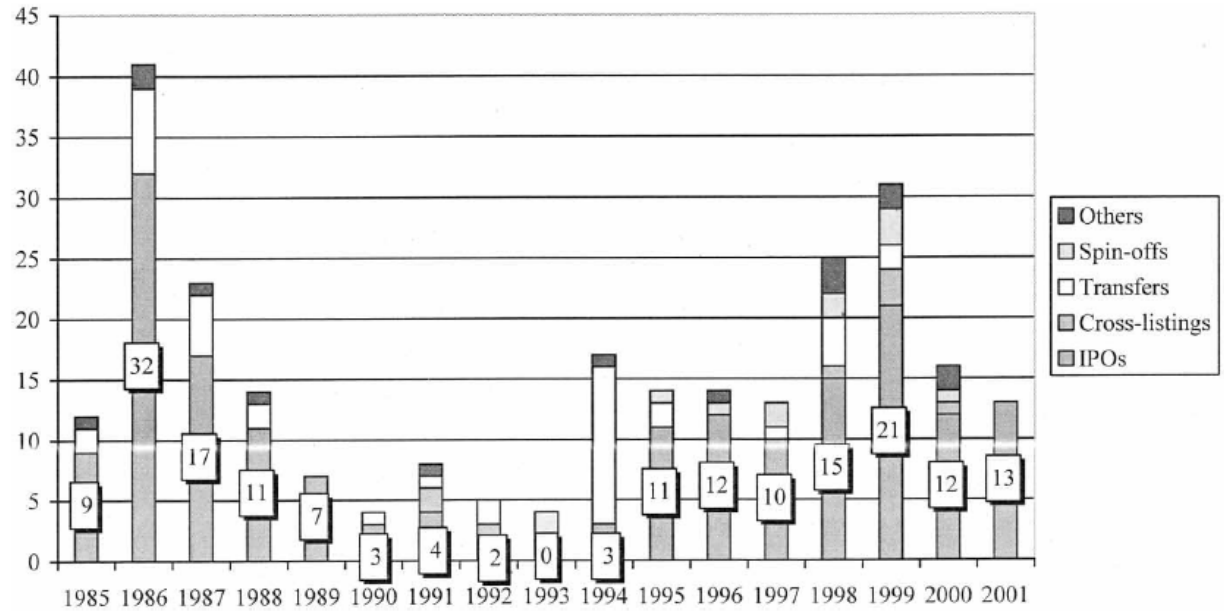

Figure 13 Number of listing on Mercato Telematico Azionario (MTA) (1985 - 2001). Source: IPO Underpricing in Italy. Cassia L. et al (2004).

1) 1985 – 1988: characterized by outstanding performance by firms in every industrialized countries;
2) 1995 – 2001[73]: where the number of IPO per year increased.

The majority of the sample is composed by firms belonging to the "Industrial Sector" (109), followed by firms in the "Financial Sector" (39) and, finally, "Service Sector"[74] (34). The sectors are formed thanks to the classification of firms for Macro-sector made by the MTA. The next figure will make more clarity about the sample:

[73] In this arc of time: 1997 was the beginning of an increase in listing due to the tax relief that brough the taxation of income realized by small and medium firms from 21% to 19% (that could low to 7% in some cases); 2000 was characterized by a preference to be listed on the *Nuovo Mercato* instead of the main one.

[74] Such as Delivery, Media, Tourism and Public utilities.

Activity sector	Total
Industrial' sector (total)	109
Foodstuff	5
Vehicles	7
Papermaking	2
Chemicals	17
Building	12
Electronics and electromechanical	34
Mechanics	11
Metallurgy & mineral	3
Textile & Clothes	16
Others	2
'Financial' sector (total)	39
Insurance	6
Banking	18
Real estate	3
Holding companies	7
Financial services	5
'Services' sector (total)	34
Delivery	4
Media	9
Public utilities	11
Tourism & transport	10
Grand total	182

Figure 14 The sample IPOs by sector. Source: Cassia L. et al.

For the empirical analysis of this elaborate I will use the same methodology used by Cassia L. *et al.* for their sample of 182 firms.

They used the two measure to estimate the underpricing:

- The simple one, that is the difference in percentage between the offering price during the first day of trading and the closing price;
- The adjusted one, that is the simple underpricing adjusted for the market index return.

The results were quite similar, 21.87% for the simple level of underpricing and 19.25% for the adjusted one. Of course, it was not an homogeneous distribution over the years; the timeline was characterized by the alternance of hot and cold period, and sometimes the level of underpricing was negative[75], such as in 2001.

The paper focuses also on the amount of "money left on the table". The total amount, comprehensive 181 firms from the initial sample[76], is about €2.971,430 million for an average of €16.326 million for firm.

[75] Negative underpricing is called "Overpricing".

[76] The IT firm Finmatica has been excluded due to its huge level of underpricing (532%) and to its belonging to the internet bubble period. Interesting that Finamtica was the only IT firm not listed in *Nuovo Mercato*, in deed it was listed on the MTA.

The aim of the paper was also to find an explanation and a correlation between the level of underpricing and the pricing method allocation (fixed price, auction, bookbuilding). The results were quite clear[77], the level of underpricing:

- Auction 6,44%;
- Fixed price 28,33%;
- Price range (Bookbuilding) 12,46%.

As it may be noticed, the level of underpricing is particularly lowered in the case of price range method of allocation. It is relevant to point out that in case of price range the underpricing could low or increase in case the price is set equal to the maximum, between the maximum and middle, or below the middle.

Ritter, in 1998, assumed that, after different empirical research, the level of IPO underpriced is particularly higher in emerging rather than developed market (also demonstrated by the incredibly high returns in countries like Malaysia, Bangladesh, India.

In any case, developing or developed market, the phenomenon of Underpricing is considered on a global scale and this led some authors to be interested in finding possible theories behind this practice. First of all, the underpricing was analyzed not as a rare phenomenon, but as an everyday practice. So, it was not consider as an exception but the exact opposite, thus, which reality of the facts. This new consideration, as an ongoing phenomenon, led, during the first studies of this practice, especially in the 80s and 90s, to the birth of a literary strand of theories.

The presence of many theories is related to the difference in the IPO framework in different countries, taxation, legal framework, incentive, etc.

3.1 Asymmetric information theories

"Most renowned one is information asymmetric theory based model" (Rakibul Islam, 2014). In fact, theories based on asymmetric information are the most known explanatory theories for the IPO underpricing practice, but also they represents the basis for subsequent theories.

The main assumption is related to the different players involved in the IPO process and the fact that in process there are difference in the amount and the quality of information owned by each individual player (issuer, underwriter or investment bank, investors).

[77] In my opinion, results on the auction offering can be considered as disposable, since they regard a sample of just 3 offerings, making them statistically irrelevant.

Depending on who is more informed than whom, the whole theoretical system may vary; in fact a further internal distinction could be made. In this paragraph, I will highlight just a few of them, the most commonly known, but for the sake of clarity the amount of theories based on asymmetric information is huge[78]:

- Winner's Curse (Adverse Selection) [Rock, 1986];
- Moral Hazard Model or Principal – Agent model [Baron, 1982];
- Signaling Model [Allen and Faulhaber,1989 – Welch, 1989], based on Ibbotson's assumption on underpricing;
- Agency theory [Robinson and Peng, 2004];
- Truthful Revelation Model [Benveniste and Spindt, 1989].

I am going to analyze further just the first three models on asymmetric information, due to their importance. In fact, they were the basis for every subsequent studies.

3.1.1 Winner's Curse

The base hypothesis deals with the existence of a group of investors that are in possession of useful information with respect to the issuers itself as well as the rest of the audience of investors. The outcome could be the "crowd out" of not-privileged investors if the stock price is the one expected by the group of informed investors or the withdrawal from the offering. So, on the issuing firm there is a lot of pressure, because it must price the shares in order to make sure that the uninformed investors purchase the issue anyway. Rock's model starts from the observation that new shares seem to be underpriced, based also on the empirical evidences from Ibbotson's studies. It is also clear how Ritter's studies in 1984, about the hot market issue, influenced Rock's model[79]. All the theories about asymmetric information have as a starting point Akerlof's "Market for Lemons" model (1970), that was the bedrock for all future studies.
Akerlof's model claimed that the information disparity mentioned above existed within the same audience of investors. In his opinion, some participants were better informed about the real value of the shares admitted to listing compared to other investors. In this sense, two possible scenarios were imagined:

- On one hand, in the underpriced IPOs, demand came from both sides of the spectrum of participants, and it was therefore necessary to ration the shares offered;
- On the other hand, in case of overpriced IPOs, the most informed investors would buy those shares, leaving instead the totality of the shares offered. Thus, the totality of share allocation was to "benefit" the less informed counterparty.

[78] Islam R., 2014. An Empirical Investigation of Short runs IPO underpricing: Evidence from Dhaka Stock Exchange. IOSR Journal of Economics and Finance.

[79] Rock K., 1986. Why new issue are underpriced. Journal of Financial Economics.

In the latter case, a so called "Curse of the Winner" was therefore revealed because, although at first glance it might seem like a victory for the less informed over the informed, the reality was quite different. In fact, the former would only receive the totality of the requested actions in an overpricing case, of which they were unaware given the information asymmetry.

On the contrary, they would have obtained less than expected, if not even nothing, if they had participated in advantageous IPOs, in which in fact, the presence and competition of the most informed would have made it necessary to a share rationing operation.

In the light of the above, a situation of considerable disadvantage for the less informed was therefore revealed. In fact, they would have obtained a return well below that recorded by the informed counterparty, or even negative. Obviously, the less informed investors, once they suffered this loss, would no longer be willing to take part in further IPOs: eliminating the root of the problem by non-participating was the only way to avoid the possibility of negative returns as a result of investing their capital in the wrong IPOs. Rock, however, was of the opinion that the presence of less well-informed investors was numerically essential for the existence of the IPO market itself: in fact, the informed investor alone would not be able, to satisfy the entire demand. Rock's concept of underpricing was described as a tool to attract even the least informed investors at the same time and maintain the liquidity of the financial market: it was therefore intended to ensure, through this instrument, a return expected from the operation not negative, as this is the only way to capture the participation in the market by the less informed. In practice it was a matter of verifying that all IPOs were underpriced in such a way that the non-informed would be assured the positive payoff necessary as a requirement for their participation. Obviously, this is the case where the informed investor would still have obtained more underpriced IPO allocations, given the information advantage, but at least the investors without the information expected to no longer bear expected losses, even in the event of rationing.

Rock's model was particularly fitted for firm's commitment IPO, but it can be generalized; "suppose that, instead of the orders all being received on one day and filled by lot, the orders arrive over a period of many days and are filled in order of arrival. Such an arrangement is typical of a 'best efforts underwriting'." (Rock K, 1986).

So, in this case, if the issuing firm, once the subscription of the last share is made, decide to close the offering, the rationing mentioned before is said to be "invisible" because it is not possible to see the unfilled orders of shares. "Invisible rationing exerts the same downward pressure on the offering price as the more overt kind" (Rock, 1986). This means that the investors without the information may think its good return is due to uninterest of others investors. Although, provided that, at the time of allotment, the uninformed consider the shares to have a value lower than their absolute value. Therefore, just as in a firm commitment offer, the shares must have a discounted price to attract uninformed buyers.

This extension permit to demonstrate that the mechanism of allocation is irrelevant, the issuing firm must remunerate both informed and not-informed investors. In the latter case, due to their "disadvantage" in information.

So, to resume the concept of Winner's Curse[80] or Adverse Selection Model; Rock identified two categories of investors, informed and not-informed. The latter know just the unconditional value of the share, leading to an obvious bad return from this investment. The issuer must do something to appeal both categories, because the informed investor would not be able to absorb the entire demand; thus, the firm underprices its shares in order to attract both.

3.1.2 Principal – Agent Model

Another interpretation of the theory that can be traced back to Information Asymmetry is the model of the Principal - Agent, which is applied not only in the context of IPOs, but also in all those situations in which there is a subordinate relationship: the Agent works on behalf of a Principal in a context of information asymmetry that can occur both before and after the contract. In the case in point, the Principal – Agent relation is specifically referred to the information asymmetry between issuer and investment bankers. The latter is fundamental for the entire success of the process[81] depends on its expertise, which will also be an opportunity for himself and potential future occasions, because it allows him to be known and appreciated by other interested parties.

In this sense Baron (1982) developed a his model under the assumption that the investment banks have more information than the issuing firm about the capital market environment. So, the issuer delegates the investment banks in order to behave as an advisor[82] during the IPO process and make him responsible for the pricing allocation method, exploiting his advantage in information. At the same time, the issuer may delegate also the distribution function to the investment bankers, building on its reputation and its appeal to the market. Since Baron considers, in the model, the time when issuer and investment banker start their negotiation and different scenarios may happen:

[80] For an empirical evidence I suggest the lecture of: Keloharju, M., 1993. The winner's curse, legal liability, and the long-run price performance of initial public offerings in Finland. Journal of Financial Economics, 34(2), 251–277, or;
Michaely, R., & Shaw, W. H.,1994. The Pricing of Initial Public Offerings: Tests of Adverse- Selection and Signalling Theories. The Review of Financial Studies, 7(2), 279-319.

[81] In Chapter 1, I have already dealt with the importance of the investment bank and how its role, its reputation and its activity is necessary for the success of the IPO.

[82] The investment banker can perform three different function: underwriting, advisory, distribution. The underwriting hypothesis is eliminated by saying that both player are risk neutral.

- Firm's commitment contract with the payment of lump sum tax to the firm made by the banker in order to decide on its own both distribution and price setting, but just if the bank is a risk neutral player;
- But, and it is the most common case, when the bank has superior information, it may declare false information to the issuing company in order to acquire a greater compensation.

From the latter case, it may happen a situation that is commonly known as Moral Hazard, where the Principal is unable to monitor its Agent.

Baron & Holmstrom[83] (1982), based on the previous model of Baron (1980), found that the solution to the case of Moral Hazard could be the subscription of a negotiation contract to "force" the informed banker to still use his superior knowledge in favour of the firm and at the same time design the contract in order to make the investment bank set a price not too low (to reduce the effort to be put for the selling). The issuing firm "must sacrifice some gains from optimal risk sharing in order to induce the banker, through the design of the commission payment, to expend more effort in selling the issue than the banker would otherwise expend" (Baron P. & Holmstrom B.).

Basically what was supported in these theories was that Underpricing was a tool deliberately used by the investment bankers to have fewer costs and at the same time to favour some customer that my exploit a quick sale of the share. But why is the banker willing to underprice if the fees he is going to receive are based on the amount sold in the IPO? In some ways, underpriced shares can lead to higher profits the bankers than a normal pricing. What Baron and Holmstrom tried to highlight is the fact that other than advantages in terms of "certain" saturation of the demand, avoiding the case of undersubscription, there may be the case where customers are willing to pay the banker with side payments just to obtain that specific share. These payments, according to Loughran and Ritter (2002), may take the form of extra charges in the commission for the selling to the investors.

In order to mitigate the problem of incorrect behaviour, it was necessary to design a mechanism for drawing up the contract between the Principal and the Agent that would be based on the incentive scheme: specifically, in order for the banker to make appropriate use of the more information he held regarding investor demand for the listed company, Baron (1982) proposed a contractual model according to which the pricing decision would be taken by the bank from a menu of contractual combinations proposed by the issuer. In the specific case, "the offer price decision is delegated to the banker who sets the offer price based on his superior information about the capital market. The issuer must compensate the banker for the use of his information, so the banker shares in the gains from his superior information" (Baron P., 1980). The core of this contract is to make the investment bank responsible for the setting of the offer price, but at the same

[83] Baron D. & Holmstrom B., 1980. Investment Banking Contract For New Issues Under Asymmetric Information: Delegation And The Incentive Problem. The Journal of Finance.

time to reward him for the collection and use of his superior knowledge coming from the market. The results will not be the setting of the best price, but will be an optimal one.
To sum up the Principal – Agent or Moral Hazard Model; Baron started from the assumption that the investment banker has more information than the issuer itself. The latter, in fact, is unable to provide distribution or advisory services other than those of a banker, and at the same time he is not capable of monitoring them without the design of a negotiation contract tailor made.

3.1.3 Signalling theory

Signalling model is based on Ibbotson's studies (1975) and the assumption that underpricing practice "leave a good taste in investor's mouth" (Ibbotson, 1975), meaning that the same firm can sell future shares at appealing prices.
Signalling theories[84] were subsequently resumed by a very difference audience of researchers: Allen and Faulhaber (1989), Welch (1989), Grinblatt and Hwang (1989).
In all the interpretations of this theory, it emerges a new aspect: we always are in the presence of asymmetric information, but, this time, the more informed subject is the issuing firm. The uninformed subject is the totality of the audience of investors. All the models mentioned above starts from the distinction[85] between high quality firms and low quality firms. The former want to make the distinction clear by incurring into costs that the second one could not maintain; this costs are represented by the underpricing practice. Signalling theories are still categorized under asymmetric information theories but, with respect to Baron and Rock's models, they assume the exact opposite. Baron and Rock claimed that the underpricing is a phenomenon that exist practically in every IPO process with asymmetric information, without any distinction, instead the thread of signalling theories state the underpricing exists just under some conditions and in some industries in a particular time.
Allen and Faulhaber (1989) also claimed the fact that not only "good firms" might bear a higher underpricing and signal their quality with an expensive, in terms of loss, operation of underpricing, but at the same time they must contain the damage by offering a minor amount of shares and then re-offer with a second issuing. Empirically, Welch (1989), for example, noticed that at least a third of the IPO between 1977 and 1982 had reissued their equity, with an amount three times the initial public offering.
Nevertheless, all the signal theories differ for some aspects, for example:

- Allen and Faulhaber's model is based on the hypothesis that investors decides to whether or not investing in an IPO by looking at earnings or dividend policy of the issuing firm. So, the higher the

[84] For empirical evidences on the models descripted in this paragraph: Michaely, R., & Shaw, W. H.,1994. The Pricing of Initial Public Offerings: Tests of Adverse- Selection and Signalling Theories. The Review of Financial Studies, 7(2), 279-319.

[85] More specifically, the paper deals with "good firms" and "bad firms".

earnings, the higher the underpricing, the sooner the firm will distribute dividends. Their model is based on the assumption that the firm is the one that is informed better than anybody else about its prospect and underpricing is used, in a combination price – quantity, as a fundamental instrument to highlight the quality of firm.

- Welch's model is based on the fact that there is a positive correlation between the level of underpricing and the secondary equity offering (SEO), that means, the higher the level of underpricing, the more successful will be the SEO. I have already said about the empirical evidence of this assumption above in this chapter. So, usually a high quality firm is going to underprice more in order to have a more favourable reaction by investors in case of a secondary equity offering.
- Grinblatt and Hwang's model claim that "a firm employs two signals to convey the mean and variance of its future cash flow: the degree of underpricing and the fraction of shares held by insiders" (Grinblatt and Hwang, 1989), meaning that the is a positive correlation between the initial return and the fraction held by insiders for a given variance level and, also, the fraction held by insiders for a certain level of underpricing is related to the enterprise value.

To make a summary, under the assumption that the issuers have advanced information, "high quality" issuers are looking to signalize their quality to the market by conducting an intentional underpricing to leave "a good taste in investors mouth". Thus will lead to an increasing performance in the secondary market and a subsequent emission could be placed in the market to higher conditions (which compensates the issuers for the underpricing).

3.2 Other theories

Other theories concerning underpricing practice are the ones belonging to the institutional and behavioral threads. I am going to focus mainly on the first one rather than the behavioral model[86] since for its novelty, there is lack of literature or empirical evidences.

The most famous institutional theories are:

- The litigation risk theory
- The price stabilization theory.

3.2.1 Litigation Risk Theory

[86] Which, by the way, comprehend those theories dealing with some irrational behavioral aspects. The line of behavioral theories aimed to explain the IPO puzzle by demolishing one of the key points on which all the other theories stand on: the rationality of the actors involved in the IPO process, both as investors and as issuer. Most important the most important contributions are due to Loughran and Ritter (2002) and Ljungqvist (2004).

The first one is based on Ibbotson's studies, and then resumed by researchers such as Tinic (1988) and Lowry and Shu (2002)[87]. Mainly these model claims that the underprice in an important instrument used by firms to avoid the risk to be sued by its own client for bad performance post – quotation. It can be seen like an insurance method, and as far as it can be considered an appealing instrument, the empirical evidence were a bit inconclusive. Mainly because the opponent of the litigation theory used to point out the high costs related to underpricing compared to the average lawsuit settlement costs[88]. But the low frequency of lawsuit could also be motivated by the high usage of the underpricing practice.

It is also interesting noticing that, due to the high costs related to litigation, managers try to avoid the possibility of being sued and want to insure against it[89]. The principal method is to underprice the share, in order to expose less the investors to potential damages[90].

So the firm and the subject that covers the underwriting function (may be the underwriter itself or the investment banker) decide together whether and how much underprice to decrease the litigation risk. Since it may appear that the higher litigation risk, the higher the underpricing that should be done, it can be said that the initial returns "are an increasing function of litigation risk" (Lowry and Shu, 2002) and at the same time the higher the underpricing the less a firm will be suited, so "litigation is a decreasing function of initial returns"(Lowry and Shu, 2002).

The results obtained by Lowry and Shu's analysis demonstrated that firm with higher legal exposure tend to high their level of underpricing significantly and underpricing do is a tool to mitigate litigation risk.

3.2.2 Price Stabilization Theory

It may happen that after the quotation, the underwriter is "forced", by contractual obligations, to apply a buyback activity necessary in some case to avoid the price of the stock to low under a certain threshold. This activity of Price Stabilization was the fundament of this new thread, whose principal author could be identified in the person of Judith Rudd that, in 1993 with her paper[91], stated that the belief that IPO were voluntarily underpriced was incorrect, but was the result of the stabilization activity[92] conducted by

[87] Lowry, M., & Shu, S., 2002. Litigation Risk and IPO Underpricing. Journal of Financial Economics, 65, 309-335.

[88] The sample analyzed by Lowry and Shu has 6% of lawsuit frequency, so very low.

[89] This is one of the main reason why firms and underwriters conduct due diligence before the IPO, in order to investigate all the aspects related to the firm and then put them on the Prospectus.

[90] U.S securities law provide the guidelines to understand the potential damages in which investors may incur. Especially, in Sections 11 and 12 Securities Act 1933 is specified that "damages for direct purchasers in IPO are based on the difference between the offer price and either the sale price or the security's price at the time of the lawsuit".

[91] Ruud, J.S., 1993. Underwriter price support and the IPO under-pricing puzzle. Journal of Financial Economics, 34 (2), 135-151.

[92] These activities may be transactios to prevent or retard the decline of a stock.

underwriters. That is related to the Securities Act of 1934 that states that the underwriter can actually legally intervene to stabilize the price of the stock just to avoid the negative distribution of initial returns around the mean of initial returns.

"Stabilization attempts to smooth, mitigate, or even avoid short-run price declines. The underwriter of the offering may also believe that stabilization in the first few trading days can avert or mitigate price declines indefinitely, particularly if there is heavy selling during the first few days of trading and the distribution is not complete" (Hanley K. W., Kumar A., Seguin P., 1993). But this practice may lead to the distribution of overpriced stocks and it should be regulated in order to not harm any of the investors. The SEC recognize this problem, but practically there no measure to be taken to reduce these interventions but, at the same time, this can be translated in a loss of reputation by the underwriter. Hanley *et al.*'s findings "show that IPOs for which the price in

the first trading day is close to the offer price afterwards presents a price decline, indicating that after the end of stabilization, the price decreases" (De Carvalho A. G. & Pinheiro D. B., 2008[93])

Another author, Wilhem (1999), stated that the price stabilization method was composed by three instrument:

1. The stabilizing bid made by the underwriter, which is really close to the offer price. This action is the only one regulated by SEC and it is necessary to make the underwriter's actions transparent;
2. The second mechanism provides penalties for syndicate members whose clients turn over their shares in the first days of trading. This mechanism aims to mitigate the downward pressure on the price caused by the overturn. Although, the penalties imposed on union members are not public;
3. Finally, the third one is the repurchasing act of shares in the post – quotation phase. The subscriber will proceed with the issue by selling more shares short than the amount originally defined. He is going to cover its short selling position by repurchasing shares or with a greenshoe option[94].

To sum up, the stabilization activity is a mechanism applied by underwriters in order to adjust the price of the stock during to first weeks of trading, so it will not give negative initial returns. Though, this mechanism is strictly related to the U.S IPO context, all major studies were focused on the American environment; there are no clear evidence of the application of this instrument in other financial markets.

[93] De Carvalho A. G. & Pinheiro D. B., 2008. Determinants of Stabilization in Initial Public Offerings. Fundacao Getulio Vargas School of Business at Sao Paulo.

[94] It is a covenant to mitigate the short position. It gives the subject the possibility to buy an additional amount of shares from the issuing firm, but a the offer price.

Chapter 4. Empirical Evidence from Italian Stock Exchange

4.1 Objectives

Up to this point of this paper I have lingered to illustrate in detail the characteristics of the IPO Process, specifically with reference to three particular contexts:

- Italian;
- American;
- Chinese;

offering at the same time an in-depth overview of the studies that have investigated the causes, both with reference to the Western scenario specifically and the Asian one, investigated for its novelty with respect the Western one[95].

The contribution of academics and external researchers, who through their papers have tried to unravel the Underpricing, was without a doubt relevant for making me interested and aware of the financial puzzle/phenomenon: however, in this chapter I want to provide one of a purely personal nature to the reading of the phenomenon, trying, through the establishment of my own sample analysis and the conduct of an ad hoc survey, to provide a concrete vision of this practice, as well as possible explanations to the data collected.

In this sense, having laid the essential basis for an accurate knowledge of the phenomenon of Initial Public Offering, I have created my own sample of IPOs (for a detailed view of the sample, look the Appendix at the end of the elaborate) in order to understand in practice what I have dealt in the previous chapters.

Specifically, data are referred to 243 enterprises that launched an IPO on the Italian financial market between the 01/01/2008 and the 31/12/2019. I decided to take into consideration just *Borsa Italiana S.p.A*, even though in chapter 2 I have analyzed in details also American and Chinese exchanges, because of the lack of paper regarding the underpricing in Italy[96].

Moreover, the choice of the period was obviously not a coincidence, but the same was dictated by the firm will to provide a contribution as close as possible to nowadays, both in a perspective of distinction from other studies conducted so far, which have normally focused on older historical intervals, and to provide a reading of the phenomenon as much as possible "updated" and therefore of greater interest, especially because it is free from distorting elements in the investigation, which could have been the introduction of new segment of the market, or the dot-bubble at the end of the '90s. I decided to pick this very long timeline for different reasons:

- To obtain a considerable sample to analyze;

[95] Remember that the Asian Stock Market was born as an temporary experiment.

[96] The last paper I was able to find is dated 2004 (Cassia L. et al.)

- To have a vision also during the economic crisis of 2008.

The following part of this study will be structured as follows: in the second paragraph we will describe the Dataset used, together with a brief description of the sources, the reasons that led to this specific choice when selecting the information, and the methodology used to achieve the final result. This will be followed by the third paragraph in which, the actual heart of the entire analysis, will be reported the results concretely obtained and the empirical evidence.

4.2 Sample and Methodology

At the present time, despite the considerable progress made in this direction, the Italian financial environment unfortunately still remains difficult to access and very segmented, where each segment (as it was dealt in chapter 2) has different requirements.

In the case in point the dataset has been created thanks to DataStream premium providers such as Bloomberg and Thomson Reuters that have been fundamental for my analysis. In fact, after a cross – comparison I was able to clean the sample from any inaccuracies or to complete the data if you do not have all the necessary information. In some cases, I had to draw partly from one source and partly from the other in order to obtain a complete overview of all the information available for that particular company.

The IPOs collected refer to the period 2008-2019: the motivation for this choice in terms of time samples lies in the fact that, considering that the studies previously analyzed did not focus on the most recent years or, at least if they did, they performed by including in their time interval strongly distorting historical periods in terms of Underpricing detection (as mentioned before, the dot-bubble or particular fiscal reforms) in this particular case will take a slightly different approach, also to avoid to propose again a repetitive analysis. In the next table, I am going to present the sample:

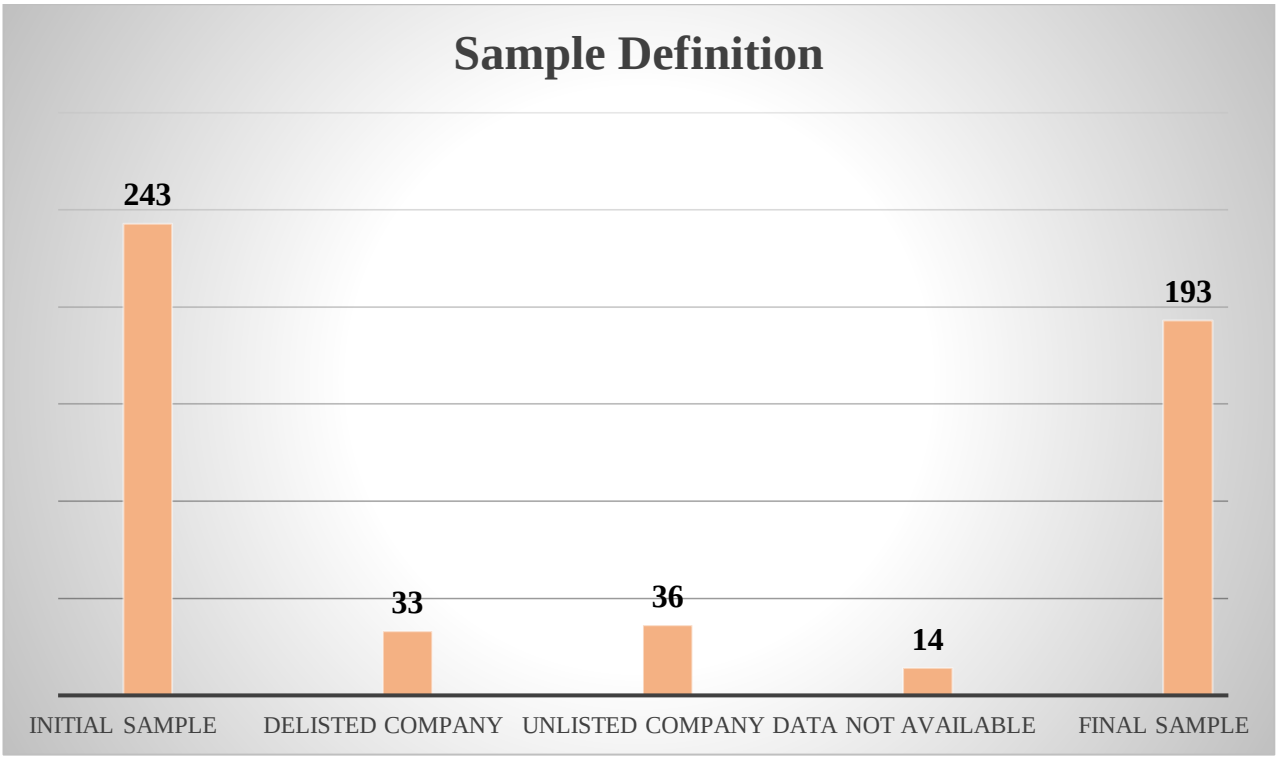

Table 1 Sample Definition. Data Source: Bloomberg & Thomson Reuters

It is interesting to notice the numbers of "delisted company". What is surprising it is not the number *per sé*, which is normal considering the length of the time period in exam, but what it is worth to underline is the fact that out of those 33 delisted companies, 11 (33%) faced the delisting process between 2017 and 2019. Some of them delisted just to be acquired (in line with the main reasons for going public) or for a merger with another listed company, but most of them faced the entire iter of the IPO, just to bail out of the financial market few years or even months later. In fact, it should be remembered that among the main causes that drive a company to turn to the capital market is the need to raise funds: abandon this coveted possibility of fund raising after a period of time too short to conclude something concrete could frustrate all the efforts made in this direction.

The data obtained through Bloomberg for each firm in the sample are, other than of course the name of the issuer:

- Announced date of the IPO;
- Effective date of the IPO;
- Offering price in Euro (€);
- The size of the deal (expressed in millions of Euro), that is the capital obtained from the quotation;

From Thomson Reuters, other than a cross – comparison between the opening price to verify the data, I got:

- the share closing price at the first day of trading, in order to analyze the level of underprice at date of the IPO[97].

Approaching to the details of the sample, in addition to the total sample data, I now want to give a more precise overview both on a year and monthly basis.

First of all, I want to underline the time distribution of the IPOs during the time sample taken as reference: as it is clear from Table 2, out of a total amount of 194 effective IPOs, 33 took place twice, in 2018 and 2019 (nearly the 34% of the sample took place in the last two years). These two years have proved to be extremely flourishing in terms of numbers of IPO (as well as 2015, with 30 IPOs, about the 16% of total). This could be symptom of the efficiency of Italian Stock Exchange and also that, finally, it started gaining appeal to investors, especially after the economic crisis period started in 2008.

Year	N° of IPO
2008	8
2009	3
2010	9
2011	5
2012	4
2013	11
2014	26
2015	30
2016	15
2017	30
2018	33
2019	33
Total	**207**
No data	**14**
Size Sample	**194**
Average	**17**

Table 2 Size Sample. Data Source: Bloomberg and Thomson Reuters.

[97] This was the same approach used in the sample between 1985 and 2001 analyzed by Cassia L. et al.

Nevertheless, here I want to provide a deeper and further analysis. To do that, the same temporal dimension of the IPOs has been analyzed, not only on an annual basis, but also on a monthly basis (Table 3 below), so as to highlight any seasonal trends:

Month	N° of IPO
January	17
February	11
March	21
Aprile	21
May	16
June	30
July	32
August	4
September	9
October	14
November	21
December	11
Total	**207**
St. Dev.	**8,291562**

Table 3 Monthly IPO Size

As it may be noticed by Table 3, the trend is really positive during the first seven months (with a minimum of 11 in February and a maximum of 32 in July), then there is a really dizzying descent trend in August and September (firms in general tend to pause their activities during that period), just to increase again in October and November. It must not be a surprise the decreasing in December, due to the numerous day of closure of the financial market, especially in the second half of the month.

Said so, it is easy to assume that there could be a seasonality in the distribution of IPOs: a huger amount of enterprises tend to launch their IPO during the summer, especially June and July (respectively 30 and 32), with a big depression in months immediately after (August and September).

Although this depression, the trend tend to increase again in October and, especially, in November just to, finally, decrease again in December, but it could be related to the reason I mentioned above.
The histogram below can help the reader to really see the seasonality trend I have identified:

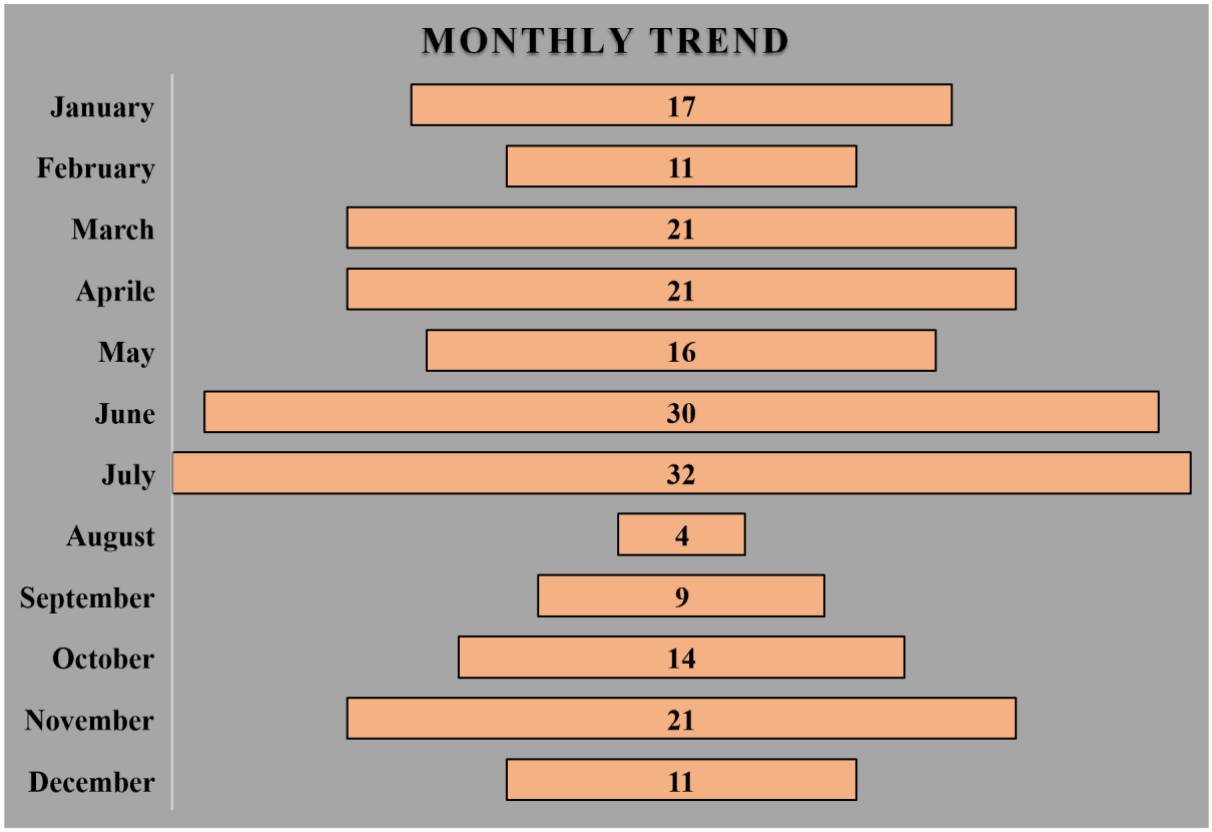

Table 4 Monthly Trend Histogram

This analysis, both on an annual and monthly basis, will be resumed and deepened in the next paragraph, providing a cross reading of the same together with the performance of the related stock market indices: this can lead my analysis in order to verify whether there is any correspondence between the periods with a higher concentration of IPOs and the performance recorded in the stock market lists, giving concrete credit to the Hot Issue Market Theory I cited in Chapter 2.

Once the little overview about the data has been provided above, before proceeding with a detailed explanation of the results obtained, it is essential to take a moment to deepen on the calculation methods used to detect the level of underpricing. As previously mentioned, different formulas can be used: it is therefore essential to specify the approach used in this elaborate.

In the case in point, two different methods were given in Chapter 3 related to previous literature, thus, I think it is necessary establish the method I am going to use.
Specifically, the considered underpricing is the one defined as "raw return" by the authors, for example, Islam R. (2014) and Abu Bakar & Uzaki (2013) just to mention few of them; it is called "raw return, because

it could not be known if the result will be positive or negative, respectively underpriced or overpriced, and it is estimated through:

$$UP_i = \frac{CP_i - OF_i}{OF_i}$$

I have already explained in Chapter 3 the meaning of each acronym in the formula, even if there is an element I have not considered. The formula should include the amount of dividend (Div_i) distributed in the first day of negotiation of the share issued, but it is such a rare case it may not be included in the analysis.

For convenience the formula above will be written as per the following:

$$Return\ of\ the\ IPO = \frac{P_1 - P_0}{P_0}$$

This is nothing more than the percentage variation of the price, where P_1 is the closing price during the first day of quotation and P_0 is the offering price of the share. This change has been made in order to facilitate the comprehension of the formula. In some papers, it is possible to find another version of this formula, considering the logarithm of the return, "to avoid heteroskedasticity" (Islam R, 2014).
To be fair and to obtain a data as correct as possible, it would be right to adjust the initial return for the market return or, like some authors call it, to calculate the Market Adjusted Abnormal Return (Maaro):

$$Maaro = 100 * \frac{(1 + R_i)}{(1 + M_i)} - 1$$

Where R_i is the "Return of the IPO" calculated as above and M_i is the "Return of the market the day of the IPO": the percentage variation between M_1 and M_0, respectively the final and initial return of the market in the IPO date. Although, different authors, such as Jin Chi and Carol Padgett (2005)[98], and before them Ibbotson in 1975, criticized the inclusion of the market index in the formula because it may give a measurement of the underpricing distorted upwardly relative to the market.

4.3 Results and Findings

In general, it is easy to expect low level of underpricing from the first years of the sample in analysis. From Table 2, in fact, it is possible to see the number of effective IPO per year, with 2009 – 2011 – 2012 being the lowest (3 – 5 – 4 respectively). According to the hot market issue concept, to a high number of IPOs

[98] Chi J. & Padgett C.(2005). Short-run underpricing and its characteristics in Chinese initial public offering (IPO) markets. Research in International Business and Finance.

corresponds a high level of underpricing (which, for example, I am expecting for 2015 – 2017 – 2018 – 2019).

	Total Sample	Without ErgyCapital S.p.A
Average	42,5%	5,5%
Median	1,3%	1,2%
Mininum	-53,8%	-53,8%
Maximun	7132,9%	74,6%
St. Dev.	5,13	0,16

Table 5 Return of the IPO

As it is showed in Table 5, I have calculated some statistical measure for the total sample and, since there was an abnormal value of underpricing (7132,9%) associated to ErgyCapital S.p.A, I have estimated the same statistical measure for the sample not considering the abnormal return[99].

What it is clearly evident is a level of underpricing (excluding ErgyCapital S.p.A) in line with my expectation. The fundament of my analysis was to compare the trend of underpricing in the timeline I selected with the other studies conducted in Italy for previous timelines. Those studies found a descendent level of underpricing during the years and, in average, my research is perfectly in line with that trend[100].

I, also, want to provide an annual overview of the underpricing and not just a result based on average:

Year	Underpricing level	N° of IPO
Average 2019	12,20%	33
Average 2018	5,90%	33
Average 2017	5,10%	30
Average 2016	1,80%	15
Average 2015	4,20%	30
Average 2014	3,20%	26
Average 2013	6,30%	11

[99] Statistically, it is know that the average is really affected by abnormal returns. In order to have a more correct and fair evaluation, I have excluded ErgyCapital S.p.A in the second column of Table 5.

[100] If we consider the abnormal return of ErgyCapital S.p.A, the vision of the average changes a lot, but it is normal, considering the long timeline I have chosen, to find some abnormal data.

Average 2012	1,50%	4
Average 2011	-6,70%	5
Average 2010	10,40%	9
Average 2009	4,20%	3
Average 2008[101]	1,70%	8
Minimum	-6,70%	
Maximum	12,20%	
Median	4,20%	

Table 6 Underpricing level per year associated to N° of IPO

Other than Table 6, I want to give the readers the possibility to better look at the underpricing level, providing them another histogram, as per the following:

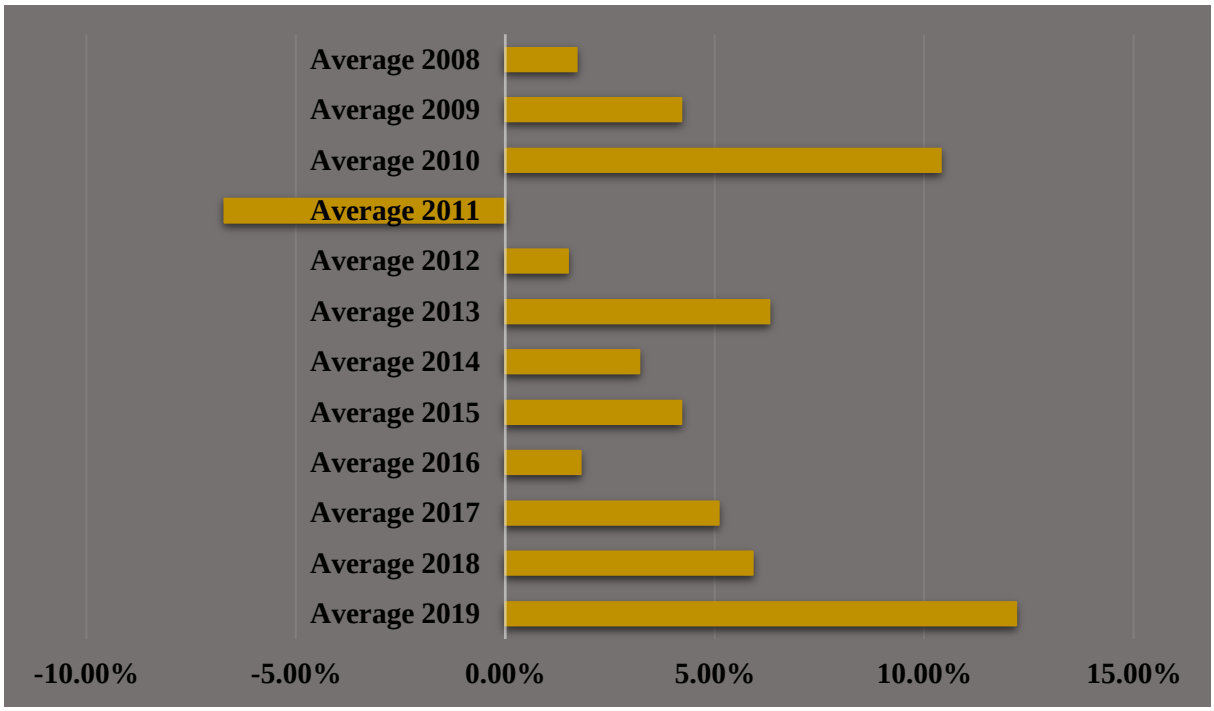

Table 7 Underpricing Trend per year Histogram

Easily noticeable that the only year where there is Overpricing (or negative Underpricing) is 2011; this consideration perfectly fit with the hot and cold market issue[102], as well as the three year period (2017 –

[101] 2008 comprehensive of ErgyCapital S.p.A would return an average of 893,1%.
[102] Low amount of IPOs, low or negative level of underpricing.

2018 – 2019), in which the high number of offerings is followed by a higher underpricing (especially in 2019, that shows the highest value of underpricing).

The five years period from 2008 to 2012 (the years of the great economic depression) is characterized by the lowest amount of offerings and at the same time the greatest number of unlisted company. But, contrary to the expectation (only 2011 shows overpricing), the period does show, especially in 2010[103], a considerable level of underpricing with respect of the number of IPO per year. That could be due to issuer's will to appeal investors despite the economic uncertainty of the period.
Moreover, the years 2015 – 2017 – 2018 – 2019 were the years with highest number of initial public offering and, concordant to hot market issue theory, with the highest level of underpricing in my sample.

Year	Total €m	Toal money left on the table	Sample Size	Mean €m
2008	€ 470.225,27	-€ 16.052,61	8	-€ 2.006,58
2009	€ 47.269,05	€ 1.294,95	3	€ 431,65
2010	€ 3.820.123,04	€ 238.200,25	9	€ 26.466,69
2011	€ 900.091,69	€ 53.945,62	5	€ 10.789,12
2012	€ 513.860,17	€ 165.025,74	4	€ 41.256,43
2013	€ 3.217.388,11	€ 705.924,89	11	€ 64.174,99
2014	€ 5.552.352,39	€ 141.776,24	26	€ 5.452,93
2015	€ 12.679.971,60	€ 129.010,33	30	€ 4.300,34
2016	€ 2.958.979,48	€ 171.592,34	15	€ 11.439,49
2017	€ 10.222.344,28	€ 218.559,39	30	€ 7.285,31
2018	€ 3.644.223,97	€ 115.523,50	33	€ 3.500,71
2019	€ 4.704.469,82	-€ 200.975,38	33	-€ 6.090,16
Total	€ 48.731.298,86	€ 1.723.825,25	207	€ 8.327,66

Table 8 Amount of money left on the table per year[104]

The last part of my analysis comprehend the quantitative loss of money (left on the table) by the issuing firms. Table 8 shows the total amount of money that would have been collected if the offering price was without under/overpricing (column 2), the amount of money that have been lost (estimated as the difference between the values in column 2 and the effective amount of money collected the day of the offering, which

[103] It would be interesting see how those 2010's IPO perform few weeks after the IPO itself, in order to verify if the level of underpricing is still high.
[104] ErgyCapital S.p.A has been excluded from the calculation due to its way too huge amount of money left.

I have obtained through Bloomberg premium provider) and, finally the mean of money lost by year per firm. The greatest value is referred to 2013 (€ 64.174,99), followed by 2012 (€ 41.256,43). It is evident issuing firms' will to reduce the amount of money left on the table, underlined from the fact that in last the last years of the sample the amount of money lost were lower (for a higher number of offerings) with respects 2012 and 2013 (with just 15 offerings in the biennium).

The unlucky economic situation, that COVID-19 has caused, may ruin the entire work done in order to improve both the efficiency of financial markets and the appealing of the financial market itself. For example, one of the biggest IPO that the world was expecting, AirBnb[105] initial public offering, has been suspended, and other hundreds of firms may decide to wait or to undo their decision to go public.
I cannot be unsatisfied by the analysis I conducted. The goal was to verify, after the reading of different papers of IPO underpricing in Italy, that the descendant trend was still going on in the most recent years and, from the results I obtained, I may say that Italian financial market is improving in terms of efficiency and also in terms of attracting investors, since to the high recent number of offerings corresponds a lower (compared to the average 1985-2001 of 21.87%, Cassia L. *et al.*) level of underpricing.

[105] Its quotation was expected on NYSE, but I mentioned it since it was thought to be the biggest IPO of the last decade.

Conclusion

The main goal of my elaborate was to make readers more aware of the Initial Public Offering process (IPO) and, specifically, doing an empirical research on the Italian Stock Exchange to verify the level of IPO underpricing after, of course, the reading of different papers and researches about different applications, reasons and methodologies of analysis.

Chapter 1 was focused on what the IPO is, which its different types are with relative advantages and disadvantages. The offering may be different for the type of share offered, new issue or old issue, respectively primary or secondary offering. It can be also distinguished by the mechanism used:

- Best effort, in which the underwriter will try to sell the stock for the best possible price, but this is not a guaranty. It is easier to raise capital due to the absence of in advanced purchasing;
- Firm commitment, more suitable for bigger firms. In this case, the underwriter guarantees the stock will be sold to the offer price after the underwriter himself buys all the stocks at a lower price. His gain stays in the difference between offer and purchase price;
- Auction, where the price is set by the market itself through bidding.

I, also, did an overview on the subjects involved in the process, internal and external, and what changes in the structure of the firm. As internal players, I identified the company's board of directors and its management, the company's counsel and auditors (that may also be from an external company). For what regards the external subjects, the underwriter is the principal actor during the process (usually it could be an investment bank), responsible for the syndication strategy in order to spread the offer among the audience of investors and, finally, the underwriter's counsel, responsible for the accordance of the prospectus to rules and law.

"Few events in the life of a company are as great in magnitude and consequence as initial public offering (IPO)" (Draho J.). From this statement is possible to start with the difference between going public and then being public. Guides made by big consulting firms helped me a lot in the understanding of the process. Going public comprehends the starting and the ending of the process, including the phases (prospectus, registration, auditing and preparation of financial documents. Being public refers to the entire transformation that the company have to undertake to adapt its strategy to the new environment.

The main benefits related to the IPO process are related to:

- Visibility and access to new forms of funding;
- To spread the shareholders' base, acquiring new investors;
- To increase the liquidity.

The cons are related mainly with costs associated with going and being public:

- Offering costs and organizational costs (going public);
- One time organizational costs and recurring incremental costs (being public);

- Timing and pressure of reporting;
- Loss of control due to the presence of investors with different rights.

Chapter 2 was dedicated to the three phases of the process with relative features:

1. The planning phase, where after the choice of the subjects involved and the due diligence, there is the choice of the financial market where to run the IPO. I decided to analyzed four different exchanges (Borsa Italiana S.p.A, NYSE, Nasdaq and Shanghai Stock Exchange) but, to be coherent with the analysis run in Chapter 4, in this conclusive part I am going to focus just on Borsa Italian S.p.A because is the exchange chosen for my analysis. For a firm to be admissible there some requirements Borsa Italiana and CONSOB must verify:

Regarding the admission to the stock negotiation, *Borsa Italiana* must verify if there are the sufficient and necessary conditions to ensure that those stocks could be traded fairly and efficiently. Indeed, stocks must have the following requirements:

   a. A market capitalization at least equal to 40 millions of euro, even though the Exchange might admit stocks with a minor capitalization in case it is thought that for those stocks a sufficient big market will be created;
   b. There is enough diffusion, reached when at least the 25% of the capital is owned by professional investors;
   c. For newly issued shares of the same class and characteristics, with the exception of dividend entitlement, with respect to those already listed, the provisions of paragraph 1 above shall not apply. *Borsa Italiana* may arrange for their admission to trading on a separate line, taking into account the size and circulation of the shares issued, as well as the expected duration of the separate line;
   d. *Borsa Italiana* may admit to listing on the Stock Exchange financial instruments intended for a public offer on the Stock Exchange in the short term and for which it is reasonable to expect that the offer will achieve sufficient diffusion among the investors indicated in the articles of reference.

2. The execution phase starts with the "cooling off period" where, usually, the investment bank run an informal evaluation of the company in order to estimate a target price range. After the authorization there also is the road show promotion, accompanied by the bookbuilding process. The method mainly used to conduct the evaluation is the Discounted Cash Flow (DCF), that estimate the return for both equity holder and debt holder through the use of the "Weighted Average Cost of Capital" (WACC). It is usually followed by the Multiple method, based on the evaluation of the enterprise value thanks to other comparable firms (similar in growth rate, dimension, size or sector). Finally, there is the road show (like a marketing phase of IPO) that is a series a meeting placed locally and internationally where the management of the firms presents the prospectus of its IPO and look for

potential interest by international investors. The bookbuilding approach is the mechanism through which the underwriter is able to choose a price thanks to a non-binding bidding process by some exclusive investors. It is used to be a method mostly used in the U.S, but in the past decades is becoming also a powerful instrument in Europe.

3. The realization phase is the ultimate phase after the pricing and the allocation of the stocks. It is the transition between "going public" and "being public", in which the firm has to be very careful on the actions to take in order to avoid different risks (financial, strategic, compliance and operational). There also different anomalies that may occur immediately after the quotation:
    a. Long run underperformance: it has been theorized and demonstrated that some firms in 3 years after to IPO tend to underperform (Ritter, 1991) because of: excessive optimistic view from investors, no clear information of aftermarket performance or there was a negative "window of opportunity";
    b. Hot and cold market issue (Helwege J., Liang N., 2002): this concept is connected to high or low volume of IPO during a specific timeline, and also followed by a high or low level of underpricing. The reason for this issue to happen are various and may regard new technology developed that could spark the market, new sector's entrance in the public market (such as the dot-bubble in the '90s);
    c. Underpricing: voluntary or involuntary placement of a share with a price inferior to the market during the trading.

Chapter 3's aim is to better understand the underpricing practice, its reasons and methodologies. It will be followed by the analysis made in Chapter 4 based on the IPO from Italian Stock Exchange during 2008-2019.

I have already said that underpricing could be done on a voluntary basis or it may happen that underpricing is a choice made by the company's underwriter, as a strategic move, or just because the underwriter underestimated the value of the stock. It may also happen that is the investment bank choice to underprice, since more shares will probably be sold and the bank will probably earn much more, due to the fee on every share. The most important theories have as fundament Ibbotson's studies (1975) of the underpriced stocks between 1960-1969. One of the most interesting aspects of this phenomenon was related in comprehending why enterprises were good with "leaving money on the table", voluntarily renouncing to more money. Studies found a positive correlation with underpricing and amount of liquidity in the secondary market (Mantecon & Poon, 2009). Most of the researches, till the mid '80s, early '90s were U.S centric studies (where objectively there were more data, more cases of underpricing), but after a lot of authors started focusing on other countries with a particular interest in the Oriental financial market, where there were registered a huge level of underpricing (such as 28,82% in Malaysia till to arrive to more than 200% in Bangladesh). Abu Bakar & Uzaki's (2013) paper were very useful for my research due to the methodology

proposed. The underpricing was calculated as the percentage variation between the "Closing price in the first day of trading" and the "Offering price in the listing day":

$$UP_i = \frac{CP_i - OF_i}{OF_i}$$

The most fundamental paper, that inspired my research, was the one written by Cassia L., Giudici G., Paleari S. & Redondi R. in 2004 regarding IPO underpricing in Italy for the period 1985-2001. This previous analysis permitted me to make a comparison with my sample of firms and see how underpricing practice in Italy has changed and evolved. The average level of underpricing was equal 21,87%, with an opposite tendency to the United Stated. In fact, while in the US underpricing increased, Italy was experiencing a downward trend (also during the dot-bubble). And the paper also focuses on the "money left on the table" by the firms in the sample obtaining a total of €2.971,430 million for an average of €16.326 million for firm.

Late in the Chapter 3, I presented the most known theories about underpricing:

- Asymmetric information thread;
- Institutional thread.

The most frequent reason to underprice is due to asymmetric information between the subjects involved (every theory in this elaborate presented a different case of asymmetric information, once between underwriter and the firms, once between the firm and the totality of investors, once between investors themselves). The institutional thread sees the underpricing as an instrument used by firms to avoid the risk to be sued by its client for underperforming of the stocks, such as an insurance method (litigation risk theory) or also it may happen that after the quotation, the underwriter is "forced", by contractual obligations, to apply a buyback activity necessary in some case to avoid the price of the stock to low under a certain threshold (price stabilization theory).

After all of that, I run my own research; in the case in point the dataset has been created thanks to DataStream premium providers such as Bloomberg and Thomson Reuters. First of all, out of the 207 firms in my initial sample, 194 are the effective (for 14 firms there were no data available) IPOs, 33 took place twice, in 2018 and 2019 that have proved to be extremely rich in terms of numbers of IPO. This could be symptom of the efficiency of Italian Stock Exchange and also that, finally, it started gaining appeal to investors again after the crisis. After seeing the monthly distribution, I was able to assume a seasonality in the distribution of IPOs, especially during the summer (June and July) followed by a big depression in August and September. After the analysis of the data, an average underpricing level of 5,5% has emerged, with a max value of 74,6% and a minimum value of -53,8% (overpricing case), with a standard deviation of 0,16 (close to zero it means there is no such variation of the squared value from the average). I want to report the Table 6 in Chapter 4 here to provide, again, the distribution of underpricing by year:

Year	Underpricing level	N° of IPO
Average 2019	12,20%	33
Average 2018	5,90%	33
Average 2017	5,10%	30
Average 2016	1,80%	15
Average 2015	4,20%	30
Average 2014	3,20%	26
Average 2013	6,30%	11
Average 2012	1,50%	4
Average 2011	-6,70%	5
Average 2010	10,40%	9
Average 2009	4,20%	3
Average 2008	1,70%	8

Tabella 9 Underpricing level per year associated to N° of IPO

There is perfect fitting with the hot and cold market issue, in fact, the only year where there is Overpricing (or negative Underpricing) is 2011 in which there were 5 IPOs;, as well as the three year period (2017 – 2018 – 2019), in which the high number of offerings is followed by a higher underpricing (especially in 2019, that shows the highest value of underpricing).

Contrary to the expectation, the period does show, especially in 2010, a considerable level of underpricing with respect of the number of IPO per year. That could be due to issuer's will to appeal investors despite the economic uncertainty of the period. The rest of the sample is concordant with the theory of hot and cold market issue. The amount of "money left on the table" is accounting for a total of € 1.723.825,25 million, corresponding to € 8.327,66 million per firm.

The ultimate goal of my research was to verify, that the descendant trend was still going on in the most recent years and, from the results I obtained, I may say that Italian financial market is improving in terms of efficiency and also in terms of attracting investors, since to the high recent number of offerings corresponds a lower level of underpricing (5,5% with respect to the 21,87% between 1985-2001).

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APPENDIX

Tabella 10 Sample of firms in details

Announced Date	Issuer Name	Offer Size (M)	Offer Price	Closing Price	Raw underpricing
12/03/2019	Doxee SpA	6921,20	3	3,748	24,9%
12/02/2019	Gismondi 1754 SpA	9695,68	3,2	3,25	1,6%
11/26/2019	Sanlorenzo SpA/Ameglia	345678,00	16	16	0,0%
11/19/2019	NVP Srl	19130,30	3,8	3,464	-8,8%
11/08/2019	FOS SpA	9678,25	3	3,25	8,3%
11/04/2019	Matica Fintec SpA	13326,90	1,71	1,81	5,8%
10/09/2019	Arterra Bioscience SpA	11115,70	2,6	3,4115	31,2%
10/08/2019	Newlat Food SpA	154760,00	5,8	5,8	0,0%
09/19/2019	Cyberoo SpA	13844,30	2,86	4,333	51,5%
09/16/2019	Websolute SpA	7551,45	1,5	2,3	53,3%
07/24/2019	Farmae' SpA	83269,30	7,5	8,1	8,0%
07/15/2019	Iervolino Entertainment SpA	18878,60	1,95	2,3	17,9%
07/10/2019	Radici Pietro Industries & Bra	12004,90	3,04	2,92	-3,9%
07/08/2019	Shedir Pharma Group SpA	21394,80	7	6,959	-0,6%
07/08/2019	Friulchem SpA	8712,44	1,8	1,74	-3,3%

07/05/2019	Copernico Sim SpA	6447,78	6,5	5,97	-8,2%
07/01/2019	Pattern SpA	24203,00	3,25	3,75	15,4%
06/24/2019	Officina Stellare SpA	10069,00	9	9,26	2,9%
06/21/2019	Relatech SpA	7859,32	2,15	2,6	20,9%
06/21/2019	Cleanbnb SpA	7588,63	2	1,92	-4,0%
06/17/2019	Marzocchi Pompe SpA	15493,60	5,1	4,97	-2,5%
06/11/2019	Italian Exhibition Group SpA	38631,50	3,7	3,7	0,0%
06/04/2019	ELES Semiconductor Equipment S	13354,50	1,9	3,3176	74,6%
06/04/2019	Gibus SpA	9689,10	6	6	0,0%
05/16/2019	Sirio SpA	20116,30	9,5	9,42	-0,8%
04/26/2019	AMM SpA	5504,62	2,85	3,65	28,1%
03/18/2019	Nexi SpA	3980760,00	9	8,44	-6,2%
02/19/2019	Maps SpA	5805,32	1,9	2,44	28,4%
02/18/2019	Societa Editoriale Il Fatto Sp	5648,87	0,72	0,715	-0,7%
02/04/2019	Neosperience SpA	7989,44	3,42	4,74	38,6%
01/31/2019	Ilpra Industria Lavorazione Pr	10322,40	2,1	2,24	6,7%
12/10/2018	Powersoft SpA	9410,27	3,6	3,8865	8,0%
12/06/2018	Techedge SpA	21713,30	4,2	4,46	6,2%
11/23/2018	CrowdFundMe SpA	5456,22	9	9,169	1,9%

10/31/2018	Garofalo Health Care SpA	142277,00	3,34	3,65	9,3%
10/16/2018	Digital Value SpA	43566,10	10	10,7	7,0%
10/05/2018	Piovan SpA	330285,00	8,3	8,35	0,6%
10/04/2018	Circle SpA	2966,75	2,4	2,54	5,8%
08/26/2018	Ediliziacrobatica SpA	11125,00	3,33	3,36	0,9%
07/24/2018	Renergetica SpA	3923,85	1,5	1,54	2,7%
07/18/2018	Sciuker Frames SpA	9682,90	1,1	1,12	1,8%
07/16/2018	Sostravel.com SpA	0,00	5,6	4,795	-14,4%
07/12/2018	Vimi Fasteners SpA	21833,60	3,36	3,4	1,2%
07/06/2018	Thespac SpA	116176,00	9,9	9,63	-2,7%
07/04/2018	Askoll Eva SpA	23336,30	3,5	4,59	31,1%
06/29/2018	Esautomotion SpA	20035,00	4	4,05	1,3%
06/28/2018	Intred SpA	21365,80	2,27	2,7	18,9%
06/27/2018	Portobello SpA	3785,21	4,4	5,1	15,9%
06/12/2018	Longino & Cardenal - SpA	9584,54	3,6	5,3	47,2%
05/08/2018	Monnalisa SpA	35577,20	13,75	14,01	1,9%
05/07/2018	Carel Industries SpA	487940,00	7,2	8,25	14,6%
04/23/2018	Somec SpA	54021,90	18	18	0,0%
04/18/2018	Grifal SpA	9487,14	2,6	3	15,4%

04/16/2018	Archimede SpA/Milano	91004,70	10	10,6	6,0%
04/04/2018	Gabelli Value For Italy SpA	212990,00	10	9,95	-0,5%
03/23/2018	Fervi SpA	15006,10	15,5	15,48	-0,1%
02/12/2018	Life Care Capital SpA	271078,00	10	9,7	-3,0%
02/07/2018	Kolinpharma SpA	6058,59	7	6,989	-0,2%
01/31/2018	VEI 1 SpA	193627,00	9,7	9,67	-0,3%
01/19/2018	ALPI SpA	193627,00	10	10,04	0,4%
01/12/2018	Spaxs SpA	1161760,00	9,404	9,4934	1,0%
12/07/2017	Illa SpA	8691,92	2,59	2,586	-0,2%
11/27/2017	Guala Closures SpA	968135,00	9,8077	9,7782	-0,3%
11/22/2017	IDeaMI SpA	484068,00	9,8	9,785	-0,2%
11/20/2017	Alkemy SpA	57674,10	11,75	12,41	5,6%
11/20/2017	GEL SpA	11037,70	2,6	2,712	4,3%
11/17/2017	DBA Group SpA	38725,40	4	4	0,0%
11/09/2017	Gamenet Group SpA	151529,00	7,5	7,61	1,5%
11/01/2017	Portale Sardegna SpA	2515,60	3,2	3,2	0,0%
10/05/2017	Equita Group SpA	87514,40	2,9	2,97	2,4%
09/28/2017	Industrial Stars of Italy 3 Sp	290440,00	9,865	9,885	0,2%
09/13/2017	Spactiv Spa	174264,00	9,95	10	0,5%

08/31/2017	Neodecortech Spa	24021,40	4	3,9684	-0,8%
07/11/2017	Capital For Progress Single In	125858,00	10	10	0,0%
07/05/2017	SICIT Group SpA	290441,00	10	10,2	2,0%
07/03/2017	Alfio Bardolla Training Group	5992,95	4	3,6	-10,0%
06/29/2017	Gima TT SpA	745464,00	12,5	15,3	22,4%
06/28/2017	CFT SpA	189754,00	10	9,9261	-0,7%
06/14/2017	doValue SpA	665167,00	9	10,25	13,9%
06/06/2017	Finlogic SpA	12198,50	3,6	4,1	13,9%
05/17/2017	Wiit SpA	53778,00	45	50,6	12,4%
05/17/2017	Digital360 SpA	7982,66	1,15	1,42	23,5%
04/28/2017	Pirelli & C SpA	4642940,00	6,49	6,47	-0,3%
03/27/2017	Technical Publications Service	5567,16	3,2	4,5	40,6%
03/09/2017	Indel B SpA	71254,70	23	25,98	13,0%
03/06/2017	Banca Farmafactoring SpA	482325,00	4,7	4,14	-11,9%
03/03/2017	Unieuro SpA	146995,00	11	11,5	4,5%
02/24/2017	Cellularline SpA	251715,00	9,9	9,5999	-3,0%
01/16/2017	Telesia Spa	7735,40	10	10,9	9,0%
11/24/2016	FOPE SpA	4287,10	2,9	3,15	8,6%
11/22/2016	Health Italia Spa	9681,35	4	3,802	-5,0%

09/26/2016	Fine Foods & Pharmaceuticals N	193627,00	9,5058	9,5058	0,0%
06/20/2016	SEC Newgate SpA	8427,46	1,72	1,7467	1,6%
06/08/2016	Dominion Hosting Holding SpA	8132,33	10	10	0,0%
06/08/2016	Solutions Capital Management S	4303,94	10,57	10,61	0,4%
05/03/2016	Industrial Stars of Italy 2 Sp	97781,60	10	9,8	-2,0%
04/06/2016	Enav SpA	1614040,00	3,3	3,65	10,6%
04/04/2016	Technogym SpA	361840,00	3,25	3,62	11,4%
03/17/2016	COIMA RES SpA	416298,00	9,5	8,6	-9,5%
03/16/2016	4AIM SICAF SpA	11617,60	500	498	-0,4%
03/15/2016	Vetrya SpA	7392,29	6	6,29	4,8%
03/14/2016	Siti B&T Group SpA	44534,20	8	8	0,0%
01/25/2016	Abitare In SpA	5424,27	14,7	15,4	4,8%
11/25/2015	Bridge Management SpA	1660,35	7	6,98	-0,3%
11/20/2015	Blue Financial Communication S	2904,40	2	2,01	0,5%

11/19/2015	Openjobmetis Spa agenzia per i	73481,40	6,6	6,82	3,3%
10/15/2015	H-Farm Spa	39141,70	1	0,998	-0,2%
10/15/2015	Energica Motor Co SpA	10263,80	3,2	3,03	-5,3%
09/08/2015	Gambero Rosso SpA	13783,10	1,4	1,42	1,4%
08/11/2015	Poste Italiane SpA	6026540,00	6,75	6,7	-0,7%
08/04/2015	Giglio Group SpA	11619,20	1,9	1,7	-10,5%
07/27/2015	Capital For Progress 1 SpA	98943,40	9,78	9,65	-1,3%
07/23/2015	Ferrari NV	1730350,00	43	43,67	1,6%
07/21/2015	Piteco SpA	20060,30	3,3	3,29	-0,3%
07/15/2015	Avio SpA	484067,00	9,4369	9,4369	0,0%
06/16/2015	Orsero SpA	154902,00	10	8,8174	-11,8%
06/10/2015	Assiteca SpA Internazionale Di	14475,40	1,85	1,888	2,1%
06/09/2015	Cassiopea SpA	323949,00	33,3	35,5	6,6%
05/27/2015	Masi Agricola SpA	58596,40	4,6	4,48	-2,6%
05/26/2015	Bomi Italia SpA	21296,30	2,75	2,8987	5,4%
05/21/2015	Infrastrutture Wireless Italia	1694760,00	3,65	3,83	4,9%
04/30/2015	Biodue SpA	7743,34	3,55	4,82	35,8%
04/27/2015	Massimo Zanetti Beverage Group	261782,00	11,6	11,63	0,3%
04/22/2015	Cover 50 SpA	41351,90	18,6	19,43	4,5%

04/17/2015	Aeroporto Guglielmo Marconi Di Bologna	134658,00	4,5	5,95	32,2%
04/16/2015	Elettra Investimenti SpA	9706,52	6	6,17	2,8%
04/01/2015	Banca Sistema SpA	311327,00	3,75	3,91	4,3%
03/26/2015	Clabo SpA	14253,90	2,7	2,54	-5,9%
03/20/2015	Caleido Group SpA	2808,56	3	4,66	55,3%
03/09/2015	Digitouch SpA	19096,30	2,3	2,38	3,5%
02/02/2015	ePrice SpA	104559,00	2,2952	2,2307	-2,8%
01/26/2015	OVS SpA	862881,00	4,1	4,1	0,0%
11/26/2014	Axelero SpA	47922,70	5,5	5,5	0,0%
11/07/2014	Costamp Group Spa	2904,40	2,5	3,15	26,0%
10/22/2014	Bio On Spa	13311,90	5	6,4	28,0%
09/09/2014	RAI Way SpA	542640,00	2,95	3,088	4,7%
07/31/2014	Tech-Value Srl	3294,56	4,15	4,6	10,8%
07/18/2014	GO Internet SpA	9736,34	2,051	1,979	-3,5%
07/11/2014	Iniziative Bresciane - Inbre -	39035,20	21	21	0,0%
07/09/2014	MailUp SpA	5808,81	2,5	2,3508	-6,0%
07/07/2014	Tinexta Spa	44371,60	3,4	3,3694	-0,9%
07/04/2014	Casta Diva Group SpA	2641,85	3,12	2,97	-4,8%

06/24/2014	Lucisano Media Group SpA	12296,10	3,5	3,55	1,4%
05/13/2014	PLT energia SpA	20485,70	2,7	2,7	0,0%
05/07/2014	Energy Lab SpA	7841,89	1,8	1,74	-3,3%
05/06/2014	Fincantieri SpA	690528,00	0,78	0,78	0,0%
04/30/2014	Ecosuntek SpA	10356,50	21	21,99	4,7%
04/17/2014	FinecoBank Banca Fineco SpA	1498150,00	3,7	4	8,1%
04/06/2014	Cerved Group SpA	829498,00	5,05	5	-1,0%
04/04/2014	Agronomia SpA	12092,00	1	1	0,0%
03/05/2014	Gala SpA	48140,50	12,5	12,26	-1,9%
02/21/2014	Triboo Spa	53441,10	4	4,45	11,3%
02/07/2014	Anima Holding SpA	1470030,00	3,8565	3,8375	-0,5%
01/21/2014	Gruppo Green Power SpA	6418,54	10,5	10,4	-1,0%
01/09/2014	Expert System SpA	33434,40	1,8	1,8678	3,8%
01/09/2014	Sunshine Capital Investments S	6196,06	1	1,01	1,0%
12/18/2013	Zephyro SpA	67769,40	9,0563	8,8603	-2,2%
12/03/2013	Fila SpA	251696,00	9,3785	9,2588	-1,3%
11/11/2013	Leone Film Group Spa	32895,50	4,8	4,852	1,1%
10/14/2013	Moncler SpA	1517190,00	10,2	14,97	46,8%
07/11/2013	Digital Magics SpA	8835,20	7,5	6,9568	-7,2%

06/18/2013	Industrial Stars of Italy SpA	96910,30	10	10,12	1,2%
05/29/2013	Italia Independent Group SpA	26430,10	26	30,1861	16,1%
04/24/2013	Microspore SpA	29051,80	9,7	9,49	-2,2%
03/13/2013	Enertronica Santerno SpA	1688,43	2,6	2,7773	6,8%
02/19/2013	MC Link SpA	5332,49	7,65	8,5	11,1%
01/11/2013	Moleskine SpA	473664,00	2,3	2,28	-0,9%
07/13/2012	PRISMI SpA	6811,41	10,6	11,5172	8,7%
06/04/2012	Frendy Energy SpA	5286,02	1,05	0,4847	-53,8%
02/03/2012	Brunello Cucinelli SpA	336737,00	7,75	11,6	49,7%
12/21/2011	Ambromobiliare SpA	2856,19	6,6	5,9177	-10,3%
10/28/2011	TerniGreen SpA	7899,98	0,85	1	17,6%
06/20/2011	Sesa SpA	96813,50	10	9,8	-2,0%
06/09/2011	Salvatore Ferragamo SpA	733697,00	9	9,7	7,8%
01/17/2011	Hi Real	4879,40	0,84	0,4471	-46,8%
12/20/2010	First Capital SpA	27212,50	9,9904	9,8077	-1,8%
10/20/2010	Vita Societa Editoriale SpA	4914,25	0,94	1,15	22,3%
10/06/2010	PRADA SpA	3447370,00	3,574	3,83	7,2%
06/15/2010	Tesmec SpA	79317,40	0,7	0,56	-20,0%
03/15/2010	Poligrafici Printing SpA	9536,92	1,0205	1,165	14,2%

03/15/2010	Visibilia Editore SpA	2807,82	393,7331	410,2574	4,2%
03/05/2010	Fintel Energia Group SpA	10763,90	2,3	3,3824	47,1%
12/23/2009	House Building SpA	18382,20	1,8187	1,85	1,7%
12/18/2009	Althea SpA/Trieste	12101,70	2,5	3,01	20,4%
05/06/2009	IKF SpA	15490,20	1	0,9038	-9,6%
07/07/2008	AlgoWatt SpA	10823,70	1,3	1,575	21,2%
05/22/2008	Yoox Net-A-Porter Group SpA	232962,00	4,3	4,66	8,4%
04/16/2008	Enervit SpA	6970,57	2	2,43	21,5%
03/26/2008	Rosss SpA	7522,41	2,1	2,015	-4,0%
01/31/2008	Molecular Medicine SPA	108725,00	2,15	1,1885	-44,7%
01/31/2008	Vivaticket SpA	23041,60	3,4	3,394	-0,2%
01/21/2008	ErgyCapital SpA	94315,90	0,007	0,5063	7132,9%
01/14/2008	Meridie SpA	96232,60	1	1,1	10,0%

LUISS

Department of Business and Management

Chair of Advanced Corporate Finance

The Initial Public Offering: The Underpricing Practice
Empirical Evidence from Italian Stock Exchange

EXECUTIVE SUMMARY

Prof. Pierluigi Murro
SUPERVISOR

Prof. Federico Merola
CO-SUPERVISOR

Giuseppe Romeo - 707031
CANDIDATE

Anno Accademico 2019/2020

Chapter 1. Initial Public Offering

«Few events in the life of a company are as great in magnitude and consequence as initial public offering». An IPO is the public offering of securities of a company that wants to be listed on a regulated market. Through the IPO, the company spreads its shares through public group of investors creating the floating capital , that is the number of shares issued by the company for the negotiation on the chosen financial market. The process of going public is a very complex and articulated, it may require months to take place.

1.1 Different types of offerings

The type of offering can be distinguished by the mechanism the financial advisor will choose to sell them. The most used mechanism is the best effort one, frequently used for smaller IPOs. The best effort mechanism imply that the underwriter will try its best to sell the stock for the best possible price, instead of guarantee the actual selling of the stock. They are useful to facilitate the raising of capital, since there is no purchase in advance that has to be made by the participants. The process starts with the underwriter that, in this case, guarantees that the stock will be sold at the offer price. He is the one that buy all the stocks issued, at lower price than the fixed price, and then sells them at the offer price concorded. One last type of offering is the auction, a mechanism that specifies a possible sale of the stock and a transfer from the buyers to the seller. According to this method, the price should be set by the market itself through the auctioning. In this way, the investors bid during a determined period of time. One of the main problem behind the auction theory is the discretionary behavior .

1.2 What does it mean going public?

Every company has to prepared because this procedure may require months. Generally, the process of going public require adequate coordination between internal and external players. Internal such as: the company's board of directors and its management, the company's counsel, the company's auditors. External such as: underwriter, investment bank, the underwriter's counsel. Here, I am going to point out the differences between «going public» and «being public». Going public means starting and finishing the IPO process, with all the phases included such as: the drafting of the Prospectus and the registration with the national authority responsible, the preparation and the audit of the financial documents necessary and the choice of the players (underwriters and advisors). Being public could be defined as the «application of a holistic framework to transform the company enabling it to operate as a public company» (PWC Deals). This statement refers to the transformation that the company have to undertake in order to adapt its strategy, corporate governance, control and coordination to the new environment. I am going to summarize the major theories on why firms go public, thanks to different authors, such as James Brau and Marco Pagano, Fabio Panetta and Luigi Zingales . «If entrepreneurs were asked why they took their firms public, they may not be as opens as Jim Clark was in the opening quote. », in that case the needing of money. One of the main

question behind the reasons, that has to be separated from the timing since there are positive correlation between long period of high underpricing with the choice of firms to go public is related to the difficulties in explaining why a firm should choose equity as an form of financing/funding, even if it is the riskiest one and, also, in terms of priority rights is usually the last form the be repaid in case of liquidation, if any. Some reasons to go public:

- To overcome borrowing constrains/Increase bargaining power with banks;
- To establish a market price for subsequent sell-out;
- To spread the ownership of the firm.

Other "minor" theories are related to:

- The so called "Windows of Opportunity", during which smart owners will sell overvalued stocks, but, in reality, the company will underperform during the next years;
- "Because the others have gone public" theory, that can be related to the first mover advantage. Firms that go public immediately after a competitor will probably experience the problems for being the second mover (or for being a sheep that follows the pioneer).

1.3 Advantages of an IPO

The main benefits on why firms do go public emerged from the analysis are related to:

- Visibility of the company;
- Access to new form of funding/financing.

It is interesting noticing how firms of the same continent could have different motivations based mostly on the legal system and, consequently, on the countries and, more obvious, across continents (Europe and US specifically). Other than the two main benefits above, for example, some of the most frequent reasons are:

- To increase the shareholders' base;
- To increase the liquidity of the firm;
- To acquire new investors, especially the institutional ones;
- To make easier mergers and acquisitions.

1.4 Disadvantages of an IPO

The cons related to an IPO may be[106]:

[106] For the part concerning the cons I will be using the guides written my different Consulting Firms, such as:
Ernst & Young, 2013. Limited, 2013, EY's guide to going public;
KPMG, 2015, From private to public. KPMG's guide to go public.

- Time/Cost involved: I opened the elaborate with the fact that IPO are time consuming, not only the process to launch them, but also the post-IPO life of the company;
- Periodic reporting and pressure to deliver;
- Greater public transparency and public disclosure;
- New investors with different rights: this will cause a loss of control, increasing the time of the decision making process, which speed could be fundamental in some cases;
- Stock prices are too volatile for a lot of endogenous factors, such as government policy[107]. This may cause huge losses during all the company's lifetime.

Chapter 2. How do you prepare for an IPO?

The aim of this chapter is to let the readers know how, once the management of the company has chosen the advisors, the underwriters, the auditors and the others, the process is structured. I may distinguish the entire process in three main phases:

1. Planning phase;
2. Execution phase;
3. Realization phase.

2.1 The Planning phase and the choice of the financial markets

During the planning phase, the companies is interested in starting the IPO process. In order to do so, the first step to be taken is the choice of the players that are going to prepare the firm to face up to the iter[108]. Usually, "in a nutshell, the IPO process entails the company working with its underwriters and advisors – primarily company counsel, underwriters' counsel and the company's auditor – to" (Allison S., Hall C. & McShea D., 2008):

- After the nomination of the players in order to draw up the prospectus for the offer;
- Consultant run the Due Diligence;
- File the prospectus and the registration document to the relative authority (SEC, Consob, CSRC);
- Admission to the relative Stock Exchange. It is necessary, of course, to satisfy the listing requirement of the Exchange the company is going to be listed on.

The Prospectus is fundamental for every firm that wants to go public, since it is the very first approach to investors.

[107] Pástor L. and Veronesi P., 2012. Uncertainty about Government policy and Stock Prices.. Journal of Finance 67: 1219-1264.

[108] Allison S., Hall C., McShea D., 2008. The Initial Public Offering Handbook: A Guide for Entrepreneurs, Executives, Directors and Private Investors, St. Paul Minnesota: USA, Perkins Coie LLP.

In the US, the preliminary prospectus gets the name of "red herring", due to the SEC's requirement of writing it with red ink on the left side[109]. The color means that the company has already filed the prospectus to SEC, but it not effective yet.

Usually, the first prospectus is not the final one, indeed, first thing first, it has to pass some controls about its truthfulness and clarity about the information and also it may happen that the company wants to adjust its proposal and create another draft to be filed.

There are parts, in particular, that must be present in the Prospectus: summary of the Prospectus itself, risk factors, financial data, management's discussion and analysis of financial conditions, financial Statements, graphics (usually a will of the underwriters). These information cannot be missing because they are necessary for potential investors. Of course, there can be other specification; for example, in case of a US company, filing at SEC, it must specify if there are some indicators or measurement in a Non-GAAP method, such as "Earnings Before Interests, Taxes, Depreciation & Amortization" (EBITDA) and the Adjusted EBITDA[110].

2.1.1 Listing Requirements

Once the Prospectus is filed, the listing process can start. But how to choose the financial market? Which one in more convenient? Which one can bring more liquidity?

Unfortunately, there is not a right answer to those questions. In these cases, it is always useful consulting your advisors and underwriters and, of course, see if your company may satisfy the listing requirements of one exchange with regard to another one.

2.1.2 *Borsa Italiana* S.p.A.

Borsa Italiana S.p.A is the responsible for monitoring for a correct trading, it establishes the listing requirements and the conditions to stay in market for societies. It organizes and manage the entire market through a digital and electronic system of trading to permit the execution of trading as they happen.

Borsa Italiana S.p.A. manages different segments, for examples:

MTA – *Mercato Telematico Azionario*;

AIM *Italia*;

MIV – Investment Vehicle Market;

EuroTLX Equity;

For what concerns the supervisory function, it belongs to the CONSOB and to Bank of Italy.

[109] https://www.investopedia.com/terms/p/preliminaryprospectus.asp

[110] Kura Sushi USA's Prospectus: https://sec.report/Document/0001193125-19-211012/#toc

Regarding the admission to the stock negotiation, *Borsa Italiana* must verify if there are the sufficient and necessary conditions to ensure that those stocks could be traded fairly and efficiently. Indeed, stocks must have the following requirements:

1. A market capitalization at least equal to 40 millions of euro, even though the Exchange might admit stocks with a minor capitalization in case it is thought that for those stocks a sufficient big market will be created;
2. There is enough diffusion, reached when at least the 25% of the capital is owned by investors;
3. With the exception of the shares of cooperative banks and cooperative societies authorized to exercise insurance, classes of shares without voting rights at ordinary shareholders' meetings may not be admitted if shares with such rights are not already traded or are not the subject of simultaneous admission to trading;
4. *Borsa Italiana* may admit to listing on the Stock Exchange financial instruments intended for a public offer on the Stock Exchange in the short term and for which it is reasonable to expect that the offer will achieve sufficient diffusion among the investors indicated in the articles of reference.

And, of course, there are different requirements for the issuer as well, that mostly regards transparency and clarity of the financial documents.

2.1.3 NYSE & NASDAQ

NYSE is the acronym for New York Stock Exchange; **Nasdaq** is the acronym for National Association of Securities Dealers Automated Quotations. Both exchanges are located in New York City, but the main difference[111] is that the Nasdaq is an electronic trading system, founded in 1971, whereas NYSE is way older than the former one (1817) and its functioning is based on a continuous auction during the opening of the exchange. Nowadays, also NYSE is on an electronic basis, and with an amount of 1860 listed domestic[112] companies is the second largest exchange trading center. These exchanges are the "dream" of every company, in fact, even though there several stock exchanges in the US, every firm want to be traded in those two. Being the favorite, of course, imply a lot of requirements necessary to be admitted for the listing process.

NASDAQ

"At Nasdaq, we're relentlessly reimagining the markets of today. Not by chasing the possibilities of tomorrow. But by creating them." (Nasdaq Initial Listing Guide)[113].

[111] https://www.okforex.it/investimenti/nasdaq-nyse-differenze/1125/

[112] PWC Capital Markets, 2012, Listing in the US. A guide to a listing of equity securities on NASDAQ and NYSE.

[113] Nasdaq, 2020, Initial Listing Guide.

Is thank to the Nasdaq exchange if the digital/technological firm were introduced in the stock market. Facebook has been the pioneer, and, after that, several technological firms have been listed through Nasdaq (i.e. Amazon, Google). To be process a listing application it usually takes between four and six weeks, broken down like so:

Week 1: submission of the application;

Week 2-3: staff completes the revision of the application and prepare the comment letter;

Week 3-4: the company deals with any matter raised by the staff, if any;

Week 5-6: the review is completed, and the company is ready for the listing.

Nasdaq Stock Market is divided in three different tiers:

1) The Nasdaq Global Market: is the tier where, usually, medium capitalization firms are listed;
2) The Nasdaq Capital Market: the tier with financial, liquidity and corporate governance requirements that are the least strict of the Nasdaq exchange. It is, in fact, "reserved" to small market capitalization firms;
3) The Nasdaq Global Select Market: is the one with the strictest and toughest criteria to be met. It is reviewed every October and is the tier with big market capitalization firms.

For each of them, there are financial, corporate governance and liquidity criteria to satisfy in order to be approved. The absence or the lack in respecting those criteria may cause the exclusion from the listing, since it may be dangerous for investors and public interest.

NYSE

As overmentioned, New York Stock Exchange is one of the oldest exchanges, being founded in 1817, and also the second biggest stock market in world. NYSE comprehend some of the most important and antique brand, such as Walmart, Coca Cola, and with a capitalization of nearly $28.528.761 (data from 2018; Source: NYSE website[114]) is the biggest exchange in terms of capitalization. The are 5 standars to meet in order to be listed in NYSE and each standard correspond to a specific rule:

Standard 1: Earning test rule;

Standard 2: Global Market Capitalization test rule;

Standard 3: Real Estate Investments trusts rule;

Standard 4a: Closed-end Management Investment Companies rule;

Standard 4b: Business Development Companies rule.

2.1.4 Shanghai Stock Exchange

The Shanghai Stock Exchange (SEE) is the second biggest Asian stock exchange, after the one in Tokyo. The birth of SEE took place during a long period of reform (in the '70) whose aim was to diminish the

[114] https://www.nyse.com/market-cap

government's presence in the industrial sector. So, the creation of a stock market was seen as a necessary move, also because there was the intention to find new source of financing other than banks.
The SEE is a non-lucrative entity, completely independent from the government and under the jurisdiction of the China Securities Regulatory Commission (CSRC).
The interesting part that, I want to highlight in the elaborate, is that the SEE does not have anything to do in matter of acceptance of an initial public offering (IPO). Instead, the admission and the listing is a responsibility of the CSRC.
A company that applies to the SEE for launching its IPO shall meet the following requirements:

1) the approval of the CSRC;
2) total share capital that is not minor than CNY 50 million;
3) the amount of stocks offered accounts for more than 25 percent of its total stocks. For total share capital that exceeds CNY 400 million, the percentage is lowered to 10%;
4) the firm is not in charge of major illegal acts (especially for falsehood in its financial documents), during the last three years;
5) the Exchange may impose other requirements in case it is thought as necessary.

2.2 The Execution phase; the evaluation of companies' target price range

The aim of this paragraph is to highlight the main methods of evaluation for a company, with their pros and limits, and, in the end, to deal with the bookbuilding allocation.
The methods I am going to analyze are:

- Discounted Cash Flow Method (DCF);
- Multiple Method;
- Total Payout Model.

2.2.1 Discounted Cash Flow Method[115]

The Discounted Cash Flow method is recognized as the most trusted method by modern business theories that correlate company value to the ability to produce a level of cash flow adequate to meet an investor's remuneration expectations.
The DCF is one of the most used method to estimate the value of the firm for all investors, both equity and debt holders:

$$Enterprise\ Value = Market\ Value\ of\ Equity + Debt - Cash$$

Enterprise Value = EV
Market Value of Equity = MV

[115] Guida di Valutazione, Listing guides, in Pubblicazioni Borsa Italiana, Milano, luglio 2004

Debt – Cash = Net Debt

We may define the Enterprise Value as the "net cost of acquiring the firm's equity, taking its cash, paying off all debt, and owning the unlevered business" (Berk J. & DeMarzo P.)

The method is called "discounted cash flow" because the value of the firm is given from:

$$Value\ of\ the\ Firm\ (V(0)) = PV\ (Future\ Free\ Cash\ Flow)$$

Then, to obtain the Price per Share:

$$P = \frac{V(0) + Cash - Debt}{Number\ of\ Shares\ Outstanding}$$

The Free Cash Flow is calculated with the following formula:

$$FCF = EBIT\ x\ (1 - Tax\ Rate) + Depreciaton - Capital\ Expenditure - \Delta\ Net\ Working\ Capital$$

Usually, the WACC cost of capital is estimated thanks to: **re*E/V + rd *D/V*(1-tax rate)**.

As we may notice from the formula, it consists in calculating the weight of Equity and Debt, respectively, on the Value (V) of the firm.

2.2.2 Multiple Method[116]

Multiple method is based on the estimation of the enterprise value of the firm thanks to the value of other, comparable companies (similar in growth rate, dimension, size, sector). "Multiples are useful in a second stage of the valuation: after performing the valuation using another method, a comparison with the multiples of comparable firms enable us to gage the valuation performed and identify differences between the firm valued and the firms it is compared to" (Fernàndez Pablo, 2001). But, how do you choose your comparable firms? The comparable approach usually follows four steps:

1) Selection of your comparable firms (through Size, Growth, Degree of Risk);
2) Selection of your significant multiple and calculation (Equity side or Asset side);
3) Application of the results to your firm;
4) Eventually discounting.

2.2.3 Total Payout Model

Total payout model is really useful due to the fact that it allows us to ignore the firm's choice between dividends and repurchase when estimating the company's stock price. The total payout, in fact, values all the firm's equity rather than the single share. In terms of calculation, all the future dividends and the yearly stock repurchases should be discounted for the return of equity.

2.2.4 Road Show and allocation: Book Building

[116] Fernandez P., 2001. Valuation using multiples. How do analyst reach their conclusion?. IESE Business School.

After the valuation of the potential price of company's stock, there is the «marketing phase» of the IPO, known as «Road Show». The Road Show is one of few ways through which the investor can acquire information on the company and, consequently, on where is going to invest money. They are the meetings that characterize the final phase of the institutional marketing process of an equity offering and are organized by the global coordinator. The meetings give the possibility to see the appeal of your offering, and help to establish a final price, but the final price is however determined only at the end of the offer immediately before the securities are placed on the market. This phase is very important thanks to the global coordinator and the financial advisor who carry out an intense activity of training towards the company that is about to be listed in order to carry out these meetings in the best possible way. Once the IPO order book is built, the next and crucial step is to set the price, in order to be optimal for all the players involved. The Book Building process is one way to help underwriters to try to find the price. "Book building involves the submitting of (legally) non-binding bids by a relatively exclusive group of institutional investors. The book manager, in consultation with the issuing company, uses this crude approximation of the market demand curve to establish the price at which the share offering is sold and exercises considerable discretion in the allocation of shares" (Wilhelm J.W. Jr, 2005). Once the Book Building phase is ended, there is the final price estimation, that is responsibility of an investment bank chosen by the company itself. The book runner is the intermediary in charge of collecting and centralizing all purchase/subscription orders proposed by institutional investors regarding the securities being offered.

2.3 The Realization phase and the anomalies post-execution phase

Generally, the main anomalies that may happen in this phase are related to window of the market (Hot and Cold market issue) and how can affect the short term run (Underpricing, positive or negative) and the long run (Long Run Underperforming). The aim of the final paragraph of this chapter is to highlight, briefly, these anomalies and then focusing on the underpricing phenomenon.

2.3.1 Long run underperformances

As well as the other anomalies, there are different explanations, definitions, theories and reasons behind Long-run underperformances. One of the first theorist has been Jay Ritter[117] in 1991, that is when, by analyzing a sample of US companies that went public between the '70s and the '80s, he found out that in the next 3 years after the IPO, those firms were underperforming with respect a set of comparable firms. Generally, different explanations can be used to explain this anomaly, for example:

- An error in the measurement of risk;
- Bad luck;

[117] Ritter J. R., 1991. The Long-Run Performance of initial Public Offerings. The Journal of Finance.

- Fads and Overoptimism[118].

2.3.2 Hot and Cold market issue

"The initial public offering market follows a cycle with dramatic swings, often referred to as **hot and cold** markets" (Helwege J., Liang N., 2002). As the reader can imagine, as hot market is meant an unusual high volume of IPO (especially underpriced and referred to particular industries). Ritter, in 1984, noticed that in the hot market of 1980-1981 the natural resources sector was characterized by an important volume of underpriced IPO. A cold market, in contrast, is the opposite of the one mentioned above. Thus, it has less volume of IPO that are not underpriced. Some theories discuss about what can lead firms into the public market and how a market is characterized as hot or cold. Allen and Faulhauber (1989), such as Welch (1989), stated that a hot market is when a huge number of important and profitable firms decide to became public. The driver of the decision is because the set price is really close to the real value, in order to avoid the potential underestimation of possible cold period. Professor Edward Miller believe that in some ways, new product or new technologies may be the spark to create a hot market, opening the way to other industries related to the new product (in the paper, PC and its components were taken as example).

2.3.2 Underpricing

According to financial glossary of *Borsa Italiana S.p.A*, the **underpricing** is a typical phenomenon that happens when the placement price is inferior to the market price of the stock during the trading. It could be applied on a voluntary basis by the company itself or it may happen due to a less demand with respect of the offer.

Chapter 3. Underpricing phenomenon

The aim of this chapter is to identify the main reasons and model behind the underpricing practice. This phenomenon is, again, related to the initial public offering (IPO), and is about an IPO that set the initial price at a price below its real value in the stock market. When a new stock closes its first day of trading above the set IPO price, the stock is considered to have been underpriced[119]. The underpricing practice is related to the short-term, due to the fact that the investors' demand will market value of the stocks increase. To estimate the level of underpricing in the first day of trading:

$$UP_i = \frac{CP_i - OF_i}{OF_i}$$

Where:

[118] From the investors point of view, there are different biases that can affect negatively investors' judgement over an investment, overoptimism is one of them.
[119] https://www.investopedia.com/terms/u/underpricing.asp

- UP_i = underpricing in firm i;
- CP_i = closing price in firm i;
- OF_i = offering price in firm i.

In any case, developing or developed market, the phenomenon of Underpricing is considered on a global scale and this led some authors to be interested in finding possible theories behind this practice. First of all, the underpricing was analyzed not as a rare phenomenon, but as an everyday practice. So, it was not consider as an exception but the exact opposite, thus, which reality of the facts. This new consideration, as an ongoing phenomenon, led, during the first studies of this practice, especially in the 80s and 90s, to the birth of a literary strand of theories. The presence of many theories is related to the difference in the IPO framework in different countries, taxation, legal framework, incentive, etc.

3.1 Asymmetric information theories

"Most renowned one is information asymmetric theory based model" (Rakibul Islam, 2014). In fact, theories based on asymmetric information are the most known explanatory theories for the IPO underpricing practice, but also they represents the basis for subsequent theories. The main assumption is related to the different players involved in the IPO process and the fact that in process there are difference in the amount and the quality of information owned by each individual player (issuer, underwriter or investment bank, investors).

Depending on who is more informed than whom, the whole theoretical system may vary; in fact a further internal distinction could be made. In this paragraph, I will highlight just a few of them, the most commonly known, but for the sake of clarity the amount of theories based on asymmetric information is huge[120]:

- Winner's Curse (Adverse Selection) [Rock, 1986];
- Moral Hazard Model or Principal – Agent model [Baron, 1982];
- Signaling Model [Allen and Faulhaber,1989 – Welch, 1989], based on Ibbotson's assumption on underpricing;

All of them deal with level of asymmetric information between the subjects involved.

The concept of Winner's Curse[121] or Adverse Selection Model; Rock identified two categories of investors, informed and not-informed. The latter know just the unconditional value of the share, leading to an obvious bad return from this investment. The issuer must do something to appeal both categories, because the

[120] Islam R., 2014. An Empirical Investigation of Short runs IPO underpricing: Evidence from Dhaka Stock Exchange. IOSR Journal of Economics and Finance.

[121] For an empirical evidence I suggest the lecture of: Keloharju, M., 1993. The winner's curse, legal liability, and the long-run price performance of initial public offerings in Finland. Journal of Financial Economics, 34(2), 251–277, or;
Michaely, R., & Shaw, W. H.,1994. The Pricing of Initial Public Offerings: Tests of Adverse- Selection and Signalling Theories. The Review of Financial Studies, 7(2), 279-319.

informed investor would not be able to absorb the entire demand; thus, the firm underprices its shares in order to attract both.

The Principal – Agent or Moral Hazard Model; Baron started from the assumption that the investment banker has more information than the issuer itself. The latter, in fact, is unable to provide distribution or advisory services other than those of a banker, and at the same time he is not capable of monitoring them without the design of a negotiation contract tailor made.

The signaling theory states that, under the assumption that the issuers have advanced information, "high quality" issuers are looking to signalize their quality to the market by conducting an intentional underpricing to leave "a good taste in investors mouth". Thus will lead to an increasing performance in the secondary market and a subsequent emission could be placed in the market to higher conditions (which compensates the issuers for the underpricing).

3.2 Other theories

3.2.1 Litigation Risk Theory

This model claims that the underprice in an important instrument used by firms to avoid the risk to be sued by its own client for bad performance post – quotation. It can be seen like an insurance method, and as far as it can be considered an appealing instrument, the empirical evidence were a bit inconclusive. Mainly because the opponent of the litigation theory used to point out the high costs related to underpricing compared to the average lawsuit settlement costs[122].

3.2.2 Price Stabilization Theory

The stabilization activity is a mechanism applied by underwriters in order to adjust the price of the stock during to first weeks of trading, so it will not give negative initial returns. Though, this mechanism is strictly related to the U.S IPO context, all major studies were focused on the American environment; there are no clear evidence of the application of this instrument in other financial markets.

Chapter 4. Empirical Evidence from Italian Stock Exchange

4.1 Objective

Up to this point of this paper I have lingered to illustrate in detail the characteristics of the IPO Process in different financial environment, offering at the same time an in-depth overview of the studies that have investigated the causes, both with reference to the Western scenario specifically and the Asian one, investigated for its novelty with respect the Western one . In this sense, having laid the essential basis for an accurate knowledge of the phenomenon of Initial Public Offering, I have created my own sample of

[122] The sample analyzed by Lowry and Shu has 6% of lawsuit frequency, so very low.

IPOs in order to understand in practice what I have dealt in the previous chapters. Specifically, data are referred to 243 enterprises that launched an IPO on the Italian financial market between the 01/01/2008 and the 31/12/2019.

4.2 Sample and Methodology

At the present time, despite the considerable progress made in this direction, the Italian financial environment unfortunately still remains difficult to access and very segmented, where each segment has different requirements. In the case in point the dataset has been created thanks to DataStream premium providers such as Bloomberg and Thomson Reuters that have been fundamental for my analysis. In fact, after a cross – comparison I was able to clean the sample from any inaccuracies or to complete the dataset. The IPOs collected refer to the period 2008-2019: the motivation for this choice in terms of time samples lies in the fact that, considering that the studies previously analyzed did not focus on the most recent years or, at least if they did, they performed by including in their time interval strongly distorting historical periods in terms of Underpricing detection (as mentioned before, the dot-bubble or particular fiscal reforms) in this particular case will take a slightly different approach, also to avoid to propose again a repetitive analysis. In the next table, I am going to present the sample:

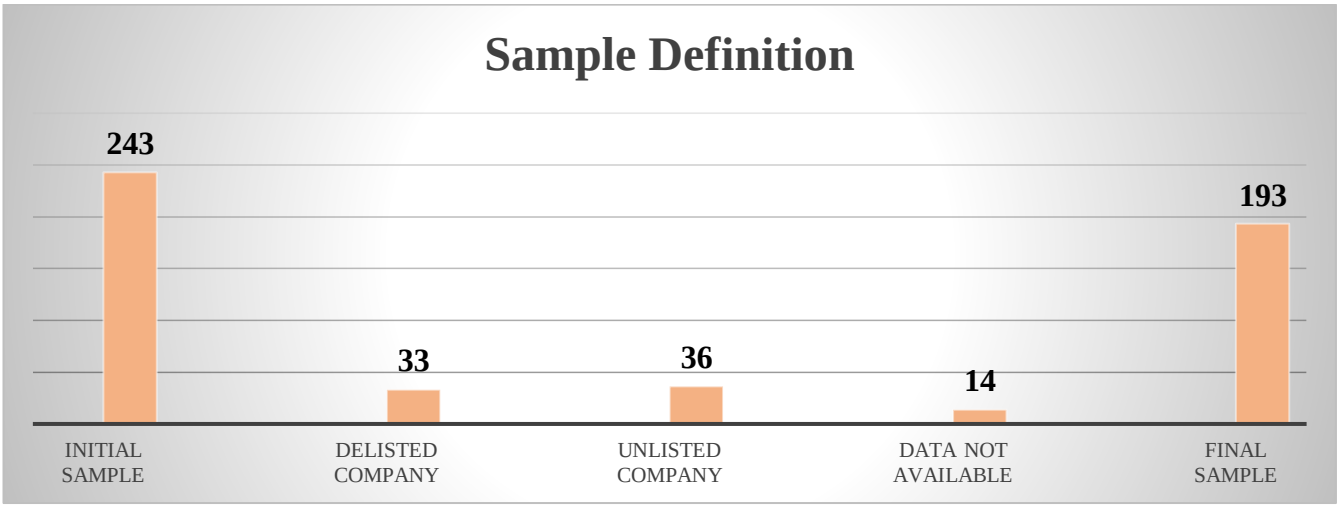

Table 9 Sample Definition. Data Source: Bloomberg & Thomson Reuters

It is interesting to notice the numbers of "delisted company". What is surprising it is not the number *per sé*, which is normal considering the length of the time period in exam, but what it is worth to underline is the fact that out of those 33 delisted companies, 11 (33%) faced the delisting process between 2017 and 2019. Some of them delisted just to be acquired (in line with the main reasons for going public) or for a merger with another listed company, but most of them faced the entire iter of the IPO, just to bail out of the financial market few years or even months later. In fact, it should be remembered that among the main causes that drive a company to turn to the capital market is the need to raise funds: abandon this coveted possibility of fund raising after a period of time too short to conclude something concrete could frustrate all the efforts

made in this direction. Approaching to the details of the sample, in addition to the total sample data, I now want to give a more precise overview both on a year and monthly basis. First of all, I want to underline the time distribution of the IPOs during the time sample taken as reference: out of a total amount of 194 effective IPOs, 33 took place twice, in 2018 and 2019. These two years have proved to be extremely flourishing in terms of numbers of IPO. This could be symptom of the efficiency of Italian Stock Exchange and also that, finally, it started gaining appeal to investors, especially after the economic crisis period started in 2008. However, here I want to provide a deeper and further analysis. To do that, the same temporal dimension of the IPOs has been analyzed, not only on an annual basis, but also on a monthly basis (Table 3 below), so as to highlight any seasonal trends: As it may be noticed by Table 3, the trend is really positive during the first seven months (with a minimum of 11 in February and a maximum of 32 in July), then there is a really dizzying descent trend in August and September (firms in general tend to pause their activities during that period), just to increase again in October and November. It must not be a surprise the decreasing in December, due to the numerous day of closure of the financial market, especially in the second half of the month.

Month	N° of IPO
January	17
February	11
March	21
Aprile	21
May	16
June	30
July	32
August	4
September	9
October	14
November	21
December	11
Total	**207**
St. Dev.	**8,291562**

Table 10 Monthly IPO Size

Once the little overview about the data has been provided above, before proceeding with a detailed explanation of the results obtained, it is essential to take a moment to deepen on the calculation methods used to detect the level of underpricing. As previously mentioned, different formulas can be used: it is therefore essential to specify the approach used in this elaborate.

Specifically, the considered underpricing is the one defined as "raw return" by the authors, for example, Islam R. (2014) and Abu Bakar & Uzaki (2013) just to mention few of them; it is called "raw return, because it could not be known if the result will be positive or negative, respectively underpriced or overpriced, and it is estimated through:

$$UP_i = \frac{CP_i - OF_i}{OF_i}$$

4.3 Results and Findings

In general, it is easy to expect low level of underpricing from the first years of the sample in analysis. From Table 2, in fact, it is possible to see the number of effective IPO per year, with 2009 – 2011 – 2012 being the lowest (3 – 5 – 4 respectively). According to the hot market issue concept, to a high number of IPOs corresponds a high level of underpricing (which, for example, I am expecting for 2015 – 2017 – 2018 – 2019).

	Total Sample	Without ErgyCapital S.p.A
Average	42,5%	5,5%
Median	1,3%	1,2%
Mininum	-53,8%	-53,8%
Maximun	7132,9%	74,6%
St. Dev.	5,13	0,16

Table 11 Return of the IPO

The fundament of my analysis was to compare the trend of underpricing in the timeline I selected with the other studies conducted in Italy for previous timelines. Those studies found a descendent level of underpricing during the years and, in average, my research is perfectly in line with that trend[123].

The five years period from 2008 to 2012 (the years of the great economic depression) is characterized by the lowest amount of offerings and at the same time the greatest number of unlisted company. But, contrary to the expectation (only 2011 shows overpricing), the period does show, especially in 2010[124], a considerable level of underpricing with respect of the number of IPO per year. That could be due to issuer's will to appeal investors despite the economic uncertainty of the period. The goal was to verify, after the reading of different papers of IPO underpricing in Italy, that the descendant trend was still going on in the most recent years and, from the results I obtained, I may say that Italian financial market is improving in terms of efficiency and also in terms of attracting investors, since to the high recent number of offerings corresponds a lower (compared to the average 1985-2001 of 21.87%, Cassia L. *et al.*) level of underpricing.

[123] If we consider the abnormal return of ErgyCapital S.p.A, the vision of the average changes a lot, but it is normal, considering the long timeline I have chosen, to find some abnormal data.

[124] It would be interesting see how those 2010's IPO perform few weeks after the IPO itself, in order to verify if the level of underpricing is still high.