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*A Giorgia*



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## INTRODUCTION

Initial Public Offering (IPO) is an important moment for a company in order to increase its possibility to grow. Such process is not easy and it requires a long preparation and several disclosure decisions. During the IPO process the **company** is not alone but it is supported and controlled by several players likewise **underwriters** that is the entity that underwrites, manages and places the shares that will be offered to the public; **venture capitalist** that has financed the start-up phase and would like to monetize its investment, **market agent** (NYSE and NASDAQ) that offer the platform to link providing different entrance conditions and **regulators (SEC)** that control the full process in order to protect investors.

IPO characteristics likewise determinants and pricing has been heavily investigated among years. In particular, accounting and financial literature mainly focus on underpricing and revision of the offer price. There is limited evidence on the analyst role and behaviors after the IPO.

The first part of this study describes the main actors and determinants of price formations in IPO: company, underwriters, venture capitalist, market agent and regulators.

The second part of this study presents the principal component of IPO price and the role of analyst. In particular, the overall effect of the IPO process that is summarized as underpricing (the positive difference between the offer price and the first day price); the decision of the company to provide voluntary information about its performance (NON GAAP); the specific type of forecast computed by the analysts: the target price.

Target price could be related to company conditions, IPO price and market factors and its timing may have crucial impact on the markets. This study tests whether:

H1: There is a positive relationship between the time of the target price and the company's decision to adopt non-GAAP measure.

H2: There is a positive relationship between the time of the target price forecast and the presence of a Top tier 1 underwriters.

H3: There is a positive relationship between the time of the target price forecast and the presence of a venture capitalist.

H4: There is a positive relationship between the time of the target price forecast and the company's decision to choose the NYSE as listing market.

H5: There is a positive relationship between the time of the target price forecast and the Financial Crisis of 2008.

In the third part are reported the description of the sample, the descriptive evidence and the final regression that consider the association between the time of the target price forecast with the IPO feature (non-GAAP measure, top underwriter, venture capitalist market, underpricing), external events like the Financial Crisis of 2008 and controlling it for firm specific characteristic.

The results show that there is a positive relationship with the presence of a top underwriter, the presence of venture capitalist and the Financial Crisis. They show as well that the size of the gross proceed and if the price of the forecast is bigger than the listing price could influence the time of forecasts.

# **1 PROCESS AND PLAYERS OF IPO**

## **1.1 IPO PROCESS**

Initial Public Offering (IPO) is a long process that requires significant planning and preparation, involving lots of time, money and players. A careful coordination among management, auditors, investment banks, legal counsel and other stakeholders is crucial to obtain an efficient and satisfying process for all the parties. The company should invest consistent effort in drafting the registration statement, prepare financial statements, collect due diligence and implement changes required for public company status. This is identified as a crucial event for a company, because it affects all the structure, the way of reporting and the relationship with the financial world; therefore, also timing is an important factor and could determine the success or failure of the IPO.

As shown in Table 1 there are mainly five steps to switch from private to public company. In the preliminary phase the company must arrange an efficient team and look around in search of the right partner. The partner has to be compatible with company's needs, helpful to reach all requirements, search potential investors and help to do a successful IPO. Successively company presents to SEC the S-1 prospectus, a truthful description of the company that must satisfy binding limits and regulations. Next move is to provide interest in the forthcoming IPO, then, after SEC's approval, starts the Roadshow. Last step is the Initial Public Offering, the first day of company's public life.

The first step concerns the company's preliminary planning. First of all, the company identify the management team whose task is to coordinate every new operation coming from the process. Indeed, there are a lot of standard that a public company must satisfy: Management's role is to identify structuring issues, develop a control system and commence an audit in order to provide to SEC a pre-clear financial statement. Last preliminary action is to hire an underwriter. Underwriter could be more than one and generally is an investment bank. It is important because follows and helps the company during all the IPO process providing knowledge, searching investors and deciding, with the company, the allocation of shares. An advance planning may help to obtain a speed process but of course the preparation, the company size and market condition could influence it. Previous planning could also allow the company to decide the best time window to quote. The process is characterized by legal rule constraint, general format to follow, several meetings and shareholders pressure. For

these reasons, the less the managers are involved in the IPO process, the more quickly they can go back to the main business of the company. (EY's guide to going public 2013)

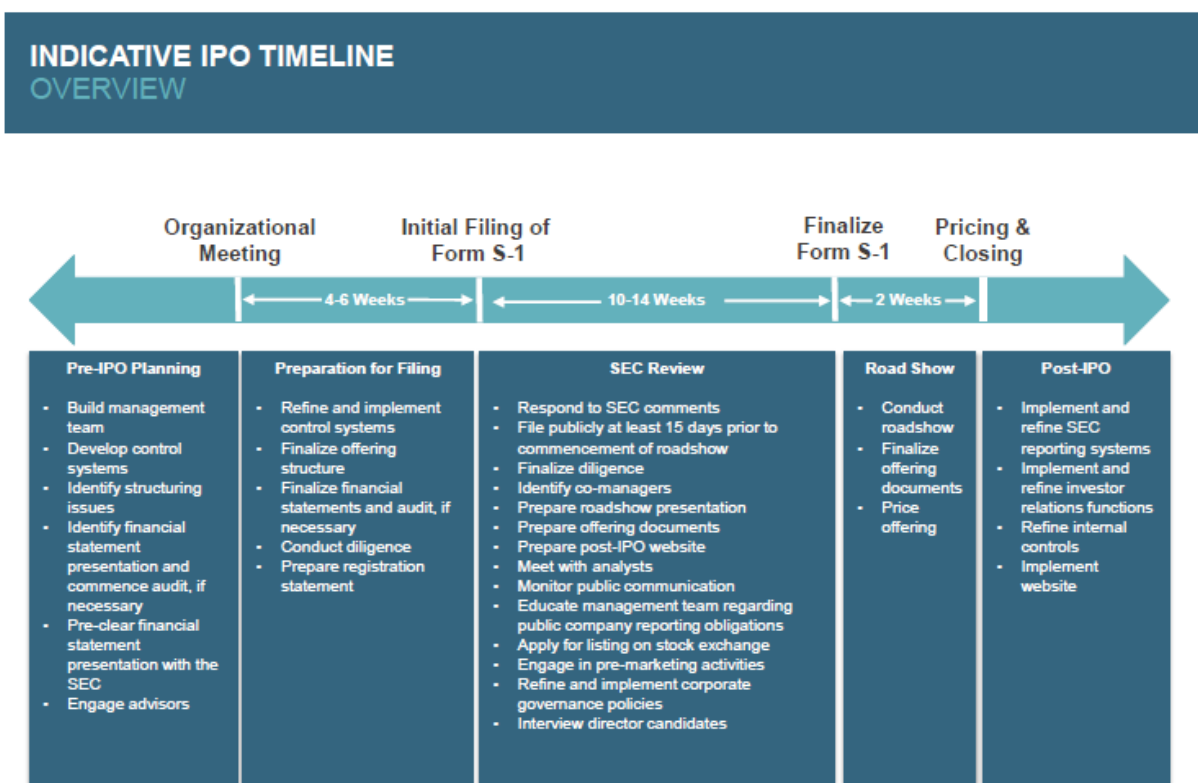
The second step consist in the preparation of documents for Filing and in sending S-1 prospectus to Securities Exchange Commission (SEC). Once implemented control system and finalized together with the underwriter the offering structure, Company delivers the registration statement, or S-1, that is the formal documents in which is exposed company's business and potential risk factors. It contains also current ownership structure of the company's share, purpose of listing and the price range of a share. It is a complete overview of the Company that helps a future investor to understand in a common and readable way all crucial aspect and operation of the firm.

The third step involve both SEC and Company. The SEC is the federal agency that regulates stock trading and stock exchange, create regulations and protect investors. During the IPO the SEC's role is to state whether the company has provided sufficient and correct information for potential investors looking over the registration statement, S-1. Whenever something is unclear or doubtful, SEC sends comments to Company in order to adjust or clarify charged points. During the SEC's examination, Company and underwriter start to distribute the preliminary prospectus, looking for potential investors and seeking interest in the IPO. Since the Prospectus is not definitive, no sales can occur, but what is relevant is to promote the IPO. All prospectus before the definitive one are generally known as 'Red Herrings', because of the red warning in the first page to underline the fact that is not the final one. After SEC's approval the company has its final prospectus, and are ready to become public.

The fourth step is the 'Road Show' and is the last Pre-IPO step. It is a marketing event in which company's management travel to main financial market to present and seek interest in their IPO. They meet financial investors, and if there is a positive matching and there is interest in buying share, they can subscribe a conditional offers or reservation for shares. At the end of the Road Show the company has a main view of its IPO: number of shares to distribute, how much capital, the interested investors. Thus, it asks the SEC to declare effective the registration statement and decide with underwriters the price of a share, reporting it in the final prospectus. Just before the first public trading day company decide how many shares each investor will receive, then finally go public.

The fifth step involve what Company must provide to public once listed. A Listed company must provide quarterly updates, disclose information and every relevant situation

must be reported to the market. To do so the company must implement SEC reporting system and investor relations function, constantly refine internal control and handle the website.



(Figure 1, Wilson&Elkins, ‘Preparing for an IPO: Market update, process and Timeline, page 6, November 2016)

There are others way to go public without hiring an underwriter to guide the process of book building: Dutch auction and Fixed price auction. In the book-building process underwriters together with the company decide price after gauging investors and testing the market after the road show, just a moment before quoting. Underwriters obtain fees for their services, whereas they are also interested in selecting a price that will permit them to gain as much as possible. For this reason, price is generally manipulated to be underpriced, trying to obtain an artificial rise in the first day or weeks of trading and generating a surplus. In Dutch auction, instead, there is a ‘democratic’ creation of the price, albeit there is no support by underwriters and problems in providing sufficient information. While in Fixed price auction we could have both underpricing and overpricing problems.

Dutch auction is different if compared with other methodologies: there are no investment banks influencing the process and the price is decided by the market. The latter is composed by all its participants: all interested investors, institutions and analysts. All of them can place a bid on the stock issue, transferring the price decision from underwriters' view to a more democratic view. It translates in more corporate management's autonomy, and shares goes to a market chosen bidder and not to an underwriter's preferred customers. To participate at a Dutch auction, an investor typically opens an account with company's underwriter (usually an investment bank), ask for a prospectus and an access code or bidder identification code. Auction procedure could be made online. During bidding, investors indicate how many shares they want to buy and the price they want to pay. Underwriter acts as auctioneer, and generally starts the auction by offering an absurd high price and consequently lowering it gradually until comes the first bids and until auction ends. If a company wants to sell an X amount of shares the price is calculated as follows. The highest bids adding up to the X amount of shares are the winning one, then the price corresponds to the lowest winning price bid of the X shares and all the winning bidder will pay that price.

<b>Table 1: Difference between Traditional and Dutch Auction IPOs</b>		
	<b>BOOK-BUILDING</b>	<b>DUTCH AUCTION</b>
Pricing Mechanism & Share allocation	Coordinated by underwriting investment banks	Determined by market via investor bids
Role of Underwriters	Underwriters set the IPO price, market the IPO, and support the price in the event of an undersubscribed offering	Underwriter's price setting powers virtually eliminated; Lower transaction costs; Underwriters still market the IPO
Post-IPO Price Effect	Potential for a larger pop; because the stock is underpriced prior to the IPO	Less potential aftermarket pop, due to relatively more efficient pricing and share allocation

(Table 1: Eugene Choo, Going Dutch: The Google IPO, 20 Berkeley Tech. L.J. 405 (2005). Available at: <http://scholarship.law.berkeley.edu/btlj/vol20/iss1/45>, visited on February 2017)

Underwriters/book-runner process is the more adopted (Sherman 2005), since it brings to a more accurate building of a fair price. Contrary, during the auction is more difficult to obtain a good price since the small investors, who are supposed to be the main part of the auction, may have difficulties in retrieving sufficiently detailed information on fundamental, rather

than on name recognition. For this reason, investment banks have an initial risk aversion to buy stocks and consequently, they tend to discount the initial offer price.

As presented in Table 1 the role of underwriters is relevant in bookbuilding process because can support and resolve lots of problems, like under-subscription or misleading information. In Dutch auction the price setting powers of underwriters is excised, but difficulties in retrieving good information arise. This could be a problem in evaluating the fair price of the company and make, generally, warier investors approaching the auction.

In book-building IPO price generally increase, and this effect is related to the presence of an underwriter during the process. After IPO effect are, instead, reduced in Dutch auction, obtaining a more stable price due to relatively more efficient price and share allocation.

Dutch auction could be a resource for companies that doesn't have a clear view on what to do with the new capital acquired with IPO and do not want to bear lots of transaction costs. This summed up with less information and protection by underwriters can cause mispricing and a less attractive process, especially for non-famous firms.

An example of Dutch auction IPO is the Google's one in 2004. It was a successful auction but mainly for the high visibility of the firm more than the information disclosed. But generally in a true Dutch auction, there would have been little or no first-day increase, and the issuer does not change the offering price, only the market does. However, in the Google's one it happened. (Nayantara Hense 2005)

Last method is the Fixed Price; it is different from the others since the price is previously established and fixed. There are no range and no adjustment. The problems are mainly two: underpricing and overpricing. When price is underpriced the company may lose possible capital, on the other hand, when overpriced, it IPO could be not fully subscribed. In the last situation the issue of securities has to be cancelled and company waste money and time.

The presence of an underwriter that follows and seeks investors' interest and allocates shares solve this problem. For these reasons book-building is the more frequent method and solve primary market function more efficiently<sup>1</sup>.

This process traces the way and the step to go public. All decision and action must be carefully prepared because it could influence successful completion of IPO. There are lots of literature that describe the players of IPO and how they influence price formation and the process.

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<sup>1</sup> Benveniste, L.M. and Busaba, W.Y. (1997) 'Bookbuilding vs. Fixed Price: An Analysis of Competing Strategies for Marketing IPOs', *Journal of Financial and Quantitative Analysis*, 32(4), pp. 383–403. doi: 10.2307/2331230.

The players of the IPO process are mainly five: Company, Underwriter, Venture Capitalist, Market and Regulators. Company's size, component and management are a key component in decision to make and IPO. It is not an easy process and full of pro and cons.

Underwriters plays also a protagonist role because can condition price formation and influence share allocation.

Presence of Venture capitalist could be useful in providing interest on company and in retrieving information.

There are several Markets in the World where to go public. In this study are analyzed New York Stock Exchange (NYSE) and National Association of Securities Dealers Automated Quotation (NASDAQ). There are mainly three difference between these markets: capitalization, fee and specialist.

Last but not less important is the presence of a Regulators authority: Securities Exchange Commission that provide protection to investors supplying law, monitoring and maintaining fair the financial market.

## **1.2 COMPANY**

Going Public is not an easy decision, there are lots of pitfalls and high stakes. Company's actor is mainly the management team.

Company's management must be capable to understand the right moment, testing the condition of the market, evaluating the benefits and advantages of IPO in the context of shareholder and corporate objectives. Company must be also performing and must canalize investor's interest on their IPO: every detail is important and all aspect are checked. Management must put great effort in the Process.

Successful IPO are the one that outperforms their competitors, for this reason a company must look at its growth rate, sales performance, profitability and market share, comparing it respect the market. Similar characteristics can be found in successful IPOs. Company size and its establishment, an outstanding product, service or business model, high entry barriers and first mover advantage has to be considerate and create an added value.

An extremely important part is also that a company must be ready to act like a public one: the building of suitable infrastructure, comprehensive business plan and detailed timeline. If they



not do this, they don't provide sufficient interest in investors, and it's fundamental in an IPO process (EY 2013).

IPO is not the unique way to raise capital, and has both pros and cons.

### PRO<sup>2</sup>

- The main advantage of going public is of course the fresh capital that permits businesses to grow quickly and with less constraint. Money collected in the market with the IPO could be directly adoptable by the company to repay debt, boost business and investment or putting it on working capital. A public company, respect to the private one, is never required to pay back the capital. The new shares are subject to market changing in prices but total amount remain the same preserving the structural capital for functioning.

A consequence is also to raise capital more easily, thanks to a direct access to the public market and at cheaper costs. This could be related to renovated prestige, brand image, public profile and credibility.

- The new public company achieves higher valuation than private one since there is less uncertainty about the information because constantly updated. In the Stock market firms are required to follow quarterly disclosure, rigid format and ad hoc rules. In this way, it could be seen a more safely and wealthy investment, translated in greater visibility and easier dealing with financial sources, supplier and customers. The presence of a Regulator provides safer conditions to investors.
- Public shares represent a potential exit strategy and liquidity for investors, owners and(or) shareholder, like Venture Capitalist. Equity can be used also as exchange in acquisition, strategic transactions and compensating employees.
- Public company may attract also top-level management and other employees that are a value added component for the firm's economy.

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<sup>2</sup> Pro and Cons, EY 2013, 'EY's guide to going public'

## CONS

On the other side there are also some cons.

- First of them is the cost. Going public is a very expensive operation. Hiring legal consultant, investment bank and manager fees, accounting, marketing and travel costs, that once summed corresponds to a huge amount.
- Another cons are the consistent ongoing legal compliance obligations due to public reporting, substantive governance obligations under SEC and securities exchange regulations that means greater risk and exposure to securities litigations.

Being public corresponds to a continuous relationship with investors and for this reason project, investment, target and strategic transactions must be disclosure earlier than the company desires.

- There is a dilution of the shares, but company decide in which ways and to who the shares are distributed and wants to maintain control. But it has also to take into account of: risk of takeover, dilution of current stockholder interest and that management may have different incentives in a situation in which the stockholder base is concentrated.
- The duration of the IPO could influence the business of the firm. It could take three months but also longer than six months, depending additionally on the decision of the best time windows to quote.
- Last cons involve management decision. Being public means also to constantly have an eye on the stock price, look at the variations of the market in correspondence of firm's movements and operations and learning how the market value you and react.

Constantly checking, and short term disclosure, may focus the attention primarily on the short period than the long one, leaving aside the creation of a long term value preferring a stock performance.

Lots of literature can be found about IPO, its characteristics garner lots of attention during the years. Main areas are timing, valuation, financial decisions, benefits and costs, role of underwriters, analysts' coverage and long-run performances of IPO.

Ritter is one of the main researchers that investigates IPO and lots of paper can be found about this issue. In 2002 analyses 1980-2001 US IPO. The number of firms going public on that period exceed one per business day, for about \$488 billion dollars (in 2001

dollars) in gross proceeds, an average of \$78 million for deal. First day of trading obtains an 18.8 percent average price above the quotation price, that corresponds to underpriced IPOs.

He focuses attention on three areas: reasons for going public, pricing and allocations of shares and long run performance.

Finding of the first area is that, taking into account of a general lack in data and that there are myriad of theoretical reasons, main factor that influences IPO is the market condition, and the second one is the stage of the life-cycle of the firms.

For what concerns underpricing, he observes an astonishingly high first day returns on IPO during the Internet bubble, arguing that theories based on asymmetric information are unlikely to explain average first rate return of 65 percent. Underwriters do not bundle multiple offering together, that would have lowered the average uncertainty and the need for underpricing.

He assists, also, to long-run performance results, sensitive not only to methodology, but also to the exact time period chosen. Choosing 1999, 2000 and 2001 comes to different results. The period during which the Internet bubble collapsed were great years for recent IPOs, even though an equally weighted portfolio of recent IPOs lost on average 355 basis point per month (Ritter and Welch 2002).

In 2006 Ritter investigated the influence of IPO in the trading market. Known that commissions are paid to underwriters by investors and that underwriters use book-building to allocate shares in a discretionary way, Ritter, Nimalendran, Zhang analyzed if investors trade liquid stocks in order to affect their IPO allocations. They state that this hypothesis is consistent in finding that money left on the table by IPOs affect the trading volume of the 50 most liquid stock close to the offer date. For a \$1 billion dollar IPO, in the six days ending on the day that trading begins there is abnormal volume in the 50 most liquid stock of 2.7 to 4.21 percent, although only during the internet bubble period is this statistically significant (Ritter, Zimalendran, Zhang 2006).

From these results we can prove an involvement in price formation and in conditioning the collection of shares in IPOs process. The role of Underwriter is significant and for these reason is the second player in the IPO

### 1.3 UNDERWRITERS

The Underwriter is the entity that underwrites, manages and places the shares that will be offered to the public. It's a financial intermediary that guarantees that all disposable shares will be acquired, taking the risks of these operations and obtaining a fee. Underwriter constantly follows the company during the process of IPO from the first stage, helping it to ensure that regulatory requirements are met, testing the water and interest, deciding and adjusting price together with the firm. Underwriters generally tend to underprice the public offering in order to obtain a bigger surplus from the selling of the IPO shares.

Fernando et al. (2004) investigates whether price may be related to firm's other choices and characteristic. They find that both institutional ownership and underwriter reputation increases monotonically with the chosen IPO price level. Moreover, the firms choosing a higher (lower) stock price level experience lower (higher) mortality rates.

In order to promote the IPO, underwriter develops the key "equity story" and seeks interest in investors about the nearby listing, during the pre-roadshow period. In this sense, it is an important player in the IPO marketing campaign and in structuring an efficient process, but needs also a prepared company on the other side.

Company can choice from different type of underwriters, they are not equal and can be divided by prestigious or not. In particular, the type, lead or not, is strictly related in shaping the movements of price in the post IPO time window. Wang, Liu, Wu (2003) find that in Chinese IPOs have an initial return negatively related to the underwriter's reputation. They suggest that the better the reputation of underwriters, the less underpricing and hence, the lower the initial return of the IPO stock. They also analyze the ten-day window after the trading day and the three-year return of the IPOs. They find that the cumulative return becomes negative, while stocks with more prestigious underwriters experience less decline in the ten-day window. For what concerns, instead, the three years post IPO they find a positive long run return, positively correlated with underwriter reputation.

Carter et al. (1998) find out that under-performance of IPO stocks relative to the market over three-year holding period is less severe for IPOs managed by more prestigious underwriters. In accordance with previous studies he finds also that more reputable underwriters are associated with less short run underpricing.

Underwriters could influence price also through different evaluation methods retrieving the fair value of the firms they bring public. Investigating French IPO,

Roosenboom (2007) discover that underwriters choose different methods (multiples valuation, dividend discount model, discounted cash flow, GAAP or NON GAAP) basing it on different characteristic of the firm: aggregate stock market returns and aggregate stock market volatility in the period before IPO. He finds also that Underwriters discount their fair value estimate to set the preliminary offer price of the shares. A higher discount is applied to IPO companies with greater valuation uncertainty and a lower one bought to the market by more reputable underwriters and that are forecasted to be more profitable.

A prestigious underwriter is more efficient than other, thanks to its characteristics.

Lee (2011) finds that prestigious underwriters have a comparative advantage in analyzing financial markets, because of scale economies in search and in information acquisition. They have also superior expertise that can search more efficiently in the new issue market thank to an extensive experience and customer base. They can choose the best time for listing, and it is a determinant characteristic for a profitable IPO. Lee's paper provides an empirical evidence of that the more reputable underwriters possess a greater proficiency than their lesser known counterparts when market valuation of comparable stocks in the same industry is high.

## **1.4 VENTURE CAPITALIST**

Venture capitalist is an investor that provides capital to startup or to support small firms that has no, or not enough capital to access to equities markets. Venture capitalist collects funds and invests in high performance or new business with potential growth. Banks and capital market generally don't want to invest in this type of companies since the high risk. In a Venture capital firm participates wealthy individuals, insurance companies, pension funds, foundations and corporate pension funds. They pull together money that will be arranged by the VC firm. For this reason, VC firm is called general partner while who puts the money are called limited partners. Venture capital is a very profitable way to invest, if things go well, holding, of course, of all risks involved.

VC's managers are paid through fees and carried interest (generally around to 20-25% of the fund's annual profit), providing interest in boosting the growth of acquired firm<sup>3</sup>.

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<sup>3</sup> Bernstein, S., Giroud, X., & Townsend, R. R. (n.d.). The impact of Venture capital financing, (1), 1–29. <https://doi.org/10.1111/jofi.12370>.

They have a role also in the IPO process, helping the firm in retrieving sufficient and accurate material and monitoring the good functioning of their investment. In the '90s, Barry examined venture-capital-backed companies between 1978-1987. He finds that VC specialize their investments in firms to provide intensive monitoring services. To do so, they take concentrated equity positions after IPO and serves it on the boards of their portfolio firms. Capital markets seems to recognize better monitors through lowering underpricing since more and accurate information could be found (Barry 1990).

There is a binding agreement between insiders, which bar them to sell the stock for a specified period following the IPO, the so-called 'lockup agreement'. Managers, employee, venture capitalist and all others insider must hold for generally 90, 120, or 180 days their shares in order to not compromise the intrinsic value of the price post IPO. Bradley, Jordan, Roten, Yi (2001) examine the behavior of stock price in correspondence of lockup expiration for a sample of IPO in 1988-1997 period, finding that on average it is associated with negative abnormal returns. Losses are concentrated in firms with VC backing, especially in the high tech sector, with the greatest post-IPO stock price increase, largest trading volume during lockup expiration and the highest quality underwriters.

Investigating, instead, the long-run performance of 1972-1992 IPOs, venture backed one outperform non venture-backed, if equal weighted returns are used. Venture backed IPOs do not significantly underperform while small non venture backed companies do so. Underperformance of the firms is not anyhow an IPO effect (Bray and Gompers 1997).

Long-run performance has been investigated later in 2009, too. Krishnan, Ivanov, Masulis, Singh (2009) find that VC reputation, measured as past market share of VC-backed IPOs, has positive association with an array of long-run firm performance measure. VCs continue to be associated with superior performance in the long period after controlling for the VC selectivity.

VC discloses more active post-IPO involvement in their portfolio firms, and it has positive influence on post-IPO performance. Controlling for more reputable VCs, Krishnan et al (2011) find, also, that they find that a continued VC involvement has a positive influence on post-IPO firm performance.

The presence of Venture capitalist before the IPO could influence IPO price, but also type of VCs influence it. Looking at IPOs before 2000, Venture capital backed one have large first day returns than comparable non venture backed. The difference between 1980 and 2000 average returns ranges from 5 to 12.32 percentage points. Return are different during Bubble period 99/00. Higher underpricing, indeed, corresponds to flows of capital into venture capital

funds. There is a lower effect on underpricing for younger VC and those that has done fewer IPOs (Lee and Wahal 2003).

Analyzing 1997-2002 German market IPOs underprice is more marked for companies backed by prestigious venture capitalist and top bank underwriter (Franzke 2003).

Venture capital could have influenced also the firms' survival. There is some evidence between survival time of IPO and the quality of venture capitalist: taken as a whole it has a negative impact. On the other hands if quality of VC is measured by the duration of the investment before the IPO, it increases the company survival times (Nahata 2008). Nahata proposes a new measure of VC companies' reputation and analyses its performance implications on private companies. He controls for VC specific factors, as experience, connectedness, syndication, industry competition, exit conditions and investment environment, and for portfolio company quality. The companies backed by more reputable VCs by IPO capitalization share (based on cumulative market capitalization of IPOs backed by the VC) are more capable to access to public market faster and have higher asset productivity at IPOs. VC's IPOs capitalization share, in particular, are able to capture both VC screening and monitoring expertise.

## **1.5 NYSE AND NASDAQ STOCKS EXCHANGES**

A stock exchange is a marketplace in which securities, commodities and other financial instruments are traded. Its main interest is to ensure fair and orderly trading and give efficient price information for any securities traded in the exchange. Exchanges provide a regulated platform to companies, government and other groups for selling securities to the public. Trading of securities is mainly provided by electronic exchange as the markets become more sophisticated, and this conveys to a much larger use of high frequency trading program and complex algorithm.

Different standard is provided by different stocks exchanges to control members, who participate must meet listing regulation and disclosure of information as long as they participate in.

NYSE is the stock exchange based in New York. It is the largest for market capitalization of listed securities and the oldest one in the United States. It started as private organization but in 2005 it became public after the acquisition of 'Archipelago'. It's known

also as ‘Big Board’ and a little part of trading are still floor trades, for setting pricing and deal in high -volume institutional trading, while majority of them has transitioned to electronic system. Trading session starts at 9:30 am and close at 4:00 pm EST and it is a continuous auction format.

NYSE’s mission<sup>4</sup> is to promote righteous and equitable principles of trade, encourage free and open markets, protecting investors and public interest. Most of the regulations are directly provided by NYSE Regulation while others are allocated to FINRA or other self-regulatory organization pursuant to a regulatory services agreement and national market system plans. NYSE market differs from other since combines cutting-edge technology with human insight to help mitigate volatility, allocating, in this way, capital more strategically.

When a security is listed a ‘Listing Agreement’ must be subscribed. ‘Listing Agreement’ describes the rule and the activities to follow to guarantees a safe market, provide right information and report as soon as possible new info about a relevant fact and periodically review and disclosure. It’s not allowed to hedge on personal information and material must be simultaneously released to the public; corporate employees, as well as directors and officers, cannot disclose confidential information. A company should not provide private information only to preferred investors but to all market. Security analysts has an important role in the evaluation and interpretation of the financials affairs of listed companies. For these reasons Exchanges exhort firms to observe an ‘open door’ policy in their relation with shareholders, financial writers, security analysts and to all persons interested in firm’s affairs.

Nasdaq<sup>5</sup> is the other American big stock exchange company. It’s globally recognized as a diversified worldwide financial technology, trading and information services provider to the capital markets.

It takes cares of four complementary business segments: Tech, Trade, Intel and List.

The Tech side provide technology solutions in commercial technology and business software, supporting financial industry and corporate clients in all aspects of their business or marketplace. Trading segment brings together buyers and sellers in an open and transparent way, providing trading, clearing, settlement and depository services for all securities and offering pre e post trading support. For what concern List, they provide customer service, visibility and market intelligence resources for its listed firms. Finally, Intel provides market

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<sup>4</sup> Source: ‘NYSE MARKET’, visited on February 2017 <https://www.nyse.com/markets/nyse>

<sup>5</sup>Source: ‘Discover Nasdaq’, visited on February 2017 <http://business.nasdaq.com/discover/index.html>



insight and resources needed by investor to obtain market transparency and better information for trading.

Also in Nasdaq a 'Listing Agreement' must be required to follow international financial rules, market transparency and investors protection.

Each markets have qualitative listing criteria, corporate governance standards and maintenance requirements to satisfy, influencing the decision of a firm that wants to make an IPO in the American market and the choice of NYSE or Nasdaq.

Scileppi identifies some relevant differences. Nasdaq with its upstart image and all electronical trading platform has attracted more technology-based companies, but not only. On the other side NYSE has listed the biggest public companies in the world. For these reason a Company must list in the exchange that gives it a most visibility and best marketing opportunities.

Since IPO is a very expensive process, thus costs have to be considered. Nasdaq has less costs than NYSE. Nasdaq has three market tiers each with increasing minimum requirements (and theoretically prestige): Global Select, Global Market and Capital Market. Where there is a range of fee, listing 75 million shares on the Global Selected Market or the Global Market will run your company \$225,000 for the initial listing fee and an additional \$68,500 annually to continue the listing. Listing same number of share on Nasdaq's Capital Market will cost \$80,000 for the initial listing fee and an additional \$27,500 annually. For the same listing on the NYSE the initial listing fee would be \$300,000 with an additional \$69,750 due annually.

For what concern Corporate Governance requirements, the Sarbanese-Oxley Act of 2002 requires that the audit committees be independent, but both NYSE and Nasdaq also require that a majority of an issuer's directors be independent.

While NYSE-listed companies must have an independent compensation committee and an independent nominating committee, Nasdaq-listed have option of having an independent compensation committee and independent nominating committee or having executive compensation and nominating decisions made by a majority of their independent directors. Smaller companies with smaller boards tend to choose Nasdaq because more flexible.

NYSE-listed companies are required to have, also, an internal audit function and corporate governance guidelines, while the Nasdaq ones are not<sup>6</sup>.

Throughout years the difference between the two markets has been reduced. The remarkable variation is the entrance fee and the human involvement. While NASDAQ has a performing online Trading system, NYSE associate to an efficient online trading system the human help. While difference in entrance fee and capitalization requirements are similar under determined conditions, the presence of a Designated Market Maker (DMM) is the peculiar characteristic of NYSE. The 'DMM' are required to maintain the market fair and ordered for their assigned securities. They operate both manually and electronically to facilitate price discovery during market openings, closings and during periods of substantial trading imbalances or instability<sup>7</sup>. NYSE considers this human connection the cornerstone in lowering volatility, deepening liquidity and a more ordered market

The difference of the two exchanges remain mainly the costs, the size and restrictions. Sometimes the restrictions and self-regulations are not sufficient to provide an efficient and transparency market for investors and for this reason the federal agency Securities Exchange Commission supervise the functioning of the securities market.

## **1.6 U.S. SECUTITIES AND EXCHANGE COMMISSION (SEC)**

The mission of SEC<sup>8</sup> is to protect investors, maintaining a fair, orderly, efficient market and facilitate capital formation. The more U.S. enter into global for-profit competition, the more needs for sound market regulation.

Stocks, bond and other securities, differently from banking world where deposits are guaranteed by federal government, can lose value and there are no guarantees. Laws and rules are build up for investors, private individual or large institutions, because they should have the basics facts about an investment before buying and when hold it. SEC requires companies to disclose faithful financial and other information to the public providing a pool of common knowledge. Only through timely, coherent, accurate and comprehensive information people could make sound decision for their investment. Every year, SEC brings hundreds of civil

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<sup>6</sup>Source: David C. Scileppi, 'Where to list: NYSE or NASDAQ?',

<http://www.thesecuritiesedge.com/2012/07/where-to-list-nyse-or-nasdaq/> on July 31<sup>st</sup>, 2012

<sup>7</sup> NYSE website, Trading information, visited on February 2017 <https://www.nyse.com/markets/nyse-mkt/trading-info>

<sup>8</sup> Source: 'What we do', SEC website, visited on February 2017 <https://www.sec.gov/about/whatwedo.shtml>

enforcement actions against individuals and companies for violating securities laws. Main infraction includes accounting fraud, false or misleading information and insider trading. Educated and careful investors themselves are the relevant source of information for SEC's enforcement action. To support investors' education, SEC publish on its website complete guide and provides free access to EDGAR database where there are required documents of public companies.

SEC is organized in Divisions and Offices that assist the Commission in executing its law enforcement function and to obtain evidence of possible violations of the securities laws from many sources. There are some laws that govern the securities industry.

'Securities Act of 1933' has the objective to require that investors receive financial and significant information concerning public securities and to prohibit fraud in securities' sale.

SEC was created through the 'Securities Exchange Act of 1934', empowering it with wide authority over all aspect of securities industry and with the right to regulate and oversee brokerage firms, transfer agents, clearing agencies and nation's securities SROs (Self-regulatory organizations). Example of SROs are New York Stock Exchange (NYSE), Nasdaq Stock Market and the Financial Industry Regulatory Authority (FINRA).

1934 Act also prohibits and pick out type of conduct in market providing to the Commission the ability to control and discipline regulated entities and person associated with them. SEC requires periodic report for publicly traded securities, too.

'Trust Indenture Act of 1939' involves bonds, debentures and notes offered for public sale. Trust indenture is a formal agreement between the issuer of bonds and the bondholder conforms to the standard of this Act.

'Investment Company Act of 1940' regulates, instead, the organization of companies, including mutual funds engaging public investment (investing, reinvesting, trading), seeking to minimize conflict of interest arising in complex operations. Companies has to disclose their financial condition on a regular basis and on its investment decision and objectives.

'Investment Advisers Act of 1940' guides investment advisers. Firms or sole practitioners compensated for advising others about securities investment must register with SEC and follow regulation to safeguard investors. Only advisers who have at least \$100 million of assets under management or advise registered company must register with Commission.

'The 'Sarbanes-Oxley Act of 2002' decree a number of reforms to enhance corporate responsibility, financial disclosure and combat accounting and corporate fraud. It confers to

‘Public Company Accounting Oversight Board’ (PCAOB) the ability to oversee auditing profession’s activities<sup>9</sup>.

In 2010 Obama signed into law ‘Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010’. This legislation is built to reshape the U.S. regulatory system mainly in regulation of financial product, corporate governance, disclosure, transparency, credit rating and consumer protection areas.

The last Act is the ‘Jumpstart Our Business Startups (JOBS) Act’, signed in 2012. This Act gives to SEC the ability to writes rules and issues studies to investigate capital formation, disclosure and registration requirements. This necessity comes from the cost-effect of access to capital for all size companies. Companies may stumble in unnecessary or overly burdensome regulations.

Despite lots of regulations and restriction, some illegal actions occur.

In IPO, one of the main problems is the conflict of interest. It influences price formation because of personal interests affecting affiliated agents in retrieving professional forecasts and accuracy.

Underwriters of an IPO have generally two sources of compensation for their services. Through a commission or reselling issued shares in the market. The underwriter has for this reason all the interest to underprice the stock, generally influencing affiliated analyst. Studying IPOs of 1997-2010 in US market, Geranio, Mazzoli and Palmucci find that conflict of interest affects positively the primary market price and that, when an institutional investor is affiliated with a lead manager or a venture capitalist, there is a lower underpricing in cold IPOs while a higher one in hot.

When an investment bank, instead, sells underpriced shares to a preferred investor in exchange for future business favors we are talking about ‘Spinning’. This is a form of conflict of interest and it’s unethical since affects in a negative way both other companies that buy IPO shares at a different price and, also, to public investors that will pay shares at higher price due to the underpricing phenomenon<sup>10</sup>.

Another illegal action is ‘Gun Jumping’. Gun Jump happens when a companies during the pre-filing period makes written or oral offer to sell, or solicit an offer to buy, its securities.

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<sup>9</sup> 116, S. (2002). Sarbanes-Oxley Act of 2002. *Public Law*, 107–204. <https://doi.org/10.1136/bmj.2.1489.110>

<sup>10</sup> Liu, X., & Ritter, J. R. (2010). The Economic Consequences of IPO Spinning The Economic Consequences of IPO Spinning. *Review of Financial Studies*, 23(5), 2024–2059. <https://doi.org/10.1093/rfs/hhq002>

SEC has regulated this phenomenon and consider it illegal since it “condition the public mind or arouse public interest in particular securities” for example conditioning the market to be receptive upon its IPO. In rule 163A there is a specification on which is considered Gun Jumping. Company’s communication made more than 30 days before filing of the registration statement are not considered Gun Jumping if (1) doesn’t refers to securities offering that will be covered by a registration statement, (2) is made by or on behalf of the company going public, and (3) the company takes reasonable steps within its control to prevent redistribution or republication of the communication during the 30 days before filing the registration statement.

There are no laws that defines pre issue ‘quiet period’ however SEC consider it the period from the time a company files a registration statement with SEC until SEC staff declare the registration settlement “effective”. During that period there are however limits on what information a company and related parties can release to the public. The acknowledged ‘quiet period’ is, instead, the 40 days following IPO, during which corporate insiders and syndicate members cannot comment about projected earnings or issue research reports.

The last of the main problems affecting IPO is the Insider Trading. We talk about insider trading when securities are bought or sold after an investor has received non-public information about the stocks. Again, it involves market transparency and the democratic use of information. SEC has regulated this circumstance providing also a legal insider trading in which transactions has to be submitted electronically to SEC in a timely manner and also be disclosed on the company’s website.



## **2 IPO PRICE COMPONENTS**

It is difficult to determine an accurate price. There are lots of actors involved in the IPO process that enters in the creation of the price and that carrying their interest along. After all, price is a reflection of the health of the firm and the results of its component: underwriters, company, venture capitalist and regulatory restrictions. Others components contribute to create Price,

Price is conditioned also by the way in which financial statement are reported, who analyze data and when. Therefore, Analyst's forecasts, Target price and underpricing could influence movements of price.

### **2.1 UNDERPRICING**

Underpricing is typical in IPO and corresponds to a lower offer price with respect to market price. The adoption of this system acts mainly as investors' incentive to subscribe the public offering, obtaining a surplus, maximizing diffusion of the shares to a bigger audience and asymmetric information between participants. Other underpricing factors can be the disequilibrium between supply and demand and market conditions.

Price of the stock can depend also from the type on underwriters and type of the analyst. Cliff and Denis (2003) examine the links among IPO underpricing, post analyst coverage and the likelihood of switching underwriters. Results state that underpricing is correlated in a positive way with analyst coverage by the lead underwriters and to the presence of a high quality analyst on the research staff. In this way issuers know that if choose an underwriter with a highly ranked analyst may expect more money left on the table. This thesis is also consistent with Loughran and Ritter (2002) analyst lust hypothesis. They find also that the probability of switching underwriter between IPO and SEO (Seasoned Equity Offering, sales of stock after IPO to raise funds rather than the issuance of new debt) is negatively related to the unexpected amount of post-IPO analyst coverage, consistent with the hypothesis that underpricing is in part compensation for post analyst coverage from all-star analysts.

During years and due to changes in market and financial conditions, underpricing has different weight on first day returns. In the 80's average first day return was 7 percent, then it

doubled to 15 % during 1990-1998 reaching 65 percent in 1999-2000, finally reverting to 12 during 2001-2003. Ritter attributes much of the higher underpricing during the bubble period to a change in issuer's objective function, arguing that in later periods there is a greater emphasis on research coverage and less focus on maximizing IPO procedure. Consequently, hot IPOs issuers prefers to hire underwriter with a reputation for severe underpricing (Ritter 2004).

For what concern post IPO firm's results, underpricing is positively related with growth in sales and EBITDA. There are no relations with growth in earnings due to accrual reversals or earning management. Growth rates and sales could be interpreted as measure of firm quality, concluding that firms with grater underpricing are the ones of better quality. Checking analysts' earnings forecasts error, they show less positively bias in earnings forecasts for IPO with greater underpricing (Zheng and Stageland 2007).

The presence of Underpricing can be influenced and extended by the presence of asymmetric information in the market. In 2011 Ritter criticized the ability of popular asymmetric information-based models to explain the size of underpricing in IPO. In his opinion magnitude of underpricing is explained by market structure. Market structure can be divided in underwriters that want to excessively underprice, limited competition between underwriter and issuers pay attention on services bundled with underwriter rather than maximize the offer proceeds.

The underpricing phenomenon has been used also by the firms, that understanding the capability of attract interest upon the price, uses it to promote their IPO. In 2016, Brown develops a theory in which firms wants to increase information content of their stock prices through the use of underwriters that directly underprice IPO allocations to investors able to produce information. They do so providing sufficiently large allocations and promising future profit and IPO participation, in this way investors provide information after IPO.

When underprice increases, it strengthens the will to produce information to adjust price, resulting into a more informative price post-IPO and higher firm's value. This is a new reason to produce underpriced stocks in IPOs and new underwriters' role, all supported by Brown's empirical tests.

Underpricing behaves in different ways among different market. Chang, Chiang, Qian and Ritter have examined pre-IPO market in Taiwanese Emerging Stock Market (ESM), looking also at the different condition respect the U.S..



Explanation for first day returns are mainly divided in compensating investors for the uncertainty, adverse selection and buying stocks of unknown value, and on the other side agency problems between issuers and underwriters that translate into excessive underpricing. In Taiwan's ESM pre-market price are very informative about post-market prices and the level of information goes up with liquidity of the stock. From 2005 Taiwan requires firms that go public to trade on the ESM for at least six months before IPO. Price earnings ratio of ESM shortly before the IPO explain about 90% of the variation in the price-earnings ratio using offer price. Anyhow, underpricing in 2005-2011 remain high at 55% due to agency problems even if there is little uncertainty about valuation. Aside from mandatory pre-market trading rule there are some difference between U.S and Taiwanese market. The first is about direct underwriters fee: in U.S proceeds of \$25-125 million always pay 7%, while in Taiwan on average 2%. Second, Taiwanese underwriters earn small fees from prospective individual investors, giving them the incentive to underprice and to attract many potential investors. Individual investors oversubscribed the median IPO by 6000% in that period. Third Taiwanese IPOs are smaller than U.S. ones. Taiwanese and U.S. underwriters collect the revenues mostly in the same way. Firstly, they collect direct fees from the firm (not in auction) and secondly collect indirect payments from institutional investors who overpay commissions on the other trades in return for receiving allocations of underpriced IPOs. The third way is not used in U.S., individual investors pay a small fee when they apply to buy an IPO.

State that underwriters have discretion and bargaining power during bookbuilding when allocating shares if offering is oversubscribed as well known, they retrieve that underwriter's brokerage revenue from other trades also increases with the money left on the table in the IPOs that it underwrites. Underpricing level increases as well as underwriter's incentive and bargaining power to underprice increase. In Taiwan, smaller percentage issue size may be, in part, a response to a high level of underpricing, small Taiwanese companies sell only 10% of their pre-IPO shares while in U.S. companies are bigger and offer shares about 50% of the pre-issue amount outstanding. In response to a too large underprice of 55% in 2005-2011, regulators impose that the offer price cannot be less than 70% of the pre-market price. The average underpricing has dropped to 27% since then.

Regulations and organisms that regulate financial market are very important to provide a safe and correct financial market competition but also the size of the companies provide different results in IPO pricing and underpricing.

A very important player in price movements and in formations is Analysts, his forecasts, relations with others personalities and type of financial statement could influence price too.

## 2.2 ANALYSTS

Analysts are maybe the most relevant part in price formation. Their decisions and action influence price, investor action and market. For these reason they must follow strict rule and ethic code.

The number of analysts depends on the degree of institutional participation and it corresponds to a better characterization of information in the market (Brennan and Subrahmanyam 1994). The main role of analyst is thus to provide forecasts, trade through correct information, adjust and create market liquidity.

When earnings forecasts are more accurate there are more profitable stock recommendations and imperfectly efficient market rewards for information holder. For this reason, analyst, considering its costly activity, looks for well-done earnings forecasts (Loh and Mian 2005).

There could be another factor that influence profitability of forecast: conflict of interest.

The relation between earnings forecasts accuracy and recommendation profitability not always translates into profit. Checking for expertise, Ertimur et al (2007) find that more accurate analysts make more profitable recommendation only for firms with value-relevant earnings. The presence of investment banks activities, furthermore, affects the relationship profitability and accuracy. In *Buy* recommendation only non-conflicted analysts gain profit. In *Hold* one, conflicted analysts' profitability is increasing in accuracy and treated as *Sells*. Fortunately, regulatory reform has entered to adjust this relationship. (Ertimur, Sunder, Sunder 2007).

Investment bank pressure is also important, and influence the analyst's forecasts, but we assist to a reduction thanks to regulatory changes in 2002/2003.

Despite that, there are other factor that continue to influence forecasts as: insider trading, institutional ownership and investor sentiment on transactional effectiveness. Unfortunately, these effect remains significant or becomes even stronger because they have an equal weight of investment banking pressure (Ke, Yu 2009).

Correct valuation is important but it is not always easy to retrieve by analysts, due also to external forces. Analyzing the association between measure of external financing and sell-side analysts' forecasts, Bradshaw et al. (2003-2006) come up that there is a positive relationship traduced in over-optimism in analyst's forecasts. There is pervasive evidence of over-optimism in sell-side analysts' earnings forecasts, stock recommendation and target prices, systematically related to corporate finance activities. Again, sell-side analysts routinely manipulate their investment advice in response to investment banking pressure to temporarily inflate stock prices around securities issuances (Bradshaw, Sloan, Richardson 2003 and 2006).

Since forecasts are made using companies' information, financial statement and news disclosure, the more accurate they are, better is the creation of closed to reality prevision. Lehavy, Li, Merkeley's study (2011) examines the effect of the readability of corporate 10-K filings. Analyst following, amount of effort incurred to generate their reports, and the goodness of information are greater for worse readable 10-Ks statements. Less readable 10-Ks are correlated also with lower accuracy, greater uncertainty and greater dispersion in analysts' earnings forecasts. Less readable filing requires more analyst following, increasing the demand of analyst services. The role of analysts as information intermediaries for investors and effect of the complexity of written financial communication underline that this sector must be strictly regulated to ensure right information and a safe market.

A fair price is built among fair information, if not available there is a decrease in forecasting the price. Analyst are less likely to follow firms with potential incentives to withhold or manipulate information, like family/management group detain the largest control rights block-holder. This happens also for firms with low shareholders' protection. Corporate governance plays an important role in analysts' willingness to follow firms. More analyst following is related to higher valuation, in particular for firms with bad corporate governance and a positive valuation effect.

There is also some evidence in literature upon the relation: analyst following and IPO. Rajan and Servaes (1997) observes a sample of 1975-1987 IPOs examining three well-documented IPO anomalies. They find that underpricing steers to an increase in analyst following, analysts are over-optimistic respect long term growth and earning potential of recent IPOs, and that more companies complete IPOs when analysts are optimistic about growth prospect. There is also better long run stock performance when analyst accredits firms with low growth potential. All these results suggest that anomalies are partially driven by over-optimism.

There are two type of analyst: affiliated and unaffiliated. In every case they must stay under the same rules but they have different information. Examining analyst recommendations of bubble period 1999-2000, Ritter find that at the end of the quiet period the first analysts are the affiliated one while afterwards unaffiliated. Respect previous findings there is no evidence about market discount for affiliated analyst recommendation, after controlling for recommendation characteristics and timing. In addition, analyst coverage in the first year is not correlated with underpricing and unrelated to the number of managing underwriters (Ritter et al. 2006).

Analyst coverage is also correlated with underpricing and managers' decision. Managers usually don't sell their shares on IPO but wait until the end of lockup period. Krigman et al. (2001) develop a model in which managers strategically underprice IPO to gain better profit. Since underpricing generates information momentum, attracts attention on the stocks and shifts the stock's demand curve outwards. At lockup expiration price is consequently higher than it would have been. In the sample constructed with 1990s IPOs, they find that first day underpricing is correlated with a higher managers' ownership, positively related with research coverage and, finally, research coverage is positively correlated with insider selling and stock returns when lockup ends.

Another important role of analyst is to set target price during the life of the stock in the market. In 1996-2000 target price is set on average over 120 percent above the offer price established a month earlier but also analysts explain a significant amount of cross-sectional variation in offer price revenue and earnings multiples. In bubble period offer price has been systematically 'low-balled' regard to comparable firms. Analyst did less to adjust this spread and increase target prices relative to comparable firms. They fail also to recognize bubble without taking into account the dubious extraordinary success of that period IPOs.

Optimism may change over different analyst firms. Cowen et al. (2006) find that analysts at firms that funded research through underwriting and trading activities made less optimistic forecasts and recommendations than those at brokerage houses, who performed no underwriting. Optimism is also particularly low for bulge underwriter firm analysts and implies that company reputation reduces optimistic research optimism. From the paper comes out that analysts at retail brokerage firms are more optimistic than those serving only institutional investors. They state, at the end, that optimism is at least partially driven by trading incentives.

In some case analyst tends to boost the price of a stock if there are some relations with it.

Firms with poor aftermarket performances are helped with higher target prices especially by analyst affiliated with the lead underwriter. This coverage is short lived and last typically less than six months. Newly stock prices increases when recommendation is a strong buy and when target price ratio is high. This is the way in which underwriter-affiliated analyst provide protection to firms (James and Karceski 2005).

Financial analyst's optimism is also affected by competition in market and the percentage of unaffiliated analyst. If competition is measured by the number of unaffiliated analyst covering the IPO (Sette 2011), and instrumented through the number of analyst covering the IPO one quarter before the one in which recommendation is issued since endogenous, affiliated analyst issue less optimistic recommendation when more unaffiliated analyst cover the IPO. The result is that competition has a causal effect in mitigating the incentives of affiliated analysts to issue favorable investment recommendations and affects only the degree of optimism of the latter. There is also a difference between recommendations issue by co-managers affiliated analyst and lead underwriter affiliated analyst. The first one are significantly less optimistic than the second.

There is, to conclude analyst part, an interaction between the initiation of analyst coverage and management forecasts disclosure in IPO prospectus. Company that provides a prospectus forecasts are more likely to receive coverage and earlier, particularly from lower quality analysts. Reputation of the company plays a role in analyst coverage decision, the likelihood of receiving coverage decreases with the magnitude of the absolute management forecast error. Evidence demonstrate that some underwriter affiliated analyst aligns its analysis with the one of management forecast more than unaffiliated. In this sense in important the role of regulation in strengthening the safe harbor provision for prospectus forecast in order to safeguard the investor protection an accuracy of disclosure (Chatalova, How, Verhoeven 2016).

FINRA stays for 'Financial Industry Regulatory Authority', previously known SIRA (Securities Industry Regulatory Authority), and it's a merge of NYSE regulatory committee and National Association of Securities Dealers. Its task is to govern all business deal between dealers, brokers and public investors. Doing so, it provides regulation for investor protection and market integrity. It's not part of the government and a not-for-profit organization, but has the authorization of the U.S. Congress to write and enforce rules, making sure that broker-

dealer industry operates fairly and honestly<sup>11</sup>. It also examines firms for compliance with those rules, encouraging market transparency and educating investors. The organization seeks to guarantee basic protections to investors, test, qualify and give license to anyone that wants to sell securities, check if security is truthful and not misleading and if investors receive complete disclosure about the investment before purchase.

## 2.3 GAAP or NON GAAP

Companies tend to adopt different type of earnings measure instead of GAAP (Generally accepted accounting principles), trying to exalt their better characteristics. This has generated difficulties and difference in the analysis of the companies, and less democracy for public investors.

In this sense has moved SEC, trying to restore equilibrium, transparency and efficiency in the market. SEC discloses 'Regulation G', in which companies are required to disclose or release, together with non-GAAP measures, the most directly comparable GAAP financial measure. It also adopts amendments for Item 10's Regulation S-K and S-B in order to provide additional guidance to firms that use non-GAAP financial measures in Commission Filings.

While effects of non-GAAP measures are heavily debated, there are less literatures about relationship between IPO and GAAP/non-GAAP financial measures. A recent paper of Menini et al. (2016) study the underlying determinants of non-GAAP disclosure by IPO companies and the role of these metrics in IPO price formation. Results underline four factors that largely influence disclosure of non-GAAP earnings in IPO filings: (1) cash flow performance and GAAP-based earnings, (2) industry-peer effect, (3) litigation risk, and, finally, (4) the presence of venture capitalist. Through pricing tests, they find also that non-GAAP IPOs exhibit greater underpricing and post-issue return volatility; these effects are also a grow together with the magnitude of recurring exclusions. Non-GAAP measure points out greater uncertainty around the disclosing of non-standard earnings.

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<sup>11</sup> Black, B. (2013). Punishing Bad Brokers: Self-Regulation and Finra Sanctions. *Brooklyn Journal of Corporate, Financial & Commercial Law*, 8(18), 23–55.

## 2.4 TARGET PRICE

Analyst's forecasts are directly related to Target Price and consequently influenced by others component of IPO.

Analyst optimism, for example, is positively related with Target price through analysts' conflict of interest, but negatively related to country-level institutional infrastructure because characterized by strong investor protection, effective legal enforcement and transparent financial market (Bradshaw et al.).

Every new information and changing in market condition could influence the movement of the price and forecasts becomes obsoleted and must be revisited. Target Price, in this situation must be updated by analysts. Analyzing short term market reaction to price revision and long term co-movement of target and stock prices over 1997-1999 period, comes out positive relation with revision. Brav and Lehavy (2003) finds also that, on average, the one-year-ahead target price is 28% higher than the current market price.

Decomposing Target price forecasts into near-term earnings forecasts and price-to-earnings ratio forecasts, Hong and Lee (2016) show that information for the new revisions are instructive from both components. Additionally, each target price revision's component is related to company characteristics. The ability of an analyst to assess rightfully risk, long term growth prospect and adjusts price-to earning forecast is correlated with returns; abnormal, if associated with both earnings and price-to earnings forecasts.

Analysts' target price is useful also in predicting future stock returns beyond earnings forecasts and commonly used risk proxies. Clarkson et al. (2015) finds also that the capacity to be informative of target price for future stock returns is significantly reduced when greater weight is placed on the 52-weeks high or recent market sentiment in the target price formation process. (The 52-weeks is the higher stock's price of the previous year).

Accuracy in analysts' forecasts is not easy to retrieve, it may depend upon detail of report and other factors, too. In particular, target price accuracy is negatively related to analyst-specific optimism and stock specific risk (measured by volatility and price to book-ratio), but positively correlated to company size, reputation of investment bank and level of detail of reports (Kerl 2011).

## 2.5 RESEARCH QUESTIONS

Precedents papers analyze the determinants of IPO process and pricing. Process of IPO and its price vary in relationship of company characteristics, likewise size and disclosure, the reputation of the underwriter and the presence of venture capitalist. The relationship between Analyst's forecasts and the feature of IPO, instead, needs a deeper research. Price of the forecasts and when they are made could be related to the presence of venture capitalist, underwriters or company decision to provide non GAAP measure. In particular, the feature of the IPO may influence the time difference between the IPO and the analyst forecast. Therefore, this study tests the following hypotheses:

H1: There is a positive relationship between the time of the target price and the company's decision to adopt non-GAAP measure.

H2: There is a positive relationship between the time of the target price forecast and the presence of a Top tier 1 underwriters.

H3: There is a positive relationship between the time of the target price forecast and the presence of a venture capitalist.

H4: There is a positive relationship between the time of the target price forecast and the company's decision to choose the NYSE as listing market.

H5: There is a positive relationship between the time of the target price forecast and the Financial Crisis of 2008.



## 3 ANALYSIS

### 3.1 DATA AND SAMPLE SELECTION

The initial sample for this study involves all U.S IPOs completed from 2003 to 2012 as Reported in the Thompson Financial SDC Platinum New Issues database. Types of IPO are inspired by the ‘Non-GAAP Earnings Disclosure and IPO Pricing’ paper database and modified for Target Price results from the Thompson Reuters Eikon datasets.

Sample starts from 2003 because of SEC’s approval of Regulation G that governs the adoption of non-GAAP financial measures in public disclosures and documents filed with SEC, and finishes in 2014, because this study takes into account forecast at most two years after IPOs (last IPO year 2012).

American Depository Receipts (ADRs), real estate investment trusts (REITs), closed-end funds, reverse leveraged buy-outs (LBOs), unit and right offering, issues by financial firms (SIC 6000-6999), IPOs with offer price less than 5\$ and offerings not listed in NYSE and NASDAQ are canceled out on advise of prior IPO researchers<sup>12</sup>.

The initial 31604 forecasts, has been reduced to 25283 observations in order to cancel out data where the difference of day between listing and forecast date is bigger than 730 days (2 years) and less than 0, because a greater distance could incorporate lots of missing information and events strictly related to company’s functioning and not directly connected to IPO. Then, there are 2256 analyst and 702 IPOs.

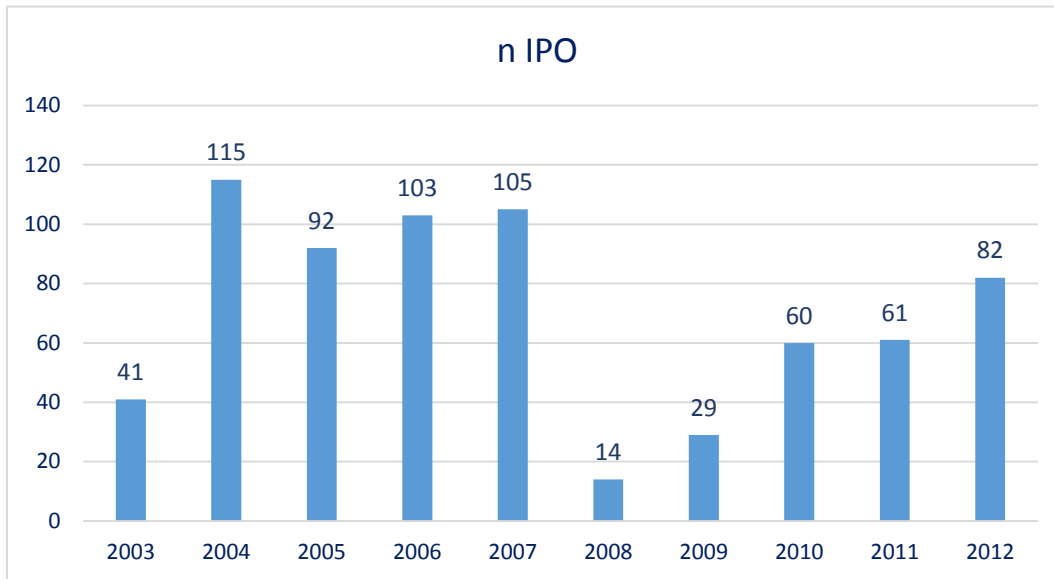
The number of IPO vary among years and is influenced by mainly three events that could be seen in Figure 2: dot-com Bubble, a Commission’s amendment and the Financial Crisis. In Figure 3, instead, is presented the percentage of five IPO features: non-GAAP, the presence of top Underwriter and Venture Capitalist, market of listing and the if the company has been underpriced.

There is a clear evidence about the presence of the dot-com Bubble of 2000-2001 and outcomes are visible in the number of IPO in 2003, as a matter of fact there are only 41 listing. In 2003 the percentage of IPO that disclose non-GAAP measure are the 20% of listed. The 73% of them are followed by a top Underwriter and the presence of venture capitalist is

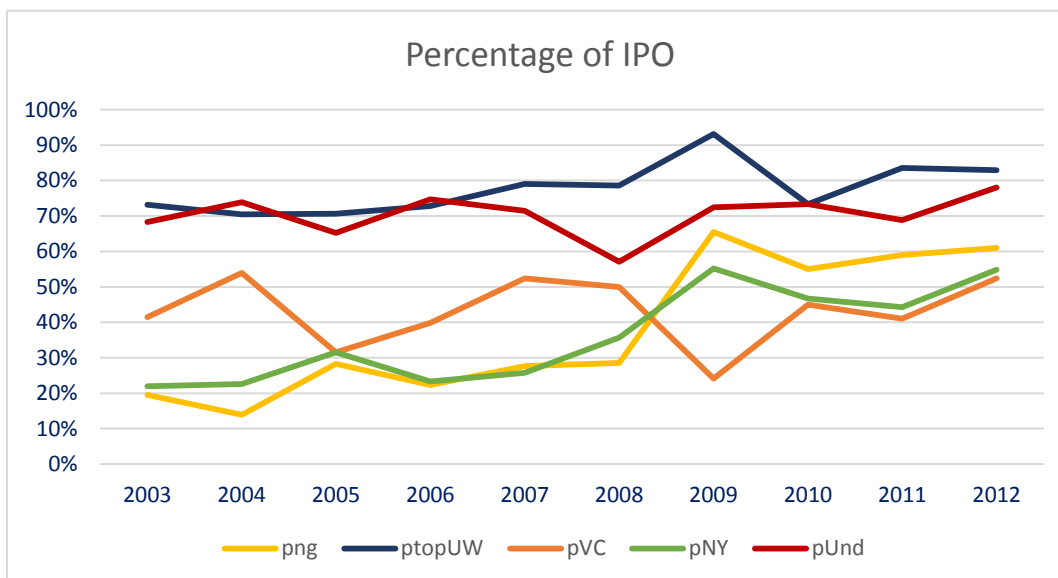
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<sup>12</sup> Brown, N. C., Christensen, T. E., Menini, A., & Steffen, T. D. (2016). Non-GAAP Earnings Disclosure and IPO Pricing Non-GAAP Earnings Disclosure and IPO Pricing. *SSRN Electronic Journal*

in 41% of IPO. The 22% of IPO are listed in the NYSE, and the 68% of them have been underpriced.



(Figure 2: Number of IPO per year, Source: personal elaboration)



(Figure 3: Percentage of IPO. This figure shows the percentage of some features of IPO in relations with the number of IPO. Yellow line describes the evolution of the percentage of non-GAAP disclosure respect the number of IPO; blue line depicts the presence of top underwriter; orange line shows the participation of venture capitalist; red line defines the percentage of underpriced IPO. Source: personal elaboration)

After the Bubble effect, the number of IPO is nearly triple. In the 115 IPOs, the 14% disclose non-GAAP measures, 70% hire top Underwriters, venture capitalist are present in 54%. 77% of them decide to list in NASDAQ and 74% are underpriced.

In 2005 there is a slightly reduction in number of IPO, probably due to a Commission's amendment that prohibits research analysts from participate in Road Shows related to an investment banking services transaction and from communicating with current or perspective customers in the presence of investment banking services transaction. The amendment prohibits investment banking personnel, too, from directing research analyst to engage in sales and marketing efforts and other communications with a current or perspective customer about an investment banking services transaction<sup>13</sup>. There are 92 IPOs, 88% of them prefer to use GAAP measure. The percentage of IPO backed by top underwriter is 71 and there are venture capitalist in 32% of them. The 32% decides to list in the NYSE and 65% are underpriced.

There is a weak increase in 2006 where IPOs are 103. The percentage of IPOs that adopt non-GAAP measure slightly decrease to 22%. The percentage of top underwriter backed IPOs is 73% and the presence of venture capitalist 40%. The 23% prefer to list in the NYSE and 75% of them are underpriced.

In the year antecedent the Financial Crisis, the 2007 the number of IPOs is 105. The 28 % of them adopt non-GAAP measurement and 79% decide to hire a top underwriter. In 52% of IPOs there are venture capitalist and the 26% list in the NYSE. The 71% of them are underpriced.

Financial Crisis effects are great. The number of IPOs, indeed, falls to 14. In 2008 29% of Company adopt non-GAAP measure and 79% hire a top underwriter. Half of the IPOs are backed by a venture capitalist and 36% decide to list in NYSE. The underpriced companies are only 57% of the 2008 sample.

In 2009 the number of IPOs restart to growth and becomes 29. The 66% of them decide to adopt non-GAAP measure. The 93% are followed by a top underwriter and the percentage of venture capitalist is %. The 55% of IPOs decide to list in the NYSE and 72% incur in underpricing.

The number of companies continue to growth in 2010 where there are 60 IPOs, 55% of them decide to provide non-GAAP measure. The 73% of them are followed by a top

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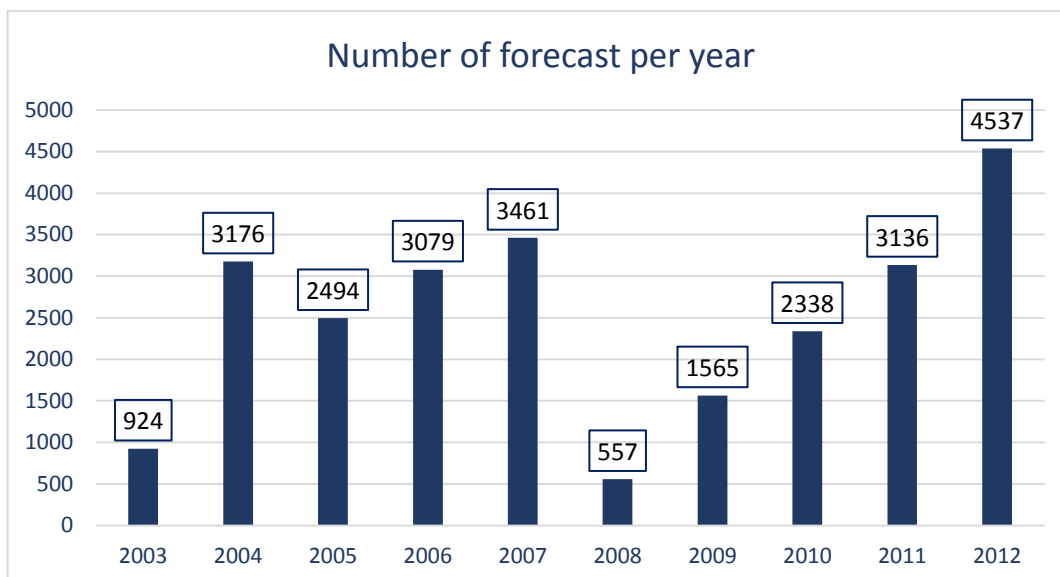
<sup>13</sup> FINRA, Joint Report by NASD and the NYSE On the Operation and Effectiveness of the Research Analyst Conflict of Interest Rules December 2005. Effective from June 2005.

underwriter and 45% are backed by a venture capitalist. The percentage of companies that relies in the NYSE are 47%. The 73% of them are underpriced in the first day of trading.

The 59% of the 61 IPOs of 2011 decide to disclose non-GAAP measure. In the same year the 84% of them are backed by a top underwriter and the 41% by a venture capitalist. The 44% prefer to list in the NYSE. The underpricing phenomenon is in 69% of IPOs.

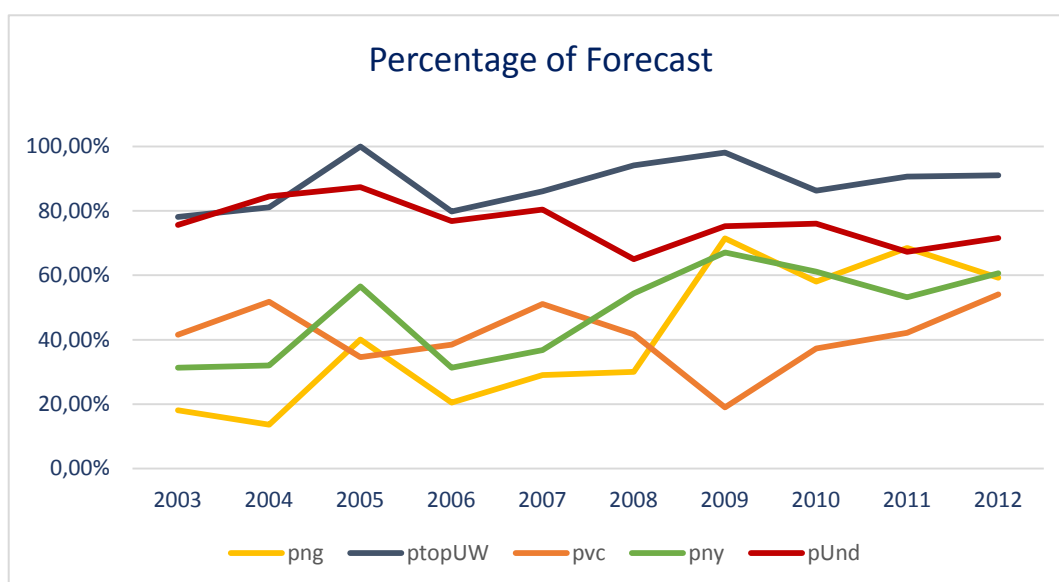
The last year of analysis has 82 IPOs. The 61% supply non-GAAP measure, while 83% are followed by a top underwriter. The 52% are backed by a venture capitalist and the 55% decide NYSE as exchange market. In the 2012 there is the greater level of underpricing, 78%.

Every analyst provides a forecast valid the following twelve months but could make another forecast later, in relations to new information received or different condition of the market. In this study the number of forecast generally follows the pattern of number of IPOs. In Figure 4 can be seen the number forecast for each year on analysis whereas in Figure 5 the percentage of the five IPO features on the total observations. Again, there are clearly present the three main events that are involved in my sample: the dot-com Bubble, the 2005 amendment and the 2008 Financial Crisis.



(Figure 4, Number of forecast per year. Source: personal elaboration)

The low number of forecast for the 2003, 924, are consequence of the dot-com Bubble. In this year the percentage of forecast computed for non-GAAP measure are the 18%. Forecast computed for the presence of a top underwriter are the 78% while for venture capitalist the 42%. NYSE has engaged the 31% of forecasts. The 76% are computed for the underpriced companies.



(Figure 5: Percentage of Forecast. This figure shows the percentage of some features of IPO in relations with the number of analysts' forecasts. Yellow line, 'png', describes the evolution of the percentage of non-GAAP disclosure respect the number of IPO; blue line, 'ptopUW' depicts the presence of top underwriter; orange line, 'pvc', shows the participation of venture capitalist; red line, 'pUnd' defines the percentage of underpriced IPO. Source: personal elaboration)

In 2004 have been computed 3176 forecasts. The 14% of them when companies provide a non-GAAP measure. The presence of a top underwriter interest the 81% of forecasts while the 52% the presence of a venture capitalist. The 32% of Target price forecast has been computed for the NYSE market. The presence of an underpriced company attracts the 84% of forecasts.

In 2005 the reduction of the number of IPOs affects also the number of forecast that decrease to 2494. The forecast interested in the non-GAAP measure are the 31%, while the percentage for the involvement of a top underwriter 78%. The 27% of the forecasts have been computed for the presence of a venture capitalist. The forecast for the NYSE are the 44% and the 68% for the underpriced companies.

In 2006 there are 3079 forecasts. The 80% has been computed for standard GAAP measure and for the presence of a top underwriter. Forecasts for venture capital backed

companies are 38%. Forecasts for NASDAQ are the 69%. The presence of an underpriced companies involves the 77% of forecasts.

In the year that precede the Financial Crisis, the 2007, the target price forecast are 3461. This year the percentage of forecast computed in presence of non-GAAP measure are the 29%. Top underwriters are present in the 86% of observation and venture capitalist in the 51%. Forecasts computed for a company listed in the NYSE are the 37% while the 80% for an underpriced company.

Financial Crisis has severely reduced the number of forecast, that are only 557 in 2008. The non-GAAP measure are involved in the 30% of the forecast. Forecast computed in the presence of top underwriter is very high, 94%, and decrease to 42% for venture capitalist backed IPOs. More than half of the forecast has been computed for the NYSE market, the 54%, while the 65% for an underpriced company.

From 2009 the number of forecast restarts to increase. The 71% of the 1565 forecasts has been computed for non-GAAP disclosure. The 98%, the highest percentage for this variable, for the presence of a top underwriter. The percentage of venture capitalist backed IPOs is, instead, the lowest: 19%. Forecasts computed for NYSE market are the 67%. The percentage for underpricing phenomenon is 75%.

Analysts' forecasts are 2338 in 2010. The percentage of them for non-GAAP measure is 58%. The 86% has been computed if top underwriters have been hired in the IPOs and the 37% if there are venture capitalist. Forecast computed for NYSE market are 61% and for underpriced companies 76%.

The number of forecast continue to growth in 2011, there are 3136 observations. There is a high percentage of them, 91%, for top underwriter while less than half, 42%, for venture capitalist. The 47% of forecasts involved the NASDAQ market. The underpriced companies the 67% of them.

In 2012 there is the highest number of forecasts: 4537. Again, the 91 % has been computed for top underwriter presence. The percentage of forecasts for venture capitalist slightly increase respect the previous year: 54%. The 61% of them involves the NYSE market and the 72% the underpricing phenomenon.

The cornerstone of this study is the distance, in calendar days, of the forecast form the IPO. The number of days are reported in 'diffcalclistDays', that is the dependent variable of the research (Table 2).

The number of observation are half of the initial sample and also the mean is reduced to 185.55 days respect the 387 of the total sample. Then, the second restriction to investigate the

forecasts in the first three months after the IPOs. The number of observation are 3121 and the mean is 46.92 days. It is useful to remark that the mean days of the three months' sample are around the ends of the Quiet period (40 calendar days after IPO), and that in the 40<sup>th</sup> days from IPOs the number of forecasts reaches a peak.

<b>Variable</b>	<b>N</b>	<b>Mean</b>	<b>Sd</b>	<b>P1</b>	<b>P5</b>	<b>P25</b>	<b>P50</b>	<b>P75</b>	<b>P95</b>	<b>P99</b>
<b>difcalclistDays</b>	25267	387.67	210.85	26	40	215	404	571	699	724
<b>1 YEAR</b>	11320	185.55	108.65	24	40	77	195	283	350	363
<b>3 MONTHS</b>	3121	46.92	17.2	3	25	40	40	54	84	89

(Table 2, Statistics for variable 'difcalclistDays', that identify the distance of the forecast in calendar days from the date of IPO. 'difcalclistDays' identify the all sample, '1 YEAR' the restriction to forecasts computed at most one year after IPO, '3 MONTHS' the restriction to forecast computed at most 3 months after IPO. Source: personal Elaboration)

To better understand the influences of the IPO main features and to answer to the former hypothesis has been constructed five dummy variables: the first for the non-GAAP presence, the second for top underwriter, the third for the presence of a venture capitalist, the fourth involve the market and the fifth the Financial Crisis.

The first dummy variable ('nongaapdummy') describes whether IPOs companies report non-GAAP measures, identified with the value 1, or not, using standard GAAP measure, identified with value 0. The statistics are reported in Table 3 The number of day decrease as we reduce the sample. If it is considered the complete sample of forecast, at most 730 after IPOs the observations' mean for non-GAAP is 383.8, otherwise 390 o GAAP measure.

<b>difcalclistDays</b>	<b>N</b>	<b>Mean</b>	<b>Sd</b>	<b>P1</b>	<b>P5</b>	<b>P25</b>	<b>P50</b>	<b>P75</b>	<b>P95</b>	<b>P99</b>
<b>Non-GAAP all</b>	10487	383.8	212.9	25	40	204	394	572	698	724
<b>GAAP all</b>	14780	390.42	209.2	27	40	222	409	596	699	724
<b>Non-GAAP 1y</b>	4796	182.85	107.9	25	40	75	193	280	349	363
<b>GAAP 1y</b>	6524	187.5	109.1	22	40	78	196	286	350	363
<b>Non-GAAP 3m</b>	1328	46	16.6	3	25	40	40	52	83	89
<b>GAAP 3m</b>	1793	47.56	17.5	3	25	40	41	55	84	89

(Table 3, The table statistics for the number of days between forecasts and the IPOs, computed for the disclosure of non-GAAP measure, or not: GAAP. The statistics are divided in all sample observation ('all'), 1-year sample ('1y') and 3 months' sample ('3m'))

If the sample is restricted for the first year of observations, the days between forecast with non-GAAP measures arrives in mean 182.85 days after IPOs while the one for GAAP after 187.5. Last restriction computed for the first three months' observations provide, in mean, 46 days if the IPOs adopt non-GAAP measure, 47.56 days otherwise. The number of forecast is always higher for standard GAAP measure.

The second dummy variable ('topUW') identify the presence of a top underwriter in the IPOs process. The control variable for the reputation of the Underwriter is computed using the Carter and Monaster (1990) rankings and updated by Loughran and Ritter (2004). The related indicator variable equals to one for the 'topUW' wherein the rank 'ritterranks' is bigger or equal to 8, zero otherwise.

<b>difcalclistDays</b>	<b>N</b>	<b>Mean</b>	<b>Sd</b>	<b>P1</b>	<b>P5</b>	<b>P25</b>	<b>P50</b>	<b>P75</b>	<b>P95</b>	<b>P99</b>
<b>Top UW all</b>	21714	387.3	210.5	25	40	214	403	569	699	724
<b>NO top UW all</b>	3553	389.6	212.9	37	40	216	407	578	699	726
<b>Top UW 1y</b>	9752	186	108.4	21	40	79.5	195	283	350	363
<b>NO top UW 1y</b>	1568	182.06	109.7	25	40	62	195	282	351	363
<b>Top UW 3m</b>	2651	46.8	17.4	3	25	40	40	54	84	89
<b>NO top UW 3m</b>	470	47.3	15.5	13	26	40	41	52	82	88

(Table 4, The table statistics for the number of days between forecasts and the IPOs, computed for the presence of a top Underwriter during the IPO process ('top UW') or not ('NO top UW'). The statistics are divided in all sample observation ('all'), 1-year sample ('1y') and 3 months' sample ('3m'))



In Table 4 are presented the main statistic for the three restrictions. The numbers of days are, in mean, 387.3 if a top underwriter backed the IPOs process, otherwise 389.6. In the 1-year sample the distance is greater, 186 days if companies hire a top underwriter and 182.06 in the opposite situation. Reducing again the sample the days from IPO of the forecast become 46.8 if company is followed by a top underwriter and 47.3 otherwise. The number of forecasts for top underwriter is largely above the opposite situation in full sample and in all restriction.

The third dummy ('VCdummy') is statistically described in Table 5. It refers to the presence of venture capitalist inside the company, in the IPO process. The value 1 identify the forecasts computed for venture capitalist presence, 0 the absence. There are in mean 391.5 days if the company is backed by a venture capitalist, 385.9 otherwise, if we consider the full sample. The restriction at 1 years provide a mean of 185.9 days for forecast in which companies has been sustained by venture capitalist and 184.9 otherwise. The difference in mean is reduced to about one day if we consider the three months' sample, where the presence of a venture capitalist receives a forecast 46.1 days after IPO and 47.21 in the opposite situation. Non venture capitalist backed forecasts are always more than the one made for the presence of a venture capitalist.

<b>dificalclistDays</b>	<b>N</b>	<b>Mean</b>	<b>Sd</b>	<b>P1</b>	<b>P5</b>	<b>P25</b>	<b>P50</b>	<b>P75</b>	<b>P95</b>	<b>P99</b>
<b>VC all</b>	10824	391.5	209.3	25	40	223	413	573	698	722
<b>NO VC all</b>	12887	385.9	212.5	34	40	208	397	572	699	726
<b>VC 1y</b>	4702	185.5	109.6	14	39	70	196	284	350	363
<b>NO VC 1y</b>	5871	184.9	107.8	25	40	80	195	281	349	363
<b>VC 3m</b>	1341	46.1	17.9	2	25	40	40	55	84	89
<b>NO VC 3m</b>	1581	47.21	16.35	5	25	40	41	53	83	89

(Table 5, The table statistics for the number of days between forecasts and the IPOs, computed for the presence of a Venture capitalist during the IPO process ('VC') or not ('NO VC'). The statistics are divided in all sample observation ('all'), 1-year sample ('1y') and 3 months' sample ('3m'))

In table 6 are described the main statistic for the presence of different Markets. The dummy variable ('NYDUMMY') takes value 1 if the IPOs have been listed in the NYSE, 0 if in NASDAQ. Forecasts in the full sample are computed, in mean, 389.6 days after the IPO if the listing market is NYSE while 385.9 if NASDAQ. There is less than 1 day of difference, in mean, if the sample is restricted to 1 year. NASDAQ's forecast happens, in mean, after 185.1 days from IPO and the one for NYSE 185.9. In the three months' sample the number of

forecasts' day from listing are in mean 46.4 for the NYSE market and 47.3 in the NASDAQ. The number of forecast computed for the NASDAQ market are always more than the one of NYSE in all the three conditions.

<b>difcalclistDays</b>	<b>N</b>	<b>Mean</b>	<b>Sd</b>	<b>P1</b>	<b>P5</b>	<b>P25</b>	<b>P50</b>	<b>P75</b>	<b>P95</b>	<b>P99</b>
<b>NYSE all</b>	11837	389.6	211.3	25	40	214	406	574	700	723
<b>NASDAQ all</b>	13430	385.9	210.4	28	40	215	401	566	697	725
<b>NYSE 1y</b>	5277	185.9	108.6	20	40	82	195	285	350	363
<b>NASDAQ 1y</b>	6043	185.1	108.6	25	40	74	196	281	350	363
<b>NYSE 3m</b>	1408	46.4	17.5	3	25	40	40	54	83	89
<b>NASDAQ 3m</b>	1713	47.33	16.9	3	25	40	41	54	84	89

(Table 6, The table statistics for the number of days between forecasts and the IPOs, computed for IPO listed in the NYSE ('NYSE') or in NASDAQ ('NASDAQ'). The statistics are divided in all sample observation ('all'), 1-year sample ('1y') and 3 months' sample ('3m'))

The dummy variable 'postCrisis' could be useful in order to better understand if the Financial Crisis of 2008 has influenced the difference of day of analysts' forecasts from IPO (Table 7).

<b>difcalclistDays</b>	<b>N</b>	<b>Mean</b>	<b>Sd</b>	<b>P1</b>	<b>P5</b>	<b>P25</b>	<b>P50</b>	<b>P75</b>	<b>P95</b>	<b>P99</b>
<b>POST CRISIS all</b>	11576	383.8	212.1	25	40	204	399	571	694	721
<b>PRE CRISIS all</b>	13691	390.9	209.6	40	40	222	406	571	700	726
<b>POST CRISIS 1y</b>	5224	180.7	107.6	20	35	73	187	276	346	362
<b>PRE CRISIS 1y</b>	6096	189.6	109.3	26	40	82	200	288	352	364
<b>POST CRISIS 3m</b>	1474	45.1	17.5	3	25	40	40	50	83	89
<b>PRE CRISIS 3m</b>	1647	48.5	16.7	3	35	40	41	56	84	89

(Table 7, The table statistics for the number of days between forecasts and the IPOs, computed for IPO listed after the Financial Crisis of 2008 ('POST CRISIS'), 2008 excluded. All other observations are identified in 'PRE CRISIS'. The statistics are divided in all sample observation ('all'), 1-year sample ('1y') and 3 months' sample ('3m'))

The mean days from IPO if we consider the full sample are 383.8 for the post-Crisis, while for the pre-Crisis period 390.9. If the sample is restricted at 1 year are 180.7 and 189.6 respectively. In the three month's restrictions, instead, there are a mean of 45.1 days between the IPO and the forecast in the post-Crisis period, 48.5 otherwise. The number of forecast could be misleading since the IPO years after the Financial Crisis are only three, while in the pre-Crisis are six.

Then, there are three other dummy variables that could be helpful to understand some characteristics of the forecast: the first related to the phenomenon of underpricing ('Underpriced'), the second to the relationship between the first date price and the forecast's price ('Upraised1TP') and third, the relationship between the offer date price and the forecast's price ('UpraisedOTP').

The first dummy variable identifies the phenomenon of underpricing, that happens when the 1-day price is greater than the offer price (Table 8). Therefore, there is value 1 when this situation happen, 0 otherwise.

<b>difffcalclistDays</b>	<b>N</b>	<b>Mean</b>	<b>Sd</b>	<b>P1</b>	<b>P5</b>	<b>P25</b>	<b>P50</b>	<b>P75</b>	<b>P95</b>	<b>P99</b>
<b>Underprice all</b>	18893	389.3	210	25	40	217	405	572	699	725
<b>NOUnderprice all</b>	6374	382.8	213.3	28	40	203	398	567	693	722
<b>Underprice 1y</b>	8429	187.7	108.8	25	40	82	196	286	351	363
<b>NOUnderprice 1y</b>	2891	179.1	107.7	21	40	69	185	273	348	362
<b>Underprice 3m</b>	2266	46.7	17.3	4	25	40	40	54	84	89
<b>NOUnderprice 3m</b>	1713	47.33	16.9	3	25	40	41	54	84	89

(Table 8, The table statistics for the number of days between forecasts and the IPOs, computed for IPO subject to the underpricing phenomenon ('Underprice') and not ('NOUnderprice'). The statistics are divided in all sample observation ('all'), 1-year sample ('1y') and 3 months' sample ('3m'))

The mean days between IPO date and forecast date are 289.3 if there is underpricing and 382.8 otherwise. If the sample is restricted to 1 year they become 187.7 and 179.1 respectively. Computing for the three months' sample, instead there are in mean 46.7 days for underpriced companies, 47.33 otherwise. The number of forecast computed for companies affected by underpricing are constantly higher than the one that not incur in this phenomenon.

The second dummy ('Upraised1TP') is computed to test whether the condition that price of the forecast is higher respect the price of the first day of trading influence the number of days between forecast and IPO (in Table 9). When the price of the forecast is higher than the one of the first day, and all sample is considered, there is difference of 378.4 mean days, 414.5 in the other situation. If the sample is restricted to 1 year from IPO, mean days become 177.6 and 211.8 respectively. Last restriction sample evidence a difference of 46.6 days for up-raised forecasts and 48.5 for down-raised. The number of forecast to increase price respect the first day of trading are constantly higher respect the opposite situation.

<b>difcalclistDays</b>	<b>N</b>	<b>Mean</b>	<b>Sd</b>	<b>P1</b>	<b>P5</b>	<b>P25</b>	<b>P50</b>	<b>P75</b>	<b>P95</b>	<b>P99</b>
<b>UPraised1TP all</b>	18805	378.4	215	25	40	196	393	566	699	725
<b>NOTUPraised all</b>	6462	414.5	195.2	38	66	260	434	580	699	724
<b>UPraised1TP 1y</b>	8712	177.6	110.1	25	40	59	178	276	350	363
<b>NOTUPraised 1y</b>	2608	211.8	99.2	21	40	134	224	295	349	363
<b>UPraised1TP 3m</b>	2706	46.6	16.7	5	25	40	40	53	83	89
<b>NOTUPraised 3m</b>	415	48.5	20	0	11	40	42	64	86	90

(Table 9, The table statistics for the number of days between forecasts and the IPOs, computed when the price of forecast is above the first day of trading price ('Upraised1TP') and the opposite condition ('NOTUPraised'). The statistics are divided in all sample observation ('all'), 1-year sample ('1y') and 3 months' sample ('3m'))

<b>difffcalclistDays</b>	<b>N</b>	<b>Mean</b>	<b>Sd</b>	<b>P1</b>	<b>P5</b>	<b>P25</b>	<b>P50</b>	<b>P75</b>	<b>P95</b>	<b>P99</b>
<b>UPraisedOTP all</b>	19848	377	214	25	40	196	391	563	698	725
<b>NOTUPraised all</b>	5419	426.5	193.4	40	77	277	450	591	701	724
<b>UPraisedOTP 1y</b>	9276	179	109.7	25	40	62	181	277	350	363
<b>NOTUPraised 1y</b>	2044	215.2	98.1	13	40	140	229.5	299	350	364
<b>UPraisedOTP 3m</b>	2815	46.7	16.6	5	25	40	40	53	84	89
<b>NOTUPraised 3m</b>	306	48.8	21.4	0	7	40	42	67	85	89

(Table 10, The table statistics for the number of days between forecasts and the IPOs, computed when the price of forecast is above the offer day price ('UPraisedOTP') and the opposite condition ('NOTUPraised'). The statistics are divided in all sample observation ('all'), 1-year sample ('1y') and 3 months' sample ('3m'))

The third dummy is computed for the difference in price between the forecast and the offer date, the statistics are available in Table 10. When the price of the forecast is higher there is value 1 in 'UPraisedOTP', otherwise value 0. Computing the statistics for all sample observations, there is a difference in mean of 377 days if the price of the forecast is higher than offer price, 426.5 in the opposite situation. Restricting the sample to 1 year, the difference of days in mean are 179 and 215.2 respectively. In the last restriction for the three months after the IPO, days become 46.7 for up-raised price in forecast and 48.8 otherwise. Again, the number of forecast computed to increase the price is consistently great in all time samples.

Thanks to the access to the Thompson Reuter Eikon and the 'Non-GAAP Earnings Disclosure and IPO Pricing' paper databases there are other four IPO-related variables to test the significance of the dependent variable: the company's gross proceeds, the number of underwriter in the IPO, number of managers and the difference between asset before and after the IPOs.

<b>lnGrossProc</b>	<b>N</b>	<b>Mean</b>	<b>Sd</b>	<b>P1</b>	<b>P5</b>	<b>P25</b>	<b>P50</b>	<b>P75</b>	<b>P95</b>	<b>P99</b>
<b>ALL</b>	25036	5.18	1.11	3.36	3.8	4.44	4.96	5.74	6.8	9.6
<b>1 YEAR</b>	11233	5.18	1.11	3.36	3.8	4.44	4.9	5.8	6.9	9.6
<b>3 MONTHS</b>	3093	5.14	1.13	3.17	3.73	4.39	4.94	5.7	6.9	9.68

(Table 11, Statistics for variable 'lnGrossProc', that identify the gross proceeds obtained thanks to the IPO process. The statistics are divided in all sample observation ('ALL'), 1-year sample ('1 YEAR') and 3 months' sample ('3 MONTHS'))

. Source: personal Elaboration)

In table 11 there is the statics for the variable 'lnGrossProc' that identifies the gross proceeds received by the IPO process, in millions of dollars. This figure is calculated by accumulating shares multiplied by the offer price for each tranche within the transaction. Package amounts reflect the entire transaction. The three different restrictions show that there isn't great variation among the samples and the mean value is about 5 million.

<b>jbn</b>	<b>N</b>	<b>Mean</b>	<b>Sd</b>	<b>P1</b>	<b>P5</b>	<b>P25</b>	<b>P50</b>	<b>P75</b>	<b>P95</b>	<b>P99</b>
<b>ALL</b>	23711	1.6	1.7	0	0	0	1	2	5	8
<b>1 YEAR</b>	10573	1.6	1.8	0	0	0	1	2	5	8
<b>3 MONTHS</b>	2922	1.65	1.79	0	0	0	1	2	5	8

(Table 12, Statistics for variable 'jbn', that identify the number of underwriter that follows the IPO process. The statistics are divided in all sample observation ('ALL'), 1-year sample ('1 YEAR') and 3 months' sample ('3 MONTHS'). Source: personal Elaboration)

The numbers of underwriter that follow the IPO could be found in the variable 'jbn'. From table 12, the mean value is always about 1.6 number of managers.

<b>Number of Managers</b>	<b>N</b>	<b>Mean</b>	<b>Sd</b>	<b>P1</b>	<b>P5</b>	<b>P25</b>	<b>P50</b>	<b>P75</b>	<b>P95</b>	<b>P99</b>
<b>ALL</b>	25036	7.7	5.6	2	3	5	6	9	16	33
<b>1 YEAR</b>	11233	7.79	5.77	3	3	5	6	9	16	33
<b>3 MONTHS</b>	3093	7.77	5.74	2	3	5	6	9	16	33

(Table 13, Statistics for variable 'Numberof managers', that identify the number of companies' managers involved in the IPO process. The statistics are divided in all sample observation ('ALL'), 1-year sample ('1 YEAR') and 3 months' sample ('3 MONTHS'). Source: personal Elaboration)

The variable ‘NumberofManagers’ identify, instead the number of companies’s manager involved in the IPO process. The mean are stable across sample around 7.7 managers for IPO.

<b>lnDeltaassetBA</b>	<b>N</b>	<b>Mean</b>	<b>Sd</b>	<b>P1</b>	<b>P5</b>	<b>P25</b>	<b>P50</b>	<b>P75</b>	<b>P95</b>	<b>P99</b>
<b>ALL</b>	19477	-1.09	1.78	-6.4	-4.2	-2.2	-0.7	0.25	1.0	2.16
<b>1 YEAR</b>	8778	-1.05	1.77	-5.8	-4.2	-2.17	-0.74	0.26	1.08	2.16
<b>3 MONTHS</b>	2435	-1.02	1.73	-5.83	-4.2	-2.06	-0.67	0.27	1.04	2.07

(Table 14, Statistics for variable ‘lnDeltaassetBA’, that identify the variation in number of asset before and after the IPO. The statistics are divided in all sample observation (‘ALL’), 1-year sample (‘1 YEAR’) and 3 months’ sample (‘3 MONTHS’). Source: personal Elaboration)

The variable ‘lnDeltaassetBA’ identifies, since computed with the natural logarithm, the variation in assets before and after the IPO process.

Sorting by ‘TickersID’, the identifying code for the Company, and ‘AnalystID’, the identifying code for each Analyst, I construct two rank variables. The first one ‘ranku’ identify the number of forecast for each company, while the second one ‘rankua’ identify the number of forecast for each analyst.

### **3.2 DESCRIPTIVE EVIDENCE**

I collect all forecasts until 730 calendar days after IPO, even if there is some statistical evidence about the difference between forecast date and IPO date in the two years after IPO, I prefer to concentrate my analysis for a smaller time sample. In my opinion, farer forecast in time could be affected by other information and firm-specific operations that could influence the calculation of the forecast more than IPO characteristic. The sample of 25267 observations has a mean of 387 days and it is difficult to find a general pattern and economical motivation for this type of analysis. For this reason, I prefer to compute the analysis for forecast until 1 year (less than 365 days) and in the following three months after IPO, the range 0 to 90 days. In the dummy variable’s table are reported the t-test for the time restriction and for ranking. The two ranks identify the first ‘n’ forecast after the IPO (‘ranku’) and the first forecast for each analyst (‘rankua’). ‘ranku’ examines the first 20, 15, 10, 7, 5, 4, 3, 2, 1 forecasts after the IPO. ‘rankua’, instead, reports at most the first five forecast computed by a single analyst for a determined company. In tables are reported the most significant ranks: the first five forecast computed after the IPO and the first three forecast computed by the analyst for a specific IPO.

## Non GAAP

The presence of a non-GAAP (nongaapdummy) measure is statistically significant in all observations obtained for restrictions of 'ranku', at most the first five forecast computed after the IPO, and of 'rankua', at most the first three forecast of the analyst for a specific company. This study focuses the attention in particular on the first five forecasts computed (ranku=5) and the first forecast of the analyst per firm(rankua=1). The first five analysts' forecasts for target price of company that adopt non-GAAP measure could happen 35 days before respect a GAAP, if we consider all sample. The number of day decrease as we restrict the sample: 20.8 for the 1-year sample and 3.16 for the 3-months one. The days of the first analyst's forecast for a specific happens 31.65 days before if the firm provide non-GAAP measure. Restricting the sample the number of day decrease: 14.72 for forecast computed at most 1 year from IPO and 1.51 if at most 3 months.

<b>difcalclistDays</b>		<b>ALL SAMPLE</b>	<b>1 YEAR</b>	<b>3 MONTHS</b>
<b>nongaapdummy</b>		<b>(t-test)</b>	<b>(t-test)</b>	<b>(t-test)</b>
<b>ranku</b>	<b>5</b>	<b>35.78</b> <b>(9.41)***</b>	<b>20.8</b> <b>(8.07)***</b>	<b>3.16</b> <b>(5.19)***</b>
	<b>4</b>	<b>28.36</b> <b>(7.46)***</b>	<b>17.39</b> <b>(6.82)***</b>	<b>3.32</b> <b>(5.45)***</b>
	<b>3</b>	<b>21.07</b> <b>(5.68)***</b>	<b>12.45</b> <b>(5.13)***</b>	<b>3.14</b> <b>(5.1)***</b>
	<b>2</b>	<b>13.7</b> <b>(3.82)***</b>	<b>7.11</b> <b>(3.11)***</b>	<b>2.73</b> <b>(4.12)***</b>
	<b>1</b>	<b>8.81</b> <b>(2.26)**</b>	<b>3.96</b> <b>(2.03)**</b>	<b>2.62</b> <b>(2.87)***</b>
<b>rankua</b>	<b>3</b>	<b>22.88</b> <b>(6.47)***</b>	<b>9.6</b> <b>(4.28)***</b>	<b>1.43</b> <b>(2.3)**</b>
	<b>2</b>	<b>26.01</b> <b>(6.19)***</b>	<b>12.65</b> <b>(5.03)***</b>	<b>1.51</b> <b>(2.46)***</b>
	<b>1</b>	<b>31.65</b> <b>(5.4)***</b>	<b>14.72</b> <b>(4.50)***</b>	<b>2.11</b> <b>(3.89)***</b>

(Table 15, difcalclistDays on nongaapdummy. This table reports the coefficient and the t-test (in parenthesis) of the dummy variable computed for the presence or not of non-GAAP



measure. The statistics are divided for all sample 'ALL SAMPLE', for the 1 years after IPO '1 YEAR' and for the first three months '3 MONTHS'. Then, they are restricted for ranks. 'ranku' identifies the first 'n' forecast after the IPO, 'rankua' identifies the first 'n' analyst forecast for a company. Source: personal elaboration).

### **Top underwriter**

The presence of a top Underwriter is not always statistically significant. Forecasts computed for the restrictions of 'ranku', in particular the first five forecasts computed (ranku=5), indeed, are statistically significant in the three time sample. The forecast computed in the presence of a top underwriter, taking into account the all sample, are made 68.62 (t-test=16.28, at 99%) days before, respect if the companies have not hire it. The days becomes 27.75 (t-test=9.15, 99% level) and 3.23 (t-test=4.17, at 99%) if we consider the 1-year sample and the three months' sample respectively. If attention is focused the first forecast of the analyst per firm (rankua=1), there are no significance in the 1 year and in the three months' sample. There is, instead significance in the coefficient of the complete sample: the forecast could happen 22.36 (t-test=2.89, at 99%) days before if there is a top underwriter.

<b>difffcalclistDays</b>		<b>ALL SAMPLE</b>	<b>1 YEAR</b>	<b>3 MONTHS</b>
<b>topUW</b>		<b>(t-test)</b>	<b>(t-test)</b>	<b>(t-test)</b>
<b>ranku</b>	<b>5</b>	<b>68.62</b> <b>(16.28)***</b>	<b>27.75</b> <b>(9.15)***</b>	<b>3.23</b> <b>(4.17)***</b>
	<b>4</b>	<b>61.16</b> <b>(14.63)***</b>	<b>26.31</b> <b>(8.92)***</b>	<b>3.39</b> <b>(4.47)***</b>
	<b>3</b>	<b>50.4</b> <b>(12.43)***</b>	<b>21.89</b> <b>(7.91)***</b>	<b>3.11</b> <b>(4.17)***</b>
	<b>2</b>	<b>36.42</b> <b>(9.28)***</b>	<b>15.7</b> <b>(6.10)***</b>	<b>4.04</b> <b>(5.23)***</b>
	<b>1</b>	<b>22.81</b> <b>(5.36)***</b>	<b>9.78</b> <b>(4.51)***</b>	<b>4.68</b> <b>(4.59)***</b>
<b>rankua</b>	<b>3</b>	<b>16.62</b> <b>(3.45)***</b>	<b>0.44</b> <b>(0.14)</b>	<b>0.26</b> <b>(0.3)</b>
	<b>2</b>	<b>19.99</b> <b>(3.54)***</b>	<b>2.19</b> <b>(0.62)</b>	<b>0.47</b> <b>(0.56)</b>
	<b>1</b>	<b>22.36</b> <b>(2.89)***</b>	<b>1.77</b> <b>(0.39)</b>	<b>2.18</b> <b>(2.97)</b>

(Table 16, difffcalclistDays on topUW. This table reports the coefficient and the t-test (in parenthesis) of the dummy variable computed for the presence or not of a top underwriter. The statistics are divided for all sample 'ALL SAMPLE', for the 1 years after IPO '1 YEAR' and for the first three months '3 MONTHS'. Then, they are restricted for ranks. 'ranku' identifies the first 'n' forecast after the IPO, 'rankua' identifies the first 'n' analyst forecast for a company. Source: personal elaboration).

## Venture capitalist

The presence of a venture capitalist is not always statistically significant. If forecasts are under the restrictions 'ranku', in particular the first five forecasts computed (ranku=5), are statistically significant in the 'all sample' restriction. The forecast, computed at most two years after the IPO, happen 13.78 (t-test=-3.59, at 99%) days after if there is a venture capitalist. The days becomes 8.45 (t-test=-3.26, at 99%) under the 1 year restriction. IN the 3 months' sample the forecast, instead happens 1.24 (t-test=2.03, at 95%) before (for ranku=5). If attention is focused on the first forecast of the analyst per firm (rankua=1), there is a similar pattern. IN the 'all sample' and '1-year' sample forecasts are made 30 (t-test=-5.16, at 99%)

and 12 (t-test=-3.77, at 99%) days after if there is a venture capitalist. In the three months' sample, instead 1 (2.15, at 95%) day before.

<b>difffcalclistDays</b>		<b>ALL SAMPLE</b>	<b>1 YEAR</b>	<b>3 MONTHS</b>
<b>VCdummy</b>		<b>(t-test)</b>	<b>(t-test)</b>	<b>(t-test)</b>
<b>ranku</b>	<b>5</b>	<b>-13.78</b> <b>(-3.59)***</b>	<b>-8.43</b> <b>(-3.26)***</b>	<b>1.24</b> <b>(2.03)**</b>
	<b>4</b>	<b>-9.72</b> <b>(-2.53)***</b>	<b>-6.82</b> <b>(-2.67)***</b>	<b>1.5</b> <b>(2.47)***</b>
	<b>3</b>	<b>-5.39</b> <b>(-1.43)*</b>	<b>-4.72</b> <b>(-1.94)**</b>	<b>1.2</b> <b>(1.98)**</b>
	<b>2</b>	<b>-2.69</b> <b>(-0.74)</b>	<b>-2.15</b> <b>(-0.93)</b>	<b>0.89</b> <b>(1.33)*</b>
	<b>1</b>	<b>-0.43</b> <b>(-0.1)</b>	<b>-0.55</b> <b>(-0.27)</b>	<b>0.79</b> <b>(0.86)</b>
<b>rankua</b>	<b>3</b>	<b>-24.06</b> <b>(-6.72)***</b>	<b>-9.20</b> <b>(-4.01)***</b>	<b>1.02</b> <b>(1.61)*</b>
	<b>2</b>	<b>-25.66</b> <b>(-6.05)***</b>	<b>-11.28</b> <b>(-4.4)***</b>	<b>1.31</b> <b>(1.8)**</b>
	<b>1</b>	<b>-30.40</b> <b>(-5.16)***</b>	<b>-12.55</b> <b>(-3.77)***</b>	<b>1.19</b> <b>(2.15)**</b>

(Table 17, difffcalclistDays on VCdummy. This table reports the coefficient and the t-test (in parenthesis) of the dummy variable computed for the presence or not of a venture capitalist. The statistics are divided for all sample 'ALL SAMPLE', for the 1 years after IPO '1 YEAR' and for the first three months '3 MONTHS'. Then, they are restricted for ranks. 'ranku' identifies the first 'n' forecast after the IPO, 'rankua' identifies the first 'n' analyst forecast for a company. Source: personal elaboration).

## Market

<b>difcalclistDays</b>		<b>ALL SAMPLE</b>	<b>1 YEAR</b>	<b>3 MONTHS</b>
<b>NYDUMMY</b>		<b>(t-test)</b>	<b>(t-test)</b>	<b>(t-test)</b>
<b>ranku</b>	<b>5</b>	<b>48.07</b> <b>(12.66)***</b>	<b>29.99</b> <b>(11.68)***</b>	<b>3.75</b> <b>(6.19)***</b>
	<b>4</b>	<b>41.01</b> <b>(10.81)***</b>	<b>25.32</b> <b>(9.96)***</b>	<b>4.07</b> <b>(6.71)***</b>
	<b>3</b>	<b>30.85</b> <b>(8.32)***</b>	<b>19.15</b> <b>(7.9)***</b>	<b>4.08</b> <b>(6.67)***</b>
	<b>2</b>	<b>20.43</b> <b>(5.68)***</b>	<b>12.93</b> <b>(5.65)***</b>	<b>4.44</b> <b>(6.73)***</b>
	<b>1</b>	<b>11.77</b> <b>(3.00)***</b>	<b>7.03</b> <b>(3.59)***</b>	<b>4.47</b> <b>(4.92)***</b>
<b>rankua</b>	<b>3</b>	<b>16.64</b> <b>(4.76)***</b>	<b>8.26</b> <b>(3.71)***</b>	<b>0.86</b> <b>(1.4)*</b>
	<b>2</b>	<b>18.52</b> <b>(4.46)***</b>	<b>11.34</b> <b>(4.56)***</b>	<b>0.68</b> <b>(1.12)</b>
	<b>1</b>	<b>20.88</b> <b>(3.61)***</b>	<b>12.87</b> <b>(3.96)***</b>	<b>2.0</b> <b>(3.73)***</b>

(Table 18, difcalclistDays on NYDUMMY. This table reports the coefficient and the t-test (in parenthesis) of the dummy variable computed for the presence of NYSE market or NASDAQ. The statistics are divided for all sample 'ALL SAMPLE', for the 1 years after IPO '1 YEAR' and for the first three months '3 MONTHS'. Then, they are restricted for ranks. 'ranku' identifies the first 'n' forecast after the IPO, 'rankua' identifies the first 'n' analyst forecast for a company. Source: personal elaboration).

The choice of the market is statistically significant in most of the observations. In particular, if the companies decide to list in the NYSE, analysts could provide forecasts before. In the all sample and for the first five forecasts computed (ranku=5) restrictions, analyst generally compute the forecast 48 (t-test=12.66, at 99%) days before. The number of days become 30 (t-test=11.68, at 99%) and 3.75 (t-test=6.19, at 99%) if we restric the time to the 'year' and 'three months' restriction respectively, holding the restriction of the first five forecast computed. There is a similar pattern if the sample is restricted for the first forecast of

an analyst ('rankua'=1). The forecast could happen 20 (t-test=3.61, at 99%) days before for the 'all sample' restriction, 12.87 (t-test=3.96, at 99%) for the '1 year' one and 2 (t-test=3.73, at 99%) days before if 'three months', if company is listed in the NYSE.

## Financial Crisis

<b>difffcalclistDays</b>		<b>ALL SAMPLE</b>	<b>1 YEAR</b>	<b>3 MONTHS</b>
<b>postCrisis</b>		<b>(t-test)</b>	<b>(t-test)</b>	<b>(t-test)</b>
<b>ranku</b>	<b>5</b>	<b>51.09</b> <b>(13.43)***</b>	<b>34.5</b> <b>(13.45)***</b>	<b>7.21</b> <b>(12.18)***</b>
	<b>4</b>	<b>42.07</b> <b>(11.06)***</b>	<b>29.07</b> <b>(11.44)***</b>	<b>7.55</b> <b>(12.77)**</b>
	<b>3</b>	<b>32.83</b> <b>(8.84)***</b>	<b>20.57</b> <b>(8.48)***</b>	<b>7.34</b> <b>(12.31)***</b>
	<b>2</b>	<b>20.93</b> <b>(5.8)***</b>	<b>13.49</b> <b>(5.89)***</b>	<b>6.06</b> <b>(9.3)***</b>
	<b>1</b>	<b>13.53</b> <b>(3.46)***</b>	<b>8.82</b> <b>(4.52)***</b>	<b>5.75</b> <b>(6.39)***</b>
<b>rankua</b>	<b>3</b>	<b>26.47</b> <b>(7.58)***</b>	<b>16.36</b> <b>(7.37)***</b>	<b>3.34</b> <b>(5.45)***</b>
	<b>2</b>	<b>27.88</b> <b>(6.72)***</b>	<b>19.5</b> <b>(7.85)***</b>	<b>3.57</b> <b>(5.88)***</b>
	<b>1</b>	<b>33.26</b> <b>(5.75)***</b>	<b>20.1</b> <b>(6.21)***</b>	<b>5.21</b> <b>(9.85)***</b>

(Table 19, difffcalclistDays on postCrisis. This table reports the coefficient and the t-test (in parenthesis) of the dummy variable computed in the presence or not of the Financial Crisis of 2008. The statistics are divided for all sample 'ALL SAMPLE', for the 1 years after IPO '1 YEAR' and for the first three months '3 MONTHS'. Then, they are restricted for ranks. 'ranku' identifies the first 'n' forecast after the IPO, 'rankua' identifies the first 'n' analyst forecast for a company. Source: personal elaboration).

The Financial Crisis could be a determinant factor, and observations in table are all statistically significant. In particular, if we consider the post Financials Crisis period, analysts could provide forecasts before. In the all sample and for the first five forecasts computed

(ranku=5) restrictions, analyst generally compute the forecast 51 (t-test=13.43, at 99%) days before. The number of days become 34 (t-test=13.45, at 99%) and 7 (t-test=12.18, at 99%) if we restrict the time to the 'year' and 'three months' restriction respectively, holding the restriction of the first five forecast computed. There is a similar pattern if the sample is restricted for the first forecast of an analyst ('rankua'=1). The forecast could happen 33.26 (t-test=5.75, at 99%) days before for the 'all sample' restriction, 20 (t-test=6.21, at 99%) for the '1 year' one and 5 (t-test=9., at 99%) days before if 'three months', if company is listed in the NYSE.

### 3.3 EMPIRICAL RESULTS

In order to test the research hypothesis that the difference of days between the IPO and the analysts' forecasts could be influenced by 1) the presence of non-GAAP measure 2) the presence of a top underwriter 3) the presence of a venture capitalist 4) the different condition of the market 5) the Financial Crisis of 2008, the study uses the following regression model.

The models have as dependent variable the number of days between listing date and the date of the analyst's forecast ('diffcalclistDays').

The independent variables that involve the research hypothesis are five. The first is the dummy that identify the presence or not a non-GAAP measure ('nongaapdummy'). The second is the dummy for the presence of a top underwriter ('topUW'). The third identify the presence or not of a venture capitalist ('VCdummy'). The fourth dummy describes the market ('NYDUMMY'). The fifth dummy specify if the forecast has been computed for company listed after the 2008, the Financial Crisis (postCrisis).

Since the target price may be influenced by the benchmark of the initial public offer (first day price and offer price) three different variables are used: 1) whether the target price is greater that closing price of the first day of trading (Upraised1TP); 2) whether the target price is greater that offer of the first day of trading (Upraised1TP); 3) whether the first day price is above the offer price (Undepriced).

In addition, the model controls for other four independent variables that could describe some characteristics of the listed company and for the time trend('IPOyear'). The variable 'lnGrossProc' identify the gross proceeds obtained thanks to the IPO. The variable 'jbn' that refers to number of underwriters that follows the IPO process. 'NumberofManagers' is the

variables that describe the number of manager involved in the IPO. ‘DeltaassetBA’ is the logarithm of the changes in asset before and after the IPO.

In order to better understand the variations in days of target price forecast the model states under two conditions.

The regression has been computed for the complete sample and for the first five analyst forecast

## Regression

$$\begin{aligned}
 &diffcalclistDays \\
 &= \alpha + \beta nongaapdummy + \gamma topUW + \delta VCdummy + \epsilon NYDUMMY \\
 &+ \theta postCrisis + \vartheta Upraised1TP + \mu UpraisedOTP + \pi Underpriced \\
 &+ \rho i.IPOyear + \sigma lnGrossProc + \tau jbn + \varphi NUmberofManagers \\
 &+ \omega lnDeltaassetBA + \varepsilon
 \end{aligned}$$

The first regression has been computed for all the sample of forecasts. The only restriction involves the number of observations. I restrict the sample for the first five Target Price analysts’ forecasts after the IPO. This regression shows the best results for this kind of restriction.

As shown in Table 20, the regression computed for robust standard error, has 2547 observation and an R-Squared of 0.21.

The first research hypothesis shows different results respect to predictions. The presence of the non-GAAP measures is not statistically significant. This could be due to analysts’ ability in reading the financial statement or the regulator’s will to require together with non-GAAP disclosure the nearest standard GAAP measure.

What seem significant, instead, are the presence of a top Underwriter and of Venture Capitalist during the IPO process.

Under the mentioned restrictions the presence of a top underwriter is statistically significant, above the 99% level. This condition pushes the analyst to compute a forecast twenty-nine days before ( $t=-5.18$ ).

The presence of a venture capitalist, instead, provides interest in analysts that consequently could put its forecast fifteen days before, with a significance level of 99% ( $t=-2.96$ ).

The decision of the IPO company to choose between NYSE and NASDAQ seems is not crucial. The different market doesn't show statistical significance in computing the forecast.

Consistent with the descriptive evidence, the number of forecast are conditioned by the Financial Crisis. The forecast computed for the IPO after the 2008, arrives thirty-eight days before. This could be associated to the general market uncertainty ( $t=-3.66$  at 99%).

When the forecast is computed to provide a higher price respect the offer and the first day ones, there is a consistent reduction in number of days. Days are 37 for the difference offer-calculation price and 27 for the difference first day-calculation price ( $t=-3.98$  and  $t=-3.38$  respectively, both at 99% level).

When the IPO is underpriced analysts follow with interest the price of the public company and tend to provide a forecast ten days before ( $t\text{-test}=-2.30$ , at 95 %). The underpricing phenomenon is known to provide analyst's interest and uncertainty around IPO.

Last relevant result is the one for the magnitude of Gross Proceeds. A unit increase in Gross Proceeds spreads interest in analysts' forecasts, that are computed thirty-four days before.

For what concern non-significant variable there are the number of underwriter, the number of managers and the variation in asset before and after IPOs and the number of managers.

This results are also consistent increasing the number of the first observations after the IPO to 7, 10 and 15 ( $\text{ranku}= 7, 10, 15$ ).



Linear regression

Number of obs = 2547  
 F( 20, 2526) = 23.75  
 Prob > F = 0.0000  
 R-squared = 0.2122  
 Root MSE = 98.009

diffcalclistDays	Robust		t	P> t	[95% Conf. Interval]	
	Coef.	Std. Err.				
nongaapdummy	-.6523796	4.254596	-0.15	0.878	-8.995232	7.690473
topUW	-29.19816	5.639462	-5.18	0.000	-40.2566	-18.13972
VCdummy	-15.23728	5.048038	-3.02	0.003	-25.136	-5.338565
NYDUMMY	2.718118	4.247821	0.64	0.522	-5.61145	11.04768
postCrisis	-38.10968	10.41781	-3.66	0.000	-58.538	-17.68136
UpraisedlTP	-27.5503	8.149243	-3.38	0.001	-43.53018	-11.57043
UpraisedOTP	-37.41598	9.412019	-3.98	0.000	-55.87204	-18.95992
Underpriced	-10.71126	4.667047	-2.30	0.022	-19.86289	-1.559629
IPOyear						
2004	11.88315	10.33203	1.15	0.250	-8.376954	32.14326
2005	.8597502	10.78023	0.08	0.936	-20.27923	21.99873
2006	-.9326616	10.13898	-0.09	0.927	-20.81423	18.94891
2007	-6.928364	10.26758	-0.67	0.500	-27.06209	13.20536
2008	-18.58937	14.03547	-1.32	0.185	-46.11157	8.93283
2009	5.800968	7.128106	0.81	0.416	-8.176561	19.7785
2010	-2.557668	6.307336	-0.41	0.685	-14.92575	9.810409
2011	-.0892941	5.79906	-0.02	0.988	-11.46069	11.2821
2012	0	(omitted)				
lnGrossProc	-34.1291	4.452977	-7.66	0.000	-42.86096	-25.39724
jbn	.9688713	1.773093	0.55	0.585	-2.507993	4.445736
NumberofManagers	-.9797611	.7655312	-1.28	0.201	-2.480894	.5213718
lnDeltaassetBA	-1.865339	1.072235	-1.74	0.082	-3.967889	.2372114
_cons	367.0659	23.23281	15.80	0.000	321.5086	412.6232

(Table 20. Regression of diffcalclistDays, restricted for 5 forecasts after IPO using ‘ranku=5’)



## 4 CONCLUSION

Analysts' Target Price forecast after IPO is a new perspective in investigating IPOs. This study provides empirical evidence of the association of timing of the forecast with some of the investigated hypothesis.

The research uses a sample of 730 IPOs completed between 2003 and 2012 and listed in the NYSE and in NASDAQ.

The number of forecast are sensitive to two similar events, the Dot-Com Bubble and the Financial Crisis. In the year following these events there is to a huge reduction in forecast. A smaller reduction can be seen also in 2005, year of the Commission's Amendment that prohibits the presence of affiliated analyst during the road show. This could have removed some conflict of interest and affiliated information in computing the forecast, but also could had added more difficulties for some analyst to retrieve good information about price.

The main aim of this study is to analyze the relevance of determined IPO-related factors in target price analysts' forecasts, but also to control for disposable variables that identify other characteristics of IPO.

The regression, computed under one consistent restriction find statistically significant three on five of research hypothesis.

The first hypothesis about the positive relationship between the presence of non-GAAP measure did not found evidence in this study.

As expected under the second hypothesis, instead, the presence of a top underwriter has positive relations in the timing of the forecast. The presence of top Underwriters has been associated also to the presence of a high quality analyst (Ritter Analyst Lust Hypothesis 2002) in IPO and also to a better accuracy in information. Top underwriters generally tends to less underprice the IPO, but sometimes companies ask them to do it. When underpriced, and most of the sample's forecasts are computed for underpriced company, there is a greater interest around the IPO. The sum of this two situation may attract more analyst that are seeking more accurate information for an easier and fairy computation.

The third hypothesis about the venture capitalist is significant. As described in the theoretical part, IPO price and actions are connected with the presence of the Venture Capitalist. They influence managers' perception of IPO to increase further found-raising (grandstanding Hypothesis), have a positive relation with IPO performance and IPO price is generally underpriced. In the regression, the analyst compute the Target Price forecast twenty-

four days before whether the IPO company is backed by a venture capitalist. This result is also consistent with the hypothesis that Venture capitalist provide intense monitoring services and for these reason more accurate interpretation in the market. If we consider that Venture Capitalist backed IPO are associated with underpricing, the IPO could provide lots of interests in analysts.

The fourth hypothesis about the positive relationship between the presence a different Market (NYSE or NASDAQ) did not found statistical significance in this study.

The fifth hypothesis, instead, is statistically significant. The Financial Crisis has distressed the capital market and all the financial world. This effect also hurts analysts' forecast. Forecasts are computed thirty-seven days before if are considered the first five forecast after the IPO. The great difference of days could be related to the post financial Crisis markets' uncertainty.

There are two last remarkable facts. This study finds evidence about a positive relationship between the date of forecast and the date of IPO if the forecast is computed to increase the price respect the first day of trading and the offer price. Since is not clear from this sample if the new forecast is influenced by only the IPO and not by other new information, this effect could be affected by reverse causality.

The last evidence is about a company related factor, the gross proceeds. Bigger are the gross proceeds, before could arrives the forecast.

This study provides evidence around the significance of the IPO characteristics in computing the analyst's forecast. Even if the sample is not so large, others analysis could be computed.

In my opinion this research could be extended examining for industry levels to identify whether some sector-specific factors of the industry affect the time of forecast; in this study is not specified if the presence of top analysts' forecasts could arrive before; whether other market condition and others Stocks Exchange could influence timing of forecast after IPO.

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- <http://www.nasdaq.com/it>
- <http://www.thesecuritiesedge.com/2012/07/where-to-list-nyse-or-nasdaq/>

<https://www.merrilldirect.com/cps/rde/xbcr/merrilldirect/AllisonHallMcsheaNoCrop.pdf>

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