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# Setting issuing price for Initial Public Offering

## 1. Introduction

Price fixing is an essential part of Initial Public Offering Process[2], whereby company establishes a a price regarding shares which are to be issued publicly via stock market. It is also the most controversial part of the Process, due to the fact that the interests of issuers and investors are contradictory. The underwriter is also in a a very difficult position as he has to reconcile the interests of both sides. On one end there are shareholders, usually with their overestimated expectations, based on traditional valuation methods, on the opposite there are demands of aggressive investors, who expect above average returns and are willing to underrate actual possibilities of an issuing company to generate profits.

Investors

> position in this fight is significantly stronger, since most often the issuer is more determined to collect capital because of scarce resources available, while investors have broad latitude in choosing kinds of investment. Such a a situation exists particularly with regard to companies of the same sort, already available on the market. Because of aforementioned investors'

power, the "market voice" plays a a decisive role in practically all public offerings.

Issuing price cannot be too high as this might cause Public Offerings to fail. Conversely, lowering issuing price may lead to low income from the whole process and it may not always

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[2] All phases of this process are described in S.J. Choi, A.C. Pritchard, *Securities Regulation: Cases and Analysis*, Foundation Press 2008, Second Edition, p. 421.

be compensated by benefits from growing value of shares on a a secondary market. It is advisable for a a company to hire a a professional entity to conduct the whole process on its behalf. This role is usually performed by underwriters or other advisory bodies. Intermediaries actively participate in all phases of the process assisting the issuer by performing three critical tasks[3]. Firstly, they provide advice on the structure of the company and the offered securities (quantity and price). Secondly, they help companies in the registration process by preparing all the necessary documents (disclosure documents etc.). Thirdly, they play a a marketing role by assisting in selling securities to the public through soliciting investors, utilizing their contacts with institutional investors etc. This is recommended also because a a correct price is essential and the pricing process is sophisticated and complex. The risk of failure of the whole issuance exists and if it takes place, the costs incurred are huge. Instead of additional capital, company might sustain losses. Therefore, if a a company wants to conduct a a successful issuance i.e. sell the whole offering and maximize its profits, it has to determine the price of securities on an appropriate level which is beneficial for all interested parties. To achieve this, a a well-structured pricing process is necessary.

Generally, three main pricing methods are known, i.e. fixed price, book building and auction system. In practice, clear-cut methods never occur, as hybrid approaches combining the three are the rule. A A thorough review of literature concerning this topic is beyond the scope of this article. The purpose of this essay is, firstly, to take a a closer look at Polish legislation concerning issuing price to present the requirements set by law in respect of determining the issuing price. Subsequently, the article aims to present and describe the most popular pricing methods including innovations and hybrid forms, concentrating on their advantages and disadvantages. The analysis of available solutions will be followed by conclusions and suggestions regarding evaluation and choosing the best alternative for an issuer.

## 2. Issuing price in Polish law

Regulations regarding issuing price are not very extensive in Polish law and they are located in two acts: "Commercial Companies Code 2000" (hereinafter CCC), which regulates the formation, structure, operation and dissolution of main legal forms for conducting business, and "Act on Public offer and the conditions for introducing financial instruments to the organized trading system and on Public Companies"(hereinafter POA – my own translation), which regulates together, with two other Acts[4], a a significant part of Polish capital market.

3 *Ibidem*, p. 418.

4 "Act on Trading Financial Instruments" and "Act on Capital Market Supervision" both dated July 29th 2005. These three acts where introduced to amend already obsolete acts regulating this area of the law.

Issuing price, according to article 432 § 1 point 4 of CCC, is established by General Meeting of Shareholders. However, this solution is usually impractical due to the fact that the issuing price has to be adjusted to the market price. Therefore, aforementioned article stipulates that the resolution concerning rising share capital may delegate the power to management board or supervisory board[5]. Whether it is possible to delegate this power to both bodies is disputable and the view rejecting such a a possibility seems to prevail in literature[6]. That approach is more persuasive because of the conjunction used in the act: "or" (albo in Polish version), which from the logical standpoint means that the solutions are mutually exclusive and because of practical implications. The aim of this delegation is to, *inter alia,* avoid conflicts within a a company and to accelerate and simplify the whole process. Because establishing the issuing price is arguably a a management act, it is recommended to delegate this power to management board. This decision would also follow international tendency observed in many jurisdictions which is to extend powers of the management board[7]. It is not possible for the authorized body to delegate this power further, to another entity.

As article 308 § 2 in connection with article 431 § 7 CCC sets forth, the issuing price must not be lower than the nominal price, however, it might be higher. The surplus, being the difference between issuing price and nominal price (*agio*), is required by law to be transferred to reserve capital. *Agio* has to be paid in whole prior to registration of raised capital. The price might be set by indicating the formula to count it. However the formula has to be precise and the data on which it relies has to be easily accessible.

The most controversial aspect of the whole process of price fixing is the question whether it is lawful to differentiate the price within the offering. The problem is disputable as pursuant to article 20 CCC shareholders have to be treated equally in the same circumstances. Furthermore, this differentiation might be also questioned because of the article 15 section 1 point 3 "Unfair Competition Act" where it is prohibited to introduce "difficulties for other entrepreneurs to access the market through: materially unjustified differences in the treatment of some consumers" (my own translation). This conflict of laws has been analyzed in literature[8]. Relevant conclusions are that generally it is admissible to differentiate the price especially in Public offerings. Nevertheless, it is agreed that it is prohibited in a a closed offer (rights offerings)[9] i.e. one with right issue – addressed exclusively to an issuer's pre-existing

5 In Poland only two-tier structure of Board of Directors is allowed.

6 E.g. W. Popiołek, [in:] J.A. Strzępka et al. *Kodeks Spółek Handlowych – Komentarz*, 2003, Second Edition, p. 1253–1254 or J. Frąckowiak, [in:] K. Kruczalak et al. *Komentarz KSH*, Warszawa 2001, p. 706.

7 Reforms in this direction were conducted in Switzerland and Germany. In US this power is vested in board of directors, unless statutory provisions state otherwise – J. Cox, *Sum and Substance of Corporations*, Chicago, 1984, p. 279.

8 See e.g. S. Sołtysiński et al.,,*Kodeks Spółek Handlowych. Suplement do Tomów I-IV*, C.H. Beck 2010 and complex analysis [in:] M. Romanowski, *Zróżnicowanie ceny emisyjnej akcji w świetle Kodeksu Spółek Handlowych*, Przegląd Prawa Handlowego, October 2003.

9 S.J. Choi, A.C. Pritchard, *Securities...*, p. 10.

shareholders respecting their pre-emptive rights. There are many examples when differentiation is justified and used in practice. For example this is the case when:

1. a a special tranche of shares is prepared for clients to bind them with the company,
2. it is used to achieve aims of social policy such as having dispersed ownership particularly when State is an offeror,
3. preferences are given for investors who subscribe in short notice or take part in book building, or acquire significant amount of shares[10].

The most interesting case when differentiation is permissible is when it is considered as a payment for the underwriter. The substance of underwriting agreement in Poland is slightly different than in US, despite the fact that the institution as such stems from US[11]. In Poland this agreement is still considered as *contractus innominati*[12]. Its aim is to prevent an issuance from failure[13]. In "Act on Trading Financial Instruments", dated July 29, 2005, two kinds of underwriting are typified: *subemisja inwestycyjna (investment underwritng)* and *subemisja usługowa (service underwriting)*. In the former, an underwriter agrees to purchase all unsubscribed shares. In the latter underwriter agrees to act as intermediary and as a a dealer in the process of selling shares. To do that he purchases all shares and is afterwards responsible for selling them to the public. Agreements described above deviate from two common types of underwriting agreements distinguished in US i.e. firm commitment and best effort. Nevertheless, parties are free to exercise the liberty to formulate contracts according to their preferences, including verified American best practices. An underwriting agreement ultimately leads to costs connected with commission for the underwriter to compensate him for bearing the risk of an offering failing. Salary dependents upon the type of underwriting agreement used, since the risk is not the same in the two methods. Discount is a a widely used form of salary, whereby underwriter purchases shares for a a price lower from the one they are offered for the public. The difference between prices constitutes underwriter's profit (underwriting spread). Due to the fact that the underwriter's role in the process is significant[14] and the fact that he takes the risk by obliging himself to buy a a specific amount of shares before any information is disclosed and before subscription even starts, the differentiation of the issuing price is widely accepted[15] and practical. Otherwise artificial constructions have to be tailored

[10] M. Romanowski, *Zróżnicowanie...*, p. 5.

[11] E. Frankowski, *Gwarantowanie emisji w prawie amerykańskim i polskim*, Przegląd Prawa Handlowego, February 2003, p. 35

[12] It means the contract which is not explicitly designed by law but rather is construed by practice of law – compare – M. Romanowski, *Prawo o publicznym obrocie papierami wartościowymi – komentarz*, C.H. Beck, Warszawa 1999; M. Pawełczyk, *Treść umowy subemisyjnej*, Przegląd Prawa Handlowego, August 2003; E. Frankowski, *Gwarantowanie...*

[13] G. Domański, *Umowa o submisję inwestycyjną w publicznym obrocie papierami wartościowymi*, Przegląd Ustawodawstwa Gospodarczego, 1999, No. 1.

[14] See footnote No. 2.

[15] E.g. M. Romanowski, *Zróżnicowanie....*

such as a a salary for an underwriter described as monetary consideration calculated as an agreed percent of the value of shares. In view of the arguments discussed above, the standpoint that differentiation of the issuing price is allowed should be approved with the reservation that at least some motives stemming from particular circumstances ought to tip in favor of this divergence as baseless differentiation might be successfully questioned.

In principle, the issuing price should match the market price or, in absence thereof, be as high as possible, as this lies with the interest of a a company[16]. If price is fixed on a a lower rate, the responsible authority might be subject to civil or even criminal liability. CCC allows setting the issuing price lower than the market price, or in the absence thereof, lower than fair price. However, arguably it is allowed only if shareholders are exercising their preemptive rights[17]. Such a a decision may cause conflicts between the shareholders' and the company's interests[18].

The POA, which is only applicable to Public offerings[19], in article 54 stipulates that issuing price does not have to be included in a a Prospectus if:

a) maximum price is at least indicated or the rules of establishing the price are indicated in a Prospectus or
b) if it is indicated in a a Prospectus that the person who had subscribed for shares before the issuing price was announced has a a right to withdraw. Nevertheless, if the final price is not included in the Prospectus the offeror is obliged to immediately inform the Commission (Polish Financial Supervision Authority) and public about it, in the same way the Prospectus was released and according to other provisions specified in this act.

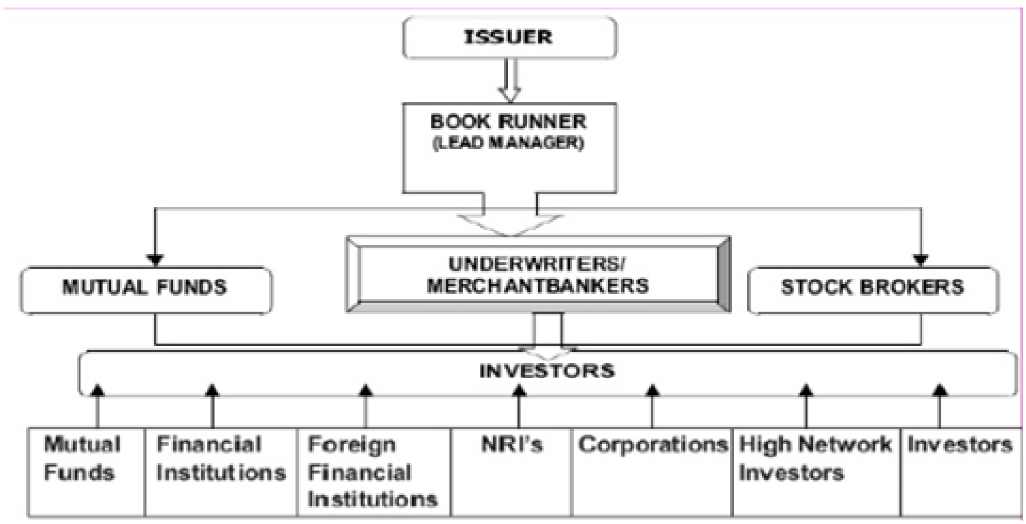
In the context of legislation described above, in most instances it will be the management that will decide on the issuing price, at least formally. As very often management lacks the required knowledge and resources, it resorts to professionals specializing in supplying these particular services. However, hiring a a professional entity does not deprive the management of power and influence over major decisions concerning issuing price. Consequently, one of the main choices that the management would have to make is the pricing method which will be used in the process of setting the issuing price. In the further paragraphs the alternatives available for management will be described.

16 J. MacNeil, *Shareholders' Preemptive Rights*, Journal of Business Law, 2002, No. 1, p. 79, 93-95.
17 S. Sołtysiński et al., *Kodeks...*.
18 *Ibidem.*
19 Public offering is defined in article 3 of PAO as an offer to at least 100 investors or to the public as a whole.

## 3. Book building

The first method is book building. Book building is the process whereby investment banks try to collect information about the demand and valuations with regard to issuance of shares. Simultaneously they are marketing a a public offer of equity shares of a a company. For this purpose they take various steps e.g. conduct road shows, one-to–one meetings with potential investors, undertaken prior to setting the price. Through other methods (see post), underwriters also have a a leeway to ask for indication of interest. However, it is emphasized in literature that: "without the ability to make allocations dependent on the information reported, there is no way for underwriters to give investors the incentive to report their information accurately"[20]. This is the most popular and widely-used pricing method although auctions, fixed price systems and hybrids forms are also available (e.g. competitive IPO[21]). As the main purpose of a a pricing process is to overcome information asymmetries, all pricing methods are devices designed to address this problem. In IPO, evaluation process of issuers is challenging because there are no prior reports or analysis. Therefore, very often the "free rider" problem arises, whereby a a person who sacrificed time and money to evaluate the firm may be squeezed out by numerous free riders[22] who take advantage of the other''s effort without making any contribution themselves. Obviously, book building also suffers from these drawbacks.

Book Building Process[23]

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[20] A.E. Sharman, *IPOs and Long Term Relationship: An advantage of Book Building*, The Review of Financial Studies, Fall 2000, Vol. 13, No. 3, p. 697–714.

[21] S. Bonini, O. Voloshyna, *A, B or C? Experimental tests of IPO mechanisms*, European Financial Management, Forthcoming, available at. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=972208 (3.03.2011), p. 3; also T. Jenkinson, and H. Jones, *Bids and Allocations in European Bookbuilding*, Journal of Finance, Vol. 59, No. 5, 2004, 2309–2338.

[22] A. Sherman, S. Titman, *Building the IPO order book: underpricing and participation limits with costly information*, Journal of Financial Economics 65/2002, p. 3–29.

[23] Agarwal Sanjip, *Bharat's Manual of Indian Capital Market*, Bharat's Law House, New Delhi 1997, p. 577.

Book building discloses more information than any other method as during the meetings with prospective investors the issuer is willing to share inside information in exchange for indication of demand and the price the potential buyers are willing to pay. Therefore some say that only questionable-quality sellers use auctions. However, it is not entirely true as it is rather easy-to-evaluate firms who use auction format, due to the fact that information is already available on the market[24]. The quality of the information disclosed in book building is also deemed more trustworthy[25] as it is provided by the issuer himself or his agents who have strong incentives to disclose information as accurately and completely as it is possible. It is worth emphasizing that in book building underwriters can control the information about the issuer and coordinate participation of investors. This is considered as the main advantage of the system due to the fact that it reduces the risk for both issuers and investors[26]. Furthermore, it allows shares to be preferentially allocated. However, this fact is regarded by some as controversial[27] because, arguably, allocations could be abused to generate kickbacks for underwriters. Opponents of this view advocate contrary position, which is that allocation power could improve pre-market price discovery[28]. Due to this, it is indicated in literature that unlike in auction, in book building some investors are kept out of the allocation process and, in consequence, access to shares is not equal. The aforementioned issuers'' tool may also be used to coerce investors to participate in subscription by implying that they will be withdrawn from future offerings.

It should be emphasized that, unlike in fixed price method which involves pre-issue costs and risks of failure, in book building this burden can be overcome by withdrawal from the market, if demand for securities is unsatisfactory.

Another issue worth noting is that the book building method is widely recommended by underwriters and analysts. It provides the issuer with analyst coverage, which is very advantageous for them. "Analysts hype", proposed in literature as an explanation for popularity of analyzed method, suggests that: "the book building procedure entails a a tacit agreement between issuers and banks. Issuers are willing to pay the higher direct and indirect costs of book building in exchange for increased and more favorable analyst coverage"[29]. This view, in my opinion, successfully mirrors the truth as most often issuers are more concerned with the positive outcome of the offering rather than the costs incurred. Underwriters act as gatekeep-

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24 T. Jenkinson, A. Ljungqvist, *Going Public The Theory and Evidence on How Companies Raise Equity Finance*, 2nd Ed. Oxford University Press, 2001.

25 A.E. Sherman, *Global Trends in IPO Method: Bookbuilding vs. Auctions*, available at: www.nd.edu/~finance/020601/news/Sherman%20Paper.doc (3.03.2011).

26 A.E. Sherman, *Global Trends in IPO: Book building versus auctions with endogenous entry*, Journal of Financial Economics, 2005, No. 78, p 615–649, available at www.sciencedirect.com.

27 A. Bubna, N.R. Prabhala, *When bookbilding meets IPOs*, available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=972757 (3.03.2011).

28 *Ibidem.*

29 F. Degeorge, F. Derrien, K. Womack, *Analyst Hype in IPOs: Explaining the Popularity of Bookbuilding*, Review of Financial Studies, 2007, Vol. 20, No. 4, p. 1021–1058.

ers, and supply the issuers with a a "certification mechanism"[30] which by virtue of their reputation is supposed to attract more investors. It is also submitted by scholars in the field that book building, in comparison to fixed price, generates more proceeds[31].

The main reason why book building is criticized is that it encourages underpricing, hence the issuer leaves more money on the table. Yet, regardless of the method used, almost every IPO is underpriced[32] and, as described below, auction system also does not prevent that. Moreover, offerings with higher expected underpricing will have lower expected aftermarket volatility[33]. In addition, underpricing is usually considered as a a reward for investors, since process of collecting information is very costly and time-consuming. According to Wilhelm[34] some money has to be left on the table as a a compensation for participation in price discovery, thus in creating market for a a new security[35]. Another drawback of book building method is the agency problem between issuer and underwriter, as it is profitable for the latter to underprice the shares in order to obtain higher profit. Furthermore, as previously explained, underwriters enjoy discretion over allocation of shares, which may lead to abuses such as spinning and laddering[36]. In laddering prospective investors promote inflated pre-IPO prices to obtain greater allotment from the offering. In spinning, which is a a kind of *quid pro quo* arrangement, the shares are allocated to major executives of a a company unrelated to the issuer. In return the executives would recommend to their clients to do business with the issuer. This highly unethical process is mutually beneficial for both sides of the transaction.

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30 B. Jovanovic, B. Szentes, *IPO Underpricing: Auctions vs. Book Building*, 2007, p. 3 – available at www.nyu.edu/econ/user/jovanovi/ipou.pdf (13.08.2010).

31 Among others see – L.M. Benveniste and W.Y. Busaba, *Bookbuilding vs. Fixed Price: An Analysis of Competing Strategies for Markeing IPO*, Journal of Financial and Quantitative Analsis, Vol. 32, No. 4/1997, p. 383–403.

32 *Ibidem*, p. 1.

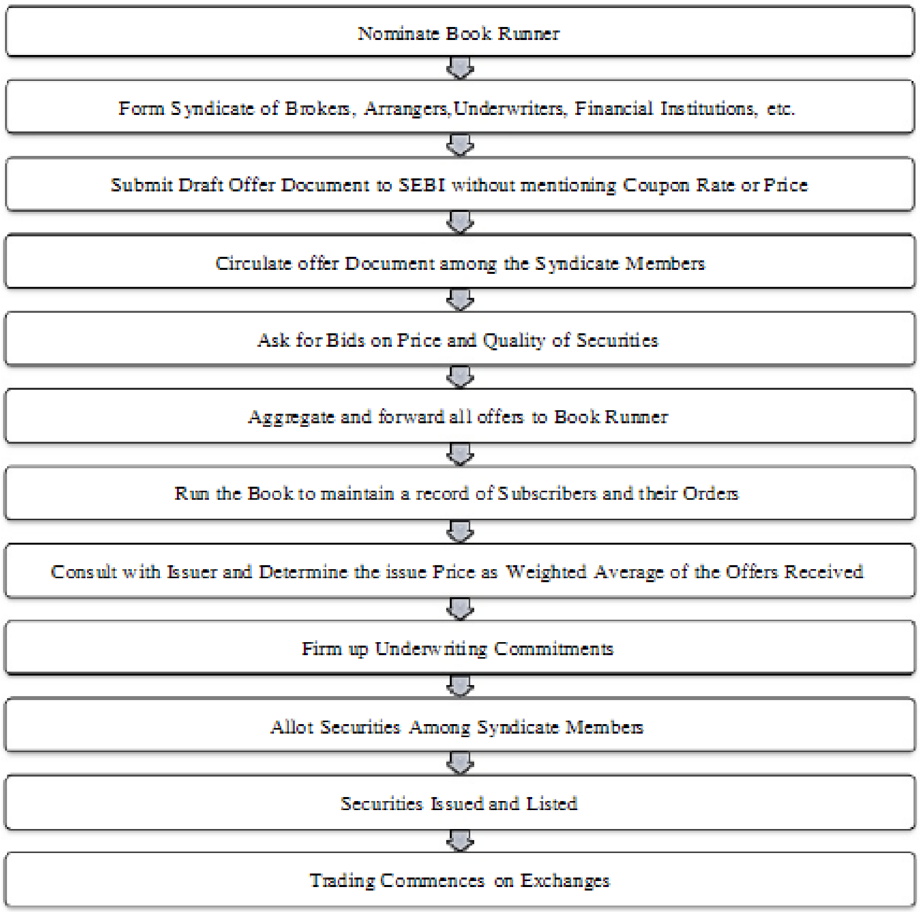
33 A. Sherman, *Global Trends in IPO Methods: Book...*, p. 2.

34 William J. Wilhem Jr., *Bookbuilding, auctions, and the future of the IPO process*, Journal of Applied Corporate Finance, Vol. 17, No. 1, Winter 2005.

35 "And as Wilhelm also points out, the dominant practice for taking companies public, known as "bookbuilding," is well designed to accomplish price discovery in a cost-effective way. By eliciting expressions of interest mainly from large institutional investors, the book manager (or, increasingly, managers) is able to build the demand curve for a market that did not previously exist. Those investors who make the greatest contribution to the price discovery process by providing valuable information and making the issue a success must be compensated. The compensation is provided by setting the offering price below the best estimate of fair value and allocating more shares to those who provide more valuable information on a consistent basis". – R. Jagannathan, A.E. Sharman, *Reforming the bookbuilding Process for IPO's*, Journal of Applied Corporate Finance, Winter 2005, Vol. 17, p. 67–72.

36 T. Jenkinson, H. Jones, *Competitve IPOs*, p. 4 – available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1331371 (3.03.2011).

Steps of Book Building Process[37]




## 4. Fixed Price (open offer)

This method has been particularly popular in the UK and its former colonies, several European markets as well as in US best-efforts[38] IPO's[39]. It is the simplest pricing method and, as such, is particularly admired in small markets and for smaller, short-existing issuers. The most characteristic attribute of that method is that price is determined prior to setting the offer price and it is done without first soliciting the investors' demand. Thus the price at which securities are offered and would be allotted is known in advance to the investors. The price is determined by discretionary decision of the issuer or the underwriter, made after taking into account all relevant facts and opinions, including business evaluation. Price is identical for all

37 Mukesh Kr. Singh, *Book Building Process*, available at. www.scribd.com/doc/5544374/Book-Building-Process (12.08.2010).

38 The best effort method is described in S.J. Choi, A.C. Prichard, *Securities* ..., p. 419.

39 W.Y. Busaba, C. Chang, *Bookbuilding vs. Fixed Price Revisited: The effect of Aftermarket Trading*, Journal of Corporate Finance, Forthcoming, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1536847 (3.03.2011).

investors. Notably, unlike book building method, issuer or underwriter has no power over the allotment of shares. Scholars indicate that fixed price: "allows issuers to control price, but not allocations, book building allows issuers to control both, and standard auctions do not allow issuers to control either"[40]. According to Chemmanur and Liu[41]: "fixed price offers allow the issuer to induce a a higher level of information acquisition but do not allow the offering price to reflect the information acquired". Also there is lesser flexibility in pricing as compared to book building. There is no Qualified Investment Buyers'' allocation, therefore issuance mostly relies on retail investors. There is a a trend for small investors to be favored in fixed – price public offers[42]. Underpricing exists for the same reasons as in book building process, described above. The size of the discount might be either bigger or lower than that in book building method[43] as there is no empirical data proving otherwise. As it is showed by scholars: "fixed price offers are consistently chosen over IPO auctions in almost all countries that allow and have had experience with both methods"[44]. This method can lead to an under-evaluation of the issuing company as the price of the offered shares is usually lower than market value. On the contrary, if the price is established too high the amount of investors might be too low and consequently the issuance may fail.

Furthermore, despite being active and useful in book building process, institutional investors are usually not interested in participating in fixed price public issues because there is no guarantee of allotment and no opportunity costs are involved[45]. This method may only be profitable for issuers who are confident about their value and high level of demand for securities they are offering, otherwise it is extremely risky. Without credible valuations and market analysis, discovery of the issuing price, frankly, amounts to guessing.

## 5. Auction

Auction, on the other hand, is a a much less popular pricing device. Although, it has been tried in more than 20 countries, only 4 still use it – France, Israel, Taiwan and the U.S. However

40 T. Chemmanur, H.M Liu, *How should a firm go public? A dynamic model of the choice between fixed price offerings and auctions in IPO's and privatizations*, available at http://gatton.uky.edu/faculty/lium/ipoauction.pdf (3.03.2011).

41 *Ibidem.*

42 "In a fixed-price offering, information collected during the subscription period arrives too late to be used in pricing the offering, so it is optimal to favor small orders to reduce the risk that the offering will fail. For book building, information that is revealed during the marketing stage can later be used to set the price" B. Chowdhry, A. Sherman, *The winner's course and international methods of allocating initial public offerings*, Pasific Basin Finance Journal, 4/1996, p. 15–30.

43 It is subject to contrary views – look – *ibidem*, p. 5.

44 Jagannathan R. and A.E Sherman, *Why Do IPO Auctions Fail ?,* available at http://www.mccombs.utexas.edu/dept/finance/wk_papers/Ravi.pdf (3.03.2011).

45 Mukesh Kr. Singh, *Book Building*...

even there, it is an exception rather than the rule[46]. In other countries, even if auction was used, it has been abandoned before even book building was introduced[47]. Auction system exists in diverse forms amidst which Dutch auction, also called standard or uniform price auction[48], is the most admired[49]. It enables the issuer to set the price at a a clearing price (the lowest successful bid). The other variations of auctions include for example, discriminatory or pay what-you-bid auctions, or the recently proposed Ausubel auction[50].

It is said that issuers who employ auction system incur less costs as direct fees and underpricing costs are lower. Nevertheless empirical data indicates that underpricing exists – the Google case (described later in the text) is the best example. Auction is also a a more egalitarian and fair process. Not only do all investors have the same access to shares, but also the price is equal. Auction system is highly recommended and widely used for state bonds'[51] issuance where information about the issuer is well-known and identity and quantity of investors are accessible[52].

Standard auctions are definitely more transparent due to the fact that managers are not furnished with discretion over allocation of shares the way they are in book building. It is emphasized that it should act as a a good measure to prevent the financial scandals and public concerns which were triggered in the past especially in US[53].

[46] Jagannathan, R. and A.E. Sherman, *Why Do IPO Auctions Fail?* manuscript, 2004. "Auctions continue to be used on the unregulated over-the-counter market in France but seem to have dried up on the major exchanges since unrestricted bookbuilding was first allowed in 1999. In Taiwan, the use of IPO auctions has fallen over time, with issuers returning to the traditional fixed price public offers. The book building method is allowed but restricted and has not been popular in Taiwan. In Israel, IPO issuers were required to use auctions for a decade, ending in Dec. 2003. The first IPO following the expiration of the law, Tesco, used an auction but the two succeeding IPOs returned to the fixed price method. Legislation is pending in Israel to allow book building. Last, the U.S. has had 11 auctions since the method was introduced in 1999, a rate of about 2 per year. A 12th IPO auction was announced in December, 2004".

[47] IPO auctions were also used in Italy, Portugal, Sweden, Switzerland, and the U.K. in the 1980s, and in Singapore and Turkey in the 1990s.

[48] "A Dutch auction, according to the original use of the term, is an open, descending-price auction. The closest sealed-bid equivalent of the Dutch auction would be a discriminatory, or pay-what-you-bid, auction. The uniform price auction in a setting such as for IPOs would be closer to (although not quite identical to) a Vickrey auction, a multi-unit extension of the single-unit second price auction proposed by Nobel Prize winning economist William Vickrey". – R. Jagannathan, A.E. Sharman, *Reforming the bookbuilding Process for IPO's*, Journal of Applied Corporate Finance 2005, Vol. 7, No. 1: 67-72, p. 5.

[49] Other types of auctions described in L.M. Ausubel, *Implications of Auction Theory for New Issues Markets*, Brooking-Wharton papers on Financial Services, 2002, p. 313-343.

[50] S. Bonini, O. Voloshyna, *A, B or C?...*, p. 3 also Ausubel, L., *An Efficient Ascending-Bid Auction of Multiple Objects*, American Economic Review, 2004, Vol. 94, No. 5, p. 1452-1475.

[51] "For the weekly auctions of 13-week U.S. Treasury bills, the cost of evaluation is negligible because so many close substitutes already are trading, including the off-the-run bills and the new bills trading in the when issued market", A.E. Sherman, *Global trends...*, p. 4.

[52] R. Jogannathan, A. Sherman, *Why Do IPO Auctions Fail?,* October 2006, p. 4.

[53] See – V. Pons-Sanz, *Who benefits from IPO underpricing? Evidence from hybrid bookbuilding offerings*, Working Paper Series European Central Bank, No. 428, January 2005, p. 8.

Despite numerous advantages, issuers are reluctant to apply auction format[54]. They are not fond of experimental methods[55] and underwriters'' pressure usually encourages them to use other equivalents[56]. However, there are also other reasons. Firstly, large number of potential bidders makes the price inaccurate, since the price might be "noisy" i.e. based only on demand. Secondly, fluctuations in amount of bidders are also cumbersome as they can lead to undersubscription and consequently failure of whole offering. Unlike book building, in auction entry is random[57] because, as was stated above, underwriters are armed with no tools to coordinate the number of investors[58]. What is more, shares priced by auction do not exhibit better long-term performance. There are also problems concerning manipulations during the auction such as: bidding rings, manipulative biddings[59] and, as it is stated by some: "surrender of rents for the IPO-ing firm acts to keep the worst firms out of BB (book building), and this adverse selection can destroy the auction market altogether"[60].

Another argument against auction system (uniform price variation) corresponds with the aforementioned advantage of book building method. It is highlighted that auction does not provide those who gather information with proper reward, which aggravates free-rider problem. As a a result, the price established in auction is likely to be "noisy", and very inaccurate which may cause instability on the market[61]. However, the free rider problem is eliminated in discriminatory auctions as the bidder must pay the price he bid.

Allegedly, the most well known case where the auction system was exploited was Google. As factual background indicates, in 2003 it employed modified Dutch auction format in its IPO. It turned out that the system failed to meet associated expectations, therefore the question arose whether it would have been better for Google to use traditional, well-known book building

54 Jenkinson and Ljungqvist, *Going Public: The theory and Evidence on how Companies Raise Equity Finance*, Clarendon Press, Oxford 1996 comment: "Auction-like mechanisms such as tenders in the United Kingdom, the Netherlands, and Belgium, or offres publiques de vente in France, are generally associated with low levels of underpricing; most Chilean IPOs have also used auctions, and have been modestly underpriced, at least by emerging-markets standards. This is not surprising, given that, unlike fixed-price offers, tenders allow market demand to at least partially infuence the issue price. What is curious, though, is that we do not observe a shift towards greater use of auctions". Darrien and Womack, *Auctions vs. Bookbuilding and the control of Underpricing in Hot IPO Markets*, Review of Financial Studies, November 2001 – make similar comments.

55 Even though action system is used for a very long time for different purposes, it is still quite new, not widely used and results are unpredictable, thus employment thereof is considered experimental.

56 However look – R. Jagannathan, A.E. Sharman, *Reforming* ..., where authors convincingly are contradicting this argument.

57 *Ibidem*, p. 7.

58 "A study of U.K. privatization tenders between 1982 and 1987 reported that three of the six were undersubscribed, while one was 500% oversubscribed. In 1994, the auction tranche of Sunright, the last IPO auction in Singapore, was 82% undersubscribed, even though the public offer tranche a few days earlier had been oversubscribed"., R. Jagannathan, A.E. Sharman, *Reforming*..., p. 5.
*Ibidem*, p. 7 and other examples in R. Jogannathan, A. Sherman, *Why Do IPO*...

59 P. B. Oh, The Dutch auction Myth, 2007, Wake Forest Law Review, Vol. 42, p. 853, 2007, p. 44–57 available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=890127 (3.03.2011).

60 B. Jovanovic, *IPO underpricing: Auctions* ..., p. 3.

61 R. Jagannathan, A.E. Sharman, *Reforming*..., p. 6.

process. This case might be successfully used for evaluation and analysis of two methods of pricing process i.e. book building and auction.

In the Google case[62] the issuer used modified Dutch auction system (dirty auction). This fact should be stressed because it implies many consequences. Google employed 28 underwriters, which is a a lot especially in clear Dutch auction where there should be no underwriters at all. The issuer also quietly allocated 15% of shares to them outside the auction process[63]. Notably, Google did not use clearing price as it lowered it significantly[64] just before the offer.

In light of the facts outlined above, undoubtedly, the Google IPO was a a "controlled experiment". As it turned out it did not produce hoped-for results. The variation of auction used in this offer deviated materially from the original solution of Dutch auction proposed by scholars and consequently, the offer was underpriced and 300$ million was left on the table. This example demonstrates that Google could not decide until the end what pricing method it wanted to employ. This hesitation resulted in many errors which in consequence lead to underpricing and lost money.

## 6. Hybrids

After discussing typical pricing methods at this point it is appropriate to take a a closer look on its derivatives because as was mentioned in the introduction, clear-cut pricing methods are rarely used. Despite their rareness in practice, it was crucial to present those classic methods in this article as they are basis for constructing various combinations. Issuers try to construct hybrids to avoid problems each method might cause. In this paragraph, a a selection of the most interesting, innovative and promising will be discussed.

The first of these methods is called "Competitive IPO". The name stems from the competition created among investment banks in course of price discovery. In ordinary book building competition between underwriters exists, yet only in the phase when the issuer is supposed to choose the lead underwriter. In the hybrid method discussed in this paragraph, issuers separate the preparation and the distribution role of investment banks, thereby intensifying competition between them throughout the whole process. Not only does this method provide issuers with greater control, but also make the fee structure more advantageous. The novelty also lies in the fact that banks are informed about their role approximately two weeks before

[62] For more information look – C. Hurt, *What Google can't tell us about Internet auctions (and what it can)*, University of Toledo forthcoming, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=753625 (3.03.2011).

[63] So called Green shoe option – see S.J. Choi, A.C. Pritchard, *Securities...*, p. 422.

[64] Google retained the option of setting final offering price, thus investors were not sure whether clearing price would be the final offering price.

the IPO and a a no-fee clause[65] binds during whole process. This method is stuck between traditional book building and auction. It is a a response to agency problems occurring in book building, whilst it retains the benefits rooted in the involvement of investment banks[66]. The mechanism was introduced by Dresdner Kleinwort Wasserstein (investment bank) for public offering of Pages Jaunes in France in July 2004. Although it turned out to be successful, almost no studies exist testing its trustworthiness. More recent offerings utilizing this system have taken place mostly in UK. The few commentators who address this issue indicate that this method increases competition not only between banks but also between investors thus disclosing more information and suffers from less underpricing than traditional book building[67]. Despite many advantages, this method has been subject to criticism, particularly from investment banks[68] which claim that the method in question is merely "a waste of time" and amplifies potential conflicts. Moreover, there is no empirical data supporting the conclusion that this method reaches better results, therefore issuers are advised to apply caution regarding this proposition.

Ausubel auction system or Ascending-Bid auction for Multiple Objects, as it is also called, is the next system to be addressed. As the name indicates it is a a modification of clear auction system and it is desirable as it combines two properties: simplicity and optimal information revelation. Its inventor, Lawrance M. Ausubel, describes the process: "The auctioneer announces a a price and bidders respond with quantities. Items are awarded at the current price whenever they are "clinched,"

> and the price is incremented until the market clears. With private values, this (dynamic) auction yields the same outcome as the (sealed-bid) Vickrey auction, but has advantages of simplicity and privacy preservation[69].

Scholars prove that this method is very effective in price discovery and mitigating underpricing[70]. Nevertheless, this method has never been tried on equity market (only on Treasury Market), thus the result of this mechanism adopted in an IPO is unpredictable. This method suffers from the same uncertainty as Competitive IPO, therefore issuers may be reluctant to exploit it. The main feature of this system is well defined by Bonini and Voloshyna who state that:

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65 If the final price is below the price range, the underwriters' fees are not paid.

66 T. Jenkinson, H. Jones, *Competitve IPO's*, CEPR Discussion Paper, no. 7178, February 2009, available at www.cepr.org. (3.03.2011)

67 S. Bonini, O. Voloshyna, *A, B or C?...*

68 See for investment banks' critique of this method – H. Wilson, *Competitve IPOs Run into New Storm*, Financial News US, 24 October 2005, www.financialnews-us.com (3.03.2011).

69 L.M. Ausubel, *An efficient Ascending-Bid ...*, p. 1452–1475.

70 S. Bonini, O. Voloshyna, *A, B or C?...*

> The essential feature of the Ausubel model is that the price paid for marginal units is not connected with the price paid for infra-marginal units, hence bidders do not have incentives to bid less than their valuations for marginal unit in an attempt to decrease the price of infra-marginal units[71].

Other modifications are also proposed in literature[72] or used in practice[73], but are not discussed within the scope of this work.

## 7. Conclusion

In view of the arguments and factors mentioned in this work it is difficult to draw conclusive remarks. Although every method possesses significant advantages, inherent drawbacks are also present in all of them. In endeavor to elect the best alternative for a a potential issuer it has to be remembered that only one of the methods is thoroughly verified by practice and deeply studied in literature and this method is book building. For these reasons, this pricing model is currently the most popular and the most widely-employed by issuers during pricing process. In spite of numerous advantages of other methods and the fact that they were tried in many countries[74], issuers prefer book building as a a safe and trustworthy mechanism, even at the cost of higher fees and more money left on the table. Even Securities and Exchange Commission's report[75], which proposed auction as an advisable alternative for book building, did not change this. Empirical data indicates that results of using Dutch auction are much more unpredictable than book building method. Google IPO acts as an example that theoretical considerations are not always mirrored in reality and sheds new light on the discussion about auction model. It also provides auction's opponents with additional arguments against it.

Therefore, book building with its persuasive force based on marketing technique is the best alternative for a a seller. If performed accurately it leads to successful offerings in a a situation where all parties are satisfied. Most issuers are risk-averse and this method offers many tools to mitigate risk. I I am inclined to believe that many weaknesses thereof might also be avoided. As means of an example, underpricing might be at least circumvented by close cooperation with qualified investors who help in determining the perfect issuing price in course

71 *Ibidem*, p. 6.

72 R. Jagannathan, A.E. Sherman, *Reforming the...*

73 E.g. dirty auction or combination of book building and fixed price method when shares are divided into tranches e.g. for institutional and retail investors. Shares are then priced using book building or fixed price method respectively.

74 R. Jogannathan, *Why do IPO ...*, p. 37.

75 *See* nyse/nasd ipo advisory comm., report and recommendations of a committee convened by the new york stock exchange, inc. and nasd at the request of the u.s. securities and exchange commission available at, http://www.finra.org/web/groups/rules_regs/documents/rules_regs/p010373.pdf (3.03.2011).

of book building process. In exchange for trustworthy indication of demand the issuer may guarantee fixed allocation of shares, which serves as a a incentive for the investors to satisfy him. It should also be emphasized that the issuer is not helpless as he has his own evaluations of the enterprise, most often prepared by independent auditors which might be used to detect inaccurate indications. The costs which are considered as onerous are worth spending as in exchange the issuer is supplied with necessary support from intermediaries and a a relatively accurate issuing price. Finally, underpricing, which is so often deemed the main flaw of the method, should be rather treated, from either investors'' and issuer's standpoint, as inherent costs paid for cooperation of all players on capital market. It should also be noted that issuers should be extremely cautious about lowering the issuing price underneath the level determined during book building process. This stems from the fact that despite incentives provided for qualified investors, most likely the hope for huge discount would induce investors to indicate the price as low as possible. Thus in the last phase of deciding on the final issuing price issuer has to select one of two scenarios:

1. lowering the price determined in book building to diminish the risk of failure of the offering while most likely leaving more money on the table or
2. using the price determined in book building or even raising it slightly to leave no money on the table but increase the risk of failure.

Both of these issues have to be addressed and reconciled while reaching final decision. The chosen outcome will depend on various factors and information available for insiders exclusively thus no general advice might be proposed.

In choosing the best pricing method every issuer faces trade-offs and has to opt for the one alternative he finds most advantageous for him. This article may only serve as a a recommendation and basis for that decision, not as a a clear-cut solution.