WHY DO COMPANIES UNDERTAKING IPOs "LEAVE MONEY ON THE TABLE" BY PRICING THEIR SHARES AT LESS THAN THE MARKET CLEARING PRICE?

Think about the incentives that exist for the issuing company and the investment bank.

INTRODUCTION

Nowadays, thanks to the financial “Big Bang” of the 80s, financial markets have become much more accessible to all kind**s** of companies.
From the biggest to the smallest, it exists a market where companies can undertake IPOs for whatever reason, with constraints adapted to it.
Nevertheless, IPO mechanism is still studied and many questions linked to it are worth asking; why are IPOs apparently systematically under priced? Who can take benefits from this “money left on the table”? Statiscally speaking, are IPOs really underpriced?
In the following essay, I will attempt to answer to these questions, while discussing the main assertions.

I/ THE STEPS OF AN IPO

1/ The decision: why does a company decide to do an IPO?

There are many reasons for a company to undertake an Initial Public Offering (IPO).

Almost everytime, the main aim behind an IPO is to get cash in order to finance investments or projects.
However, other goals can be quoted**:**
- it allows the creation of public shares for use in future acquisition (through a Public Exchange Offer instead of a Public Purchase Offer, mainly made in cash)
- it establishes a market value for the company
- it leads to an enhanced reputation from a marketing perspective

Two kinds of pre-operation owners can be involved in an IPO undertaking:
- family
- Investment Banks, venture capitalists

2/ The seeking of underwriters (syndicate of Investment Banks)

Investment Bank reputation is very important for both the issuer and IPO success.
We ofter find one or more co-managers and several non managing, but there is always a leading Investment Bank
Firms guided by a less reputable Investment Bank experience a higher need to collect demand information from the market**,** via an auction, compared to firms guided by a more prestigious Investment Bank.
The role of syndicates is to determine the IPO value, to sell the IPO, and to provide after market services.

3/ Differents ways for a company to go on the stock market

Note: each country has its specificity.

a/ Auction like procedure

This is considered as a **market driven procedure**, in which shares are directly marketed to the public.
This entails a less efficient flotation mechanism to allow owner managers to maintain control of the corporation, by guaranteeing a dispersion of the shares.
The auction like procedure explicitly solicits bids from potential investors in term of price and quantity before determining the offer price.

b/ Fixed price procedure

This procedure, which is also market driven, allows IPOs to reap higher initial returns, as compared to the auction like procedure.

c/ Placings

This kind of IPO is **underwriter-driven**: shares are only indirectly sold to the public via an underwriter who sells the shares for its own account.
In this situation, the underwriter plays a central role and has much more power compared to the other procedures.

4/ The bookbuilding

Underwriters are responsible for the bookbuilding, knowing that the IPO success is narrowly linked to it.
Bookbuilding demands a lot of marketing effort, especially to convince the institutionnal investors, and additionally requires a strong media visibility.
In the case of great success, once the IPO is finished, an option called "green shoe" may be exercised by the issuer.
It can add in the market 15% shares more than the initial selling, trying to answer to the demand.

5/ The price fixation

Whichever mechanism (see above) is used, once the shares have been allocated to investors, a 'call market' system sets the potential opening price and collects sell and buy orders. This leads to a clearing price, which may be the first transaction price. However, if the potential clearing price is higher than the offer price by a set percentage, then no transaction occurs and the same call market procedure is repeated the next business day, beginning at the augmented clearing price. Consequently, trades begin in the secondary market.

6/ Criterias to take into account.

The economic environment has to be carefully examined.
The model used to fix the price must seem as realistic as possible, considering accounting ratios, P/E, P/EBITDA, and P/S.
There are three main parties in an IPO process: issuers, Investment Banks and investors. Studying the point of view, the aim and the role of each may provide the means to understand the IPO secrets.

II/ THE THEORIES OF UNDERPRICING IPOs

1/ Empirical constatations

What are the foundations of this assertion of under pricing?

Money left on the table in IPO
=
Number of shares offered x First day capital gain.

Therefore, to say that an IPO is underpriced, we only use to look at the first day return.

	Average Initial Return	
US - Ibbotson et al	**1960-96**	**15.8%**
UK - Dimson & Levis	**1959-90**	**12.0%**
India- Krishnamurti & Kumar	**1992-93**	**35.3%**
China - Datar & Mao	**1990-96**	**388.0%**

Therefore, what explanation can be given for the huge first day return?
We can notice, that emerging markets or emerging sectors are much more concerned effected by underpricing.

2/ The hypothesis linked to underpricing.

a/ Issuers determinants

Normally, a company would prefer to be overvalued than undervalued, especially when a financial market operation is bound to occur. But...

- Companies want their shares to be bought and want the ratio (number of shares wanted/number of shares available) to be as big as possible**,** as this shows the success of the IPO (marketing aim). The IPO attracts interest from analysts and media and therefore the firm visibility increases liquidity.

- Companies want to attract as many different investors as possible in order to diversify their share holders. Thus, former manager**s** are not threatened by a new big one.
  This is known as the **ownership dispersion.**
  The issuer tries to generate excess demand, in order to have a large number of small shareholders. This large number of shareholders disperses the ownership, increases liquidity, and makes the management more difficult to be challenged.

- Issuers purchase analyst coverage by giving up greater underpricing at the IPO.
  This is known as the **analyst lust hypothesis: i**ssuers increase emphasis on analyst coverage after the IPO.
  It is also one of the main reasons why issuers prefer to hire underwriters with high ranked and influent analyst.

- The **signalling hypothesis** explains that it is worthwhile for the company to “leave a good taste” with investors, allowing the firm to sell future offerings at a higher price than would otherwise be the case.

- The **spinning hypothesis** refers to activities which may not be allowed in every country, but are permitted in the US.
  Underwriters set up a personal brokerage account for Venture Capitalists and executive of the company in order to allocate them earnings from the IPO.

➔ The aim is also to influence the issuer's choice of the underwriter

➔ This makes the issuers seek underwriters with a highly regarded reputation of underwriting (they can expect more earnings)

These reasons explain why issuers are not angered by leaving money on the table.

But only high quality firms can afford to sacrifice some value in the form of underpricing, whereas low quality firms cannot. Therefore, high underpriced IPOs should mean the company is wealthy, and investors can expect high long return.

It is interesting to notice that as owners – having invested in the firm during the pre-IPO phase-, venture capitalists are found to care about the cost of underpricing borne on the shares whereas the managers and founder's family do not seem to care too much.

Moreover, we can find differences linked to companies structures
For example, dual class companies are less underpriced than other companies because they are known to be investing less and growing more slowly.

<u>b/ Investors determinants</u>

- The large first day return may be considered as a **compensation for bearing risk** (moral hazzard and asymetric information) or as **the cost of providing informations.**
  Managers are better informed than investors, and some investors are better informed than others
  It may be also said that underpricing is built on asymmetric information and models of irrationality (behavioural finance)
  → the average IPO is undervalued at the offer price since the first day market price, is "by definition" an indication of the fair value of the company.

- Huge impact of **"noise trading"** on IPO pricing and return.
  Noise is mathematically irrelevant compared to information, which is the relevant part.
  75% of IPOs are purchased by individual investors for their own account.
  Only 25% are purchased by institutional investors.
  Investors buy IPOs because they know that empirically there is "money left on the table": therefore they purchase, and the first day return created artificially thanks to the huge demand by investors, is a sufficient return for them. They have only kept the share for one day, since the beginning to the first day close.
  Institutionals are more buy-and-hold investors than individuals.

- **The winner's curse hypothesis**
  Investors (especially less informed) are more likely to buy shares when underpriced.
  If they get all the shares which they ask for, it is because the informed investors do not want shares.

- **The band wagon hypothesis.**

Potential investors pay attention not only to their own information but also to whether the other investors are purchasing. If the investors are purchasing, the potential investor also purchases, and if they do not then the potential also will not. Looking at this way of thinking, we notice that the investor does not take information into account anymore.
To prevent this, and especially to avoid the case in which nobody wants to buy the share (if A does not want to buy it, B will not buy it, C neither ...until Z), IPOs are underpriced.

c/ Underwriters determinants

- First of all, it is justified to say that it is very **difficult for underwriters to assign a price** to a stock that has no prior trading history.
  → so, underpricing might be explained by **pricing errors.**
  An underwriter's job is "part art" - determining the market interest in the offering, and "part science" - using comparable traded companies (same P/E, P/S).
  For example, in their booming ages, start up Internet companies were valued thanks to the number of visitors on the company website.
  But as investors as analysts went aware of the nonsense of this way of valuing: as a consequence, the Internet Bubble blew up.
  But pricing errors would be a good reason if it occured only sometimes, not almost everytime.

- **Competition** between underwriters is very tough.
  Obviously, IPOs undertaking is a very high valued job, and Investment Banks are likely to earn a lot of money thanks to these market operations.
  Therefore, as in the examples above, they struggle to create new means to attract issuers, and underpricing is one.
  II.2.a tend to prove that issuers are looking for the banks famous for their ability to underprice the IPO.

- Lead underwriter can benefit from underpricing by **allocating IPOs to prefered buy-side clients** (perhaps in exchange for future Investment Banking or high future trading commissions) and by serving as the **primary market maker** (transaction costs for the investors, fees for the bank) for the high trading volume that typically follows underpriced IPOs.
  Moreover, under pricing offerings permits Investment banks to **expendless marketing efforts.**

- In some cases, the underwriter's role is to **maintain or help the price of the share to grow.** Do syndicate members produce valuable information about market demand for IPOs?

- **Lawsuit avoidance help**
  Underpricing reduces the frequency of lawsuit by investors (class actions) that could believe having be cheated by Investment Banks with a too high IPO price.

- As for issuers, IPOs are underpriced by Investment Banks (that can be considered as kind of impresarios) to create the **illusion of an excess demand** and then to guarantee and show the success of the Investment Bank as underwriter.

III/ BUT ARE IPO REALLY UNDERPRICED?

1/ What do we use to compare to say that IPO is underpriced?

Is it IPO price compared to accounting evaluation or the stock price evolution in the secondary market?

Only the secondary market can show us that the IPOs was underpriced, thanks to the very high first day return.
The pricing of the stock is linked to accounting criterias, which lay on many arbitrary assumptions.
For example, in Discounted Cash Flows (DCF) model, you have to choose a constant growth in the future between 1% and 3%**,** only about expectations.
Accounting models (Accounting Net Asset, DCF and market capitalisation when the share is already quoted) give very different value**s** for the same company. Therefore, it may be difficult for Investment Banks to know what a company is really worth.
Moreover, issuers may hide some informatio**ns** to Investment Banks

We also have to notice that accounting datas evolue during the time.
We also have changes in asymmetric information over time: information available before and after IPO is not the same.

2/ Short term thinking

This is a special reason why the IPOs are very attractive for investors: there is no transaction costs in primary market.
→ thus, investors book a lot of shares during the bookbuilding process.
→ they obtain only a part of what they expected (the higher is the ratio demand/offer, the less investors will obtain the number of shares they wanted)
→ once the investor has a few shares, they (that is supposed to trust the company, if they took part to the IPO) will try to obtain in the secondary market the number of shares equal to the difference between the number of shares they had booked and the number of shares they effectively received.
Then, the investor will pass buy orders with or without any limit, and will sustain and further increase the stock price.

→ This is an explanation of the large and artificial first day return – which is one of the main arguments of the IPOs underpricing parties return.
After the first day bubble, the share price is likely to go down.

3/ Long term

When preparing an IPO, underwriters' focus too much on optimistic growth forecast, which is understandable because their role is to make IPO attractive for investors.
Of course, they can be cheated by issuers, but analysts have strong incentives to issue excessively optimistic forecast, even if apparent underpricing is needed for the IPO for the reasons mentioned above (II.)
Moreover, earning growth forecasts that become available after the IPO are strongly influenced by the information**s** that arrived after the IPO date, information which was not available for primary market investors.

4/ It depends on the economic context, of countries, of sectors.

"Hot market" is defined by a high volume of offerings with high underpricing, oversubscriptions, and concentration in some sectors.
During "cold markets", only few IPOs occur, with less underpricing, and less oversubscription. Issuers may even have to delete a planned IPO and postpone it in order to benefit from a more favourable context.
Hot market is a result of wild bullishness on the part of irrational investors. Thus, it is a chance for smaller, riskier firms to take advantage of the window of opportunity (example of end 90s Internet start ups).
Investors seem much more optimistic in hot market, and they are likely to subscribe to any IPO.
Statistics show a long term underperformance of hotmarket introduced firms: too much optimism at the IPO make that as issuers, as underwriters as investors do not care about the real value of the company (linked to accounting ratios for example)

Booming sectors (like not so far ago Internet) are apparently very underpriced, with high volumes, whereas more classic, defensive or cyclical sectors are less involved in underpricing.

We can notice differences between countries as well.
Emerging countries, such as India, China, have a lot of new consumers who are willing to participate to their country's economic development.
They all want to buy shares, (see the current ICBC IPO in China which seems to be the most important IPO ever done) and it creates a kind of speculation bubble due to the non awareness of these people who do not know anything about financial markets.

5/ The long term consequences for issuers and Investment Banks for finally "overpricing"?

There only a few.
Investment banks are still trusted, and issuers do not lose their shareholders.
As investors – as individual as institutionnal - are very volatile, they do not care about the long term return, they are mainly interested in short term holding.

CONCLUSION

There are a lot of advantages for investors, but also for underwriters and for issuers to apparently underprice the IPO.
The three parties manage to take profit of this “money left on the table”, but it should be noted that one cannot assert that IPOs are really underpriced. In a short term way of thinking, that is true, but if we refer to the long term, IPOs are expected to underperform the market as opposed to over perform.
This huge short term return is mainly explained by artificial reasons.

But the problem of IPO pricing is very complex: even state regulators had tried to check whether IPOs were correctly valuated (blue sky laws).
Moreover, New York Stock Exchange (NYSE) announced a month ago it had created a new index in order to measure the new quoted companies performance. It is called **Nyse Ipox Composite** (IPO.ID, see references).

BIBLIOGRAPHY

Books :

- **BREALEY MYERS :** *Corporate Finance*
- **BUCKLE THOMSON :** *The UK financial system*

Articles :

- **PURNANAMDAN, SWANINATHAN:** *Are IPO really underpriced?*
- **HELWEGE:** *Initial Public Offerings in Hot and Cold Markets*
- **BRADLEY:** *Analyst Behavior following IPOs: the Bubble period evidence*
- **IBBOTSON, SINDELAR :** *The market problem with pricing Initial Public Offerings*

Websites :

- **Goldman Sachs: www.gs.com**
- **Citigroup: www.citigroup.com**
- **www.gloriamundi.org**
- **www.research-finance.net**
- **www.nyse.com**
- **www.ft.com**

REFERENCES

Table 1
Descriptive statistics on analyst recommendations

A: Time of recommendation relative to IPO date

Quiet period (within 30 days of IPO)	Post-quiet period (30 < t ≤ 365)
1,720 (23%)	5,767 (77%)

B: Distribution of analyst ratings

Initiation	Reiteration	Upgrade	Downgrade
3,519 (47%)	2,865 (38%)	474 (6%)	629 (9%)

C: Analyst ratings

Strong buy (1)	Buy (2)	Attractive (3)	Hold/ Neutral (4)	Sell (5)
3,249 (43%)	3,316 (44%)	716 (10%)	191 (3%)	15 (0%)

D: Affiliation of investment bank to IPO firm, all recommendations

Lead bank	Co-manager	Unaffiliated
1,668 (22%)	2,669 (36%)	3,150 (42%)

E: Affiliation of investment bank to IPO firm, initiations only

Lead bank	Co-manager	Unaffiliated
683 (19%)	1,233 (35%)	1,603 (46%)

This table shows the links between underwriters and IPOs. We can notice that ratings are roughly positive, like the analyst lust hypothesis tried to prove.

Table 2
Summary Statistics on IPOs

This table reports summary statistics for the IPO sample for the sample period from 1993 to 2001 and for three subperiods. Panel A of the table reports descriptive statistics of the IPO sample, and Panel B reports daily statistics. The first-day return is defined as the return from the offer price to the first-day close price. Money left on the table is defined as the difference between the offer price and the first-day close price multiplied by the number of shares offered (domestic tranche only), assuming no exercise of overallotment options. Both the proceeds and the money left on the table are adjusted using the CPI to year 2000 dollars (year 2001 is not adjusted). Positive IPOs refer to the IPOs that have positive first-day returns. In Panel B, all daily statistics are unconditional, except for the amount of money left on the table in the last row, which is conditioning on at least one IPO on that day.

	Overall	93-98	99-00	2001
Panel A:				
Number of IPOs	3,499	2,620	803	76
Mean number of shares offered ('000)	5,282	3,869	7,981	25,459
Mean proceeds (million dollars)	99.18	71.73	155.80	446.92
Mean first-day return (%)	27.11	15.87	64.96	14.44
Mean money left on the table (million dollars)	26.73	10.33	79.04	39.04
Panel B:				
Number of Trading Days	2,268	1,516	504	248
Number of Days with IPOs	1,288	953	278	57
Mean Number of IPOs per Day	1.54	1.73	1.59	0.31
Mean Number of Positive IPOs per Day	1.21	1.34	1.31	0.25
Mean Daily Money Left on the Table (million dollars)	41.23	17.86	125.93	11.97
Standard Deviation of Daily Money Left on the Table (million dollars)	146.95	43.20	284.86	51.49
Minimum Daily Money Left on the Table (million dollars)	-276.52	-7.67	-276.52	-36.11
Maximum Daily Money Left on the Table (million dollars)	2608.72	518.49	2608.72	616.31
Mean Daily Money Left on the Table Conditioning on at least 1 IPO (million dollars)	72.60	28.41	228.30	52.06

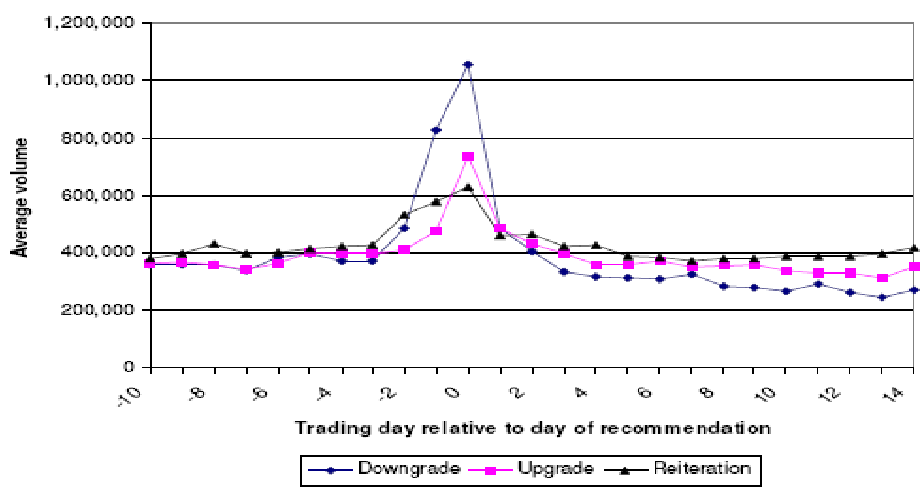


Figure 5
Volume for downgrades, upgrades, and reiterations

Figure 1 **Survey Evidence on the Motivations for Going Public**

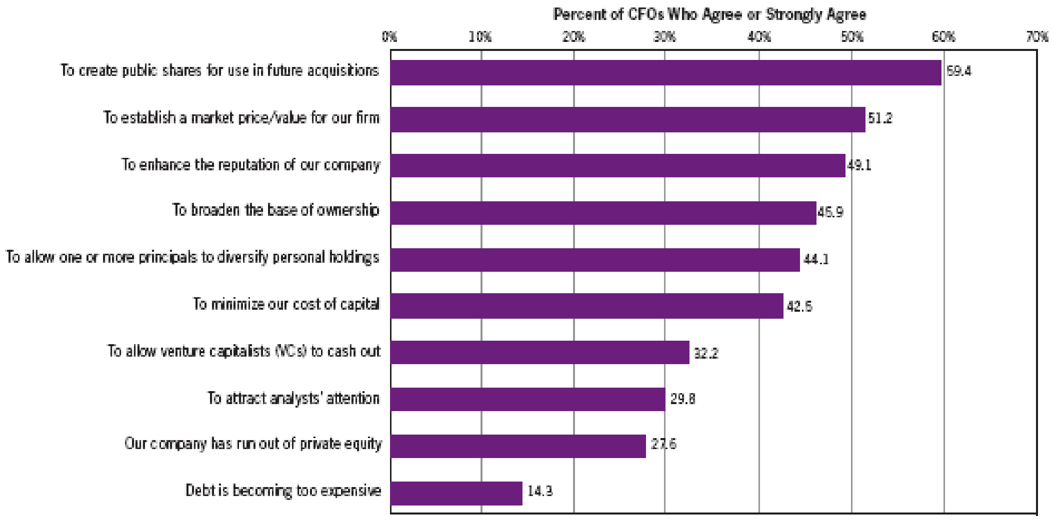
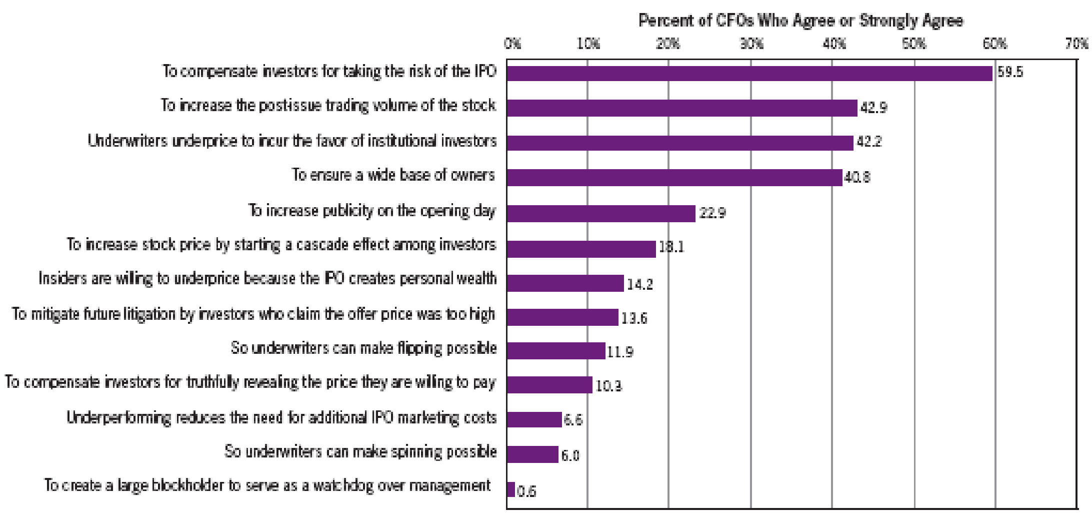
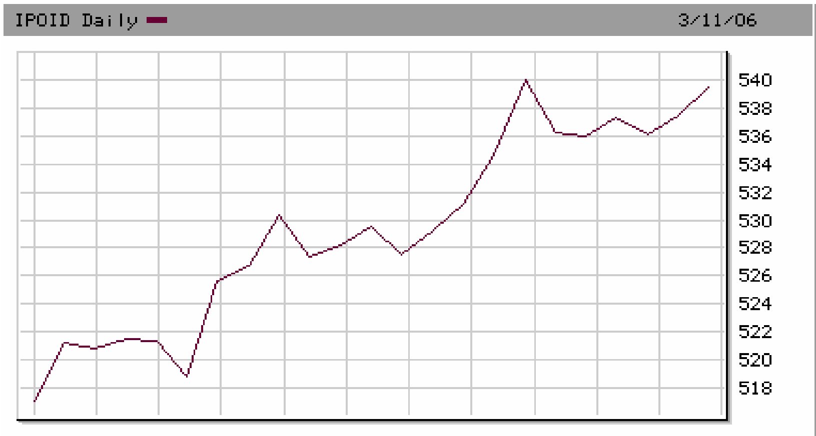


Figure 4 **CFO Perceptions of IPO Underpricing**



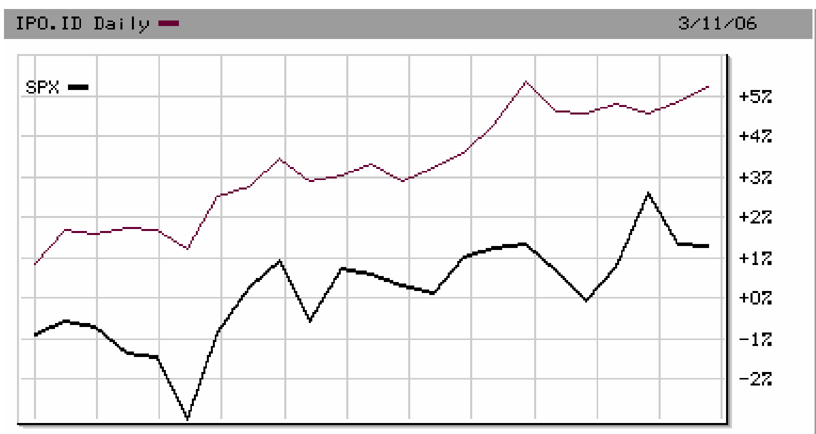
NYSE IPOX COMPOSITE



It was released on October 12th

Since this time, the index increased by more than 5% - see below the chart VS S&P500.

NYSE IPOX COMPOSITE VS S&P500



IPOX increased by more than 5% whereas S&P500 only increased by 1% in the last month.

The latest IPOs in NYSE and NASDAQ:

Home Inns & Hotel Management
Ticker: Nasdaq: HMIN
Industry: Chinese economy-hotel operator
Deal terms: 7.9 million American Depositary Shares, $13.80 per share
Lead managers: Credit Suisse, Merrill Lynch, and Deutsche Bank
Filed: Oct. 4
Opening day: Oct. 26; opened at $22, closed at $22.50; 63% gain
Bleacher banter: Priced above its expected $11-$12 range; another strong showing from recent Chinese debuts.

Gatehouse Media
Ticker: NYSE: GHS
Industry: Publishing-services provider
Deal terms: 11.5 million shares, $18 per share
Lead managers: Goldman Sachs and Wachovia
Filed: July 21
Opening day: Oct. 25; opened at $21.60, closed at $21.17; 17.6% gain
Bleacher banter: Strong demand caused the offering to price 2.3 million more shares than anticipated; priced at high end of its range

Douglas Emmett
Ticker: NYSE: DEI
Industry: Property manager
Deal terms: 66 million shares, $21 per share
Lead managers: Lehman Brothers, Merrill Lynch, and Citigroup
Filed: June 16
Opening day: Oct. 24; opened at $23.57, closed at $23.83; 13.5% gain
Bleacher banter: Strong demand caused offering to price 11 million more shares than anticipated; priced at high end of its range; among the largest IPOs this year.

Optium
Ticker: Nasdaq: OPTM
Industry: Telecom
Proposed deal terms: 5.2 million shares, $17.50 per share
Lead managers: Morgan Stanley, Credit Suisse, Cowen, and Jefferies
Filed: June 29
Opening day: Oct. 27; opened at $21.25, closed at $19.60; 12% gain
Bleacher banter: Priced above its expected $13.50-$15.50 range

Achillion Pharmaceuticals
Ticker: Nasdaq: ACHN
Industry: Biotech
Deal terms: 4.5 million shares, $11.50 per share
Lead managers: Cowen, CIBC World Markets, and JMP Securities
Filed: March 31
Opening day: Oct. 26; opened at $11.60, closed at $12.39; 7.7% gain
Bleacher banter: Priced below its expected range of $14-$16 per share

Cadence Pharmaceuticals
Ticker: Nasdaq: CADX
Industry: Biotech
Deal terms: Six million shares, $9 per share
Lead managers: Merrill Lynch, Deutsche Bank, Pacific Growth Equities, and JMP Securities
Filed: July 17
Opening day: Oct. 25; opened at $9, closed at $9.43; 4.8% gain
Bleacher banter: Priced below its expected range of $11-$13 per share
Loser: Eagle Rock Energy Partners
Ticker: Nasdaq: EROC
Industry: Natural-gas producer
Deal terms: 12.5 million units, $19 per unit
Lead managers: UBS, Lehman Brothers, and Goldman Sachs
Filed: June 6
Opening day: Oct. 25; opened at $18, closed at $18; 5.3% loss
Bleacher banter: Priced at the low end of its range