An Empirical Analysis of the Efficiency of Online Auction IPO Processes and Traditional IPO Processes

by

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Is the online auction an efficient mechanism for pricing IPO's? The online auction was partially introduced to minimize the first day, offer-to-open percentage price increase in IPO's, which represented "money left on the table" for issuers. The findings of this analysis suggest that the online auction process does not minimize the increase between the offer price and the open price of an IPO to the degree that was initially intended when the process was developed. When examining together all IPO's in all SIC codes issued by all underwriters, use of the online auction issuance process had a consistently statistically insignificant impact on the offer-to-open price. A comparison of the average offer-to-open price increase by primary lead bookrunner indicates that the average offer-to-open price surge for online auction IPO's exceeded the average offer-to-open price surges for IPO's issued by 82.4% of the primary lead bookrunners between 1999 and 2005. Nevertheless, when segmenting the primary lead bookrunners by low volume, medium volume, and high volume underwriters, the data suggest that the online auction process may be more efficient in pricing IPO's than traditional processes for medium and high volume underwriters, but less efficient than the traditional processes for low volume underwriters. A comparison of auction IPO's with traditional IPO's issued in the same year and in the same three-digit SIC code suggests that 44% of the auction IPO's have greater first day price surges than their traditional counterparts, which suggests that the auction IPO's can exhibit mispricing. The mispricing may be due to an informational asymmetry on the part of small investors. This informational gap could arise because small investors lack access to the information sources that institutional investors have, or because companies are not required to provide detailed information in the online process because they don't undergo the rigorous scrutiny of investment banks in the traditional bookbuilding process. This informational gap may be alleviated by the SEC reforms of the "quiet period" and by the issuer providing more detailed information on the uses of the funds.

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I. Introduction

The recent resurgence in the IPO market in the US raises the question of whether the traditional IPO issuance process is more or less efficient in pricing IPO's than the online auction process. Minimizing the first day price surge of IPO's has been an important topic since the dot-com era, when, for example, Enel experienced growth between its offer price and its open price of 966.9%, VA Linux experienced growth of 896.7%, and Sycamore Networks experienced growth of 612.8%. This paper compares the performance of the traditional IPO process in pricing new issues with the performance of the online auction process, as well as provides some possible explanations for the results. The findings have implications for the structure of IPO processes in other countries.

In the traditional IPO allocation process, the investment banks in charge of the IPO take the issue on a "road show" to various possible investors (often large mutual funds or preferred clients of the investment bank) and build a demand curve of possible prices for the new issue based upon the indications of interest that they receive from the investors. In return, these investors often receive the initial allotments of IPO shares partially to compensate them for revealing this pricing information, and hence benefit from the price appreciation imbued in the price surge on the first day. Critics of the traditional IPO allocation process argue that these investors are the beneficiaries of the price increase, rather than the issuing company; consequently, minimizing the offer-to-open price appreciation is important.

The development of the Dutch auction process, OpenIPO.com (which was developed by W.R. Hambrecht, who had previously co-founded the investment bank

Hambrecht & Quist. [2]), was the mechanism for the issuance of Google's IPO and represents one of the most recent of the attempts to efficiently price IPO's so that the issuer receives a more accurate reflection of the economic value of the firm. The online auction process debuted in February, 1999 with the issuance of the IPO for Ravenswood Wineries. As numerous press articles have noted, the Dutch auction method would supposedly minimize or eliminate the first day price surge in IPO's [3] by developing an offer price which is a more accurate reflection of the company's value through an auction. Under this method, bidders post the price that they are willing to pay and the number of shares that they wish to purchase. This generates a demand curve for the IPO from the small investor and allows him / her to receive allocations and participate in the pricing, unlike the traditional method, in which only the institutional and sophisticated investors are involved. The final price of the IPO in a Dutch auction is the lowest price at which all of the shares are sold. The role of the investment bank as the middleman is minimized. But, is the online auction process likely to be the solution to the problem, or will it generate additional problems?

Studies on IPO's range from empirical analyses of why companies go public, such as Pagano, Panetta, and Zingales (1998) and Zingales (1995), to how IPO firms perform following their debut, such as Jain and Kini (1994), Ritter (1991), and Teoh, Welch and Wong (1998). Krigman, Shaw, and Womack (1999) examine underwriters pricing errors and show that first-day "winners" continue to be "winners" and that first-

[2] "Bidding begins on the first-ever Internet-based IPO Auction," The San Jose Business Journal, February 12,1999

[3] For example, "Auction IPO's: First Google, Now Morningstar" in the Wall Street Journal on January 11, 2005 noted that the auction "method can sap the first day price surges that IPOs typically enjoy," while "Morningstar Bets on Bidders for IPO" in the Wall Street Journal on January 10, 2005 notes "With an auction, the price is usually set after aggregating bids and deciding the highest price at which the company can sell its shares. This often saps any first-day pops in price that IPO's typically enjoy."

day "dogs" continue to be "dogs." A number of papers discuss the phenomenon of IPO underpricing in various countries, including Loughran, Ritter, and Rydqvist (1994) and Chowdhry and Sherman (1996). Little work has been done on auctions, although Kandel, Sarig, and Wohl (1999) examines the demand schedules and elasticities of 27 Israeli IPO's between 1993 and 1996 which debuted using a uniform price auction and find underpricing and an average abnormal return on the first day of trading of 4.5%. This analysis contributes to the literature in that, to the author's knowledge, this is the only study which compares the offer-to-open price increase on the first day of trading between traditional underwriters in the US and the online auction IPO process (OpenIPO.com).

The article is organized into four sections. Section I presents regression results determining whether, controlling for year and industry effects, IPO's which debut using the online auction process have higher offer-to-open price increases; compares these price surges by volume and value of IPO's issued on a per underwriter basis between traditional IPO's and online auction IPO's, and compares the behavior of each online auction IPO with an IPO issued through the traditional IPO process in the same year and three-digit Standard Industry Classification (SIC) code. Section 2 provides a case study and examines the performance of the online auction process in the much-heralded debut of Google in August, 2004. Section 3 presents some possible explanations for the lack of success of the online auction process in efficiently pricing IPO's and provides some possible solutions. Finally, section 4 presents the conclusions.

A Broader Comparison of IPO Allocation Processes

This section compares the average first day pricing behavior and subsequent price appreciation of IPO's issued over the past six years by the online auction method

(OpenIPO.com) and by the traditional IPO issuance process (various primary lead bookrunners). The data, which are from Thomson Financial, consist of all IPO's issued in the US between February, 1999 and June, 2005. The analysis first examines whether an IPO has a statistically significant lower offer-to-open first day price surge if it was issued through the online auction process, controlling for year effects and industry effects. Then, the analysis segments the IPO's by the primary lead bookrunner (i.e. the primary investment bank managing the issue and building the "book" of indications of interest from the various institutional investors) and examines whether OpenIPO.com does significantly better in pricing IPO's than other traditional underwriters.

Table 1 presents summary results for several different regression models which determine whether the offer-to-open first day price surge for an IPO is lower if it were issued through the online auction method. The first set of models (I-III) estimate the offer-to-open price surge over all IPO's in all SIC codes issued between 1999 and 2005. Model I estimates the offer-to-open price increase as a function of year fixed effects and a variable for whether the IPO was issued through the auction process. Model II estimates the price surge as a function of industry fixed effects (as measured by SIC code dummy variables) and an auction variable. Model III estimates the price surge as a function of year fixed effects, industry fixed effects, and an auction dummy. The second set of models (IV-VI) estimate the identical models as models I-III, except over a dataset which includes only IPO's issued over the past six years in SIC codes in which IPO's were also issued by the online auction process. In all models (I-VI) including year fixed effects, these fixed effects were jointly significant; similarly, in all models (I-VI) including industry fixed effects, these fixed effects were jointly significant. As is evident in table 1,

regardless of the specification of the model or the dataset over which it is run, there is no statistically significant impact on the offer-to-open price increase caused by whether the IPO debuted using the traditional method or the online auction process, controlling for year and industry effects (as is evident in the statistical insignificance of the auction dummy variable). Moreover, although insignificant, the coefficient on the auction IPO's dummy variable is often positive, suggesting higher offer-to-open price increases for online auction IPO's. This evidence does not support the hypothesis that the online process is more efficient at pricing IPO's.

In the next set of figures and tables, IPO' s are segmented by primary lead bookrunner / underwriter, and the performance of the online auction process is compared with the performance of the traditional IPO process, on a per underwriter basis. First, the average offer-to-open percentage price increase was calculated for each underwriter over all of the IPO's for which they served as primary lead bookrunner between February 1999 (when the online IPO auction process debuted) and June 2005. Figure 1 shows the number of underwriters whose average offer-to-open percentage price increase fell into a given range. Over this period, WR Hambrecht's OpenIPO.com (the online auction method) exhibited an average offer-to-open percentage price increase of 29%. Figure 1 indicates that the average offer-to-open price increase for IPO's issued by WR Hambrecht's OpenIPO.com online auction mechanism met or exceeded the offer-to-open pop for 82.4% of the primary lead bookrunners (108 out of 131). This suggests that the online auction mechanism was less successful than the traditional IPO issuance process in efficiently pricing IPO's.

The analysis in Figure 1, however, does not examine whether the online auction process is less efficient in pricing IPO's than all traditional underwriters or whether it is less efficient than only high volume traditional underwriters or underwriters which underwrite large issues (as measured by a high value per IPO). Figure 2 shows the average number of IPO's for each underwriter whose average offer-to-open percentage price increase falls into a given range. Many of the underwriters which exhibit poorer performance than OpenIPO.com (as measured by a higher average offer-to-open percentage price increase) are high volume issuers. Figure 3 shows the average value per IPO per underwriter for each underwriter whose average offer-to-open percentage price increase falls in a given range. Again, many of the underwriters with poorer performance than OpenIPO.com are underwriters with high average values per IPO.

Table 2 segments the sample to include all underwriters, underwriters which served as primary lead bookrunner on under 14 IPO's ("low volume underwriters"), underwriters which served as primary lead bookrunner for over 14 IPO's between 1999 and 2005 ("medium to high volume underwriters"), and underwriters which served as primary lead bookrunner for over 40 IPO's ("high volume underwriters"). The first column contains the average offer-to-open percentage price increase for all underwriters (excluding OpenIPO.com) over the past five years. OpenIPO.com's average offer-to-open price increase of 29% (over the 14 IPO's for which it served as primary lead bookrunner between February 1999 and June 2005) is higher than the average for all underwriters, which suggests that it is less efficient than traditional processes. Nevertheless, when the sample is broken down into low volume, medium to high volume, and high volume underwriters, the data suggest that the online auction mechanism may

be more efficient than the traditional process for medium to high volume and high volume underwriters, but less efficient than the traditional process under low volume underwriters.

The second column in table 2 calculates a weighted average offer –to-open price increase across all underwriters by weighting the average offer-to-open price increase for each underwriter by the total number of IPO's for each underwriter. The data again suggest that the performance of the online auction may be a more efficient pricing mechanism than the traditional underwriting process with medium to high volume underwriters and a less efficient pricing mechanism than the traditional underwriting process with low volume underwriters. Unlike the results of the unweighted average offer-to-open price increase across all underwriters (17.7%), when the first day price surges are weighted by the total number of IPO's for each underwriter, the larger offer-to-open price increases of the medium and high volume underwriters dominate, such that the 37.1% average offer-to-open price increase across all underwriters is higher than the online auction's average first day price surge of 29%. The third column calculates weighted average offer-to-open price increases by using the total average value of IPO's for each underwriter as the weights. The results of this weighted average by value reinforce the results of the weighted average by volume: the online auction mechanism may be more efficient than traditional processes for medium and high volume underwriters, but less efficient than traditional processes for lower volume underwriters. [4]

[4]Nevertheless, while there are some high volume underwriters which have had larger average offer-to-open percentage price increases than OpenIPO.com, there are also some high volume issuers which have lower average offer-to-open percentage price increases than OpenIPO.com. For example, Morgan Stanley (168% across 119 IPO's), Goldman Sachs (62% across 156 IPO's), BancBoston Robertson Stephens (94% across 46 IPO's), Donaldson, Lufkin, and Jenrette (45% across 53 IPO's), and Deutsche Bank (42% across 47 IPO's) had higher average offer-to-open percentage price increases for the IPO's for which they served as primary lead bookrunner. On the other hand, the online auction mechanism had a slightly lower average

Table 3 compares the performance of individual IPO's issued by the online auction process with comparable IPO's issued by the traditional process in the same industry, as measured by the Standard Industry Classification (SIC) code. A total of 4 of the 9 IPO's (44%) issued by the online auction process had greater offer-to-open price increases than comparable IPO's issued using the traditional process in the same year and in the same three-digit SIC code. [5] This suggests that the online auction mechanism is not as efficient in minimizing the first day price surge as some have thought.

The data in table 3 further indicate that the process is inefficient in pricing in that the subsequent price appreciation from the first day of trading for the IPO until June 29, 2005 is significantly higher for IPO's which debut using the online auction process relative to comparable IPO's debuting in the same year and industry area using the traditional method. A total of 8 of the 9 IPO's (89%) which debuted online exhibited more substantial subsequent price appreciation than comparable IPO's issued using the traditional process in the same year and in the same three-digit SIC code.

In summary, when analyzing the average offer-to-open price increase by underwriter, the average offer-to-open price increase for OpenIPO.com exceeds the average offer-to-open price increase for 82.4% of the underwriters. Further analysis suggests that the process tends to be more efficient, on average, than the traditional processes of many medium to high volume underwriters, and less efficient on average than the traditional processes of many low volume underwriters. This is surprising in that

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offer-to-open percentage price increase than other large volume underwriters, such as Bear Stearns (which exhibited an average offer-to-open price increase of 26% across the 49 IPO's for which it served as the primary lead bookrunner), CSFB (22% increase across 93 IPO's), Citigroup (4% across 113 IPO's), Merrill Lynch (20% across 179 IPO's), and Lehman Brothers (27% across 86 IPO's).

[5] Table 3 includes only 9 out of the 14 IPO's which debuted using the online auction process, since the other 5 did not have comparable IPO's issued in the same year in the same three- digit SIC industry area.

one would expect medium and high volume underwriters to be more efficient at pricing IPO's because they have had the opportunity to price so many of them. On the other hand, medium to high volume issuers are more likely than low volume issuers to have a large client base and, consequently, may have a greater tendency to reward their clients who assist them in the initial book-building process by mispricing the IPO so that these clients can benefit from the price increase on the first day of trading. When examining together all IPO's in all SIC codes issued by all underwriters, use of the online auction issuance process had a consistently statistically insignificant impact on the offer-to-open price increase.

Google: A Case Study in the Pricing Efficiency of the Online Auction Process

One of the most celebrated IPO's to debut using the online auction process has been Google, which debuted in August, 2004. This section uses a more detailed case study to compare the performance of Google, which is in a volatile, high tech sector, with the performance of comparable IPO's in its industry group which debuted in the same industry sector. The evidence does not suggest that the online auction process served as an efficient pricing mechanism since it did not minimize Google's first day price surge.

Google's offer price was $85 and it opened at $100, reflecting an 18% increase, while the average offer-to-open price increase for all IPO's issued in 2004 was 8.6%. Table 4 compares Google's offer-to-open price surge on its first day with the offer-to-open price surge of all IPO's in 2004, all IPO's issued in its three-digit Standard Industry Classification (SIC) code in 2004, and all IPO's issued in its four-digit SIC code in 2004. As can be seen in table 4, 82% of the IPO's issued in 2004 experienced less of a jump from the offer price to the open price than Google did, and the statistics were similar for

IPO's issued prior to Google's debut and following Google's debut. Google's offer-to-open price increase also exceeded that of IPO's in its peer group: about 70% of the IPO's in its three-digit Standard Industry Classification (SIC) code issued in 2004 experienced less of an offer-to-open price increase and about 60% of the IPO's in Google's four-digit SIC code, focusing largely on the Internet search arena, exhibited less of an offer-to-open price increase.

The enormous post-auction price increase of Google, especially in the immediate weeks and months following its debut, when there were few substantive news releases on changes in company strategy and fundamentals, further suggests that the online auction method may not have efficiently priced Google. Google, in the latter portion of the summer of 2005, unveiled new plans, but the stock experienced a substantial increase prior to these announcements. As of June 29, 2005 (prior to the announcements), Google had exhibited price appreciation of 186.8%, relative to its open price. As can be seen in table 5, Google had more substantial price appreciation than 97% of the IPO's issued in 2004 across all industries and SIC codes, than 90% of the IPO's issued in its three-digit SIC industry area of the 7370s, and than 80% of the IPO's issued in its four-digit SIC code (7375). Table 6 shows that the average subsequent price appreciation for all IPO's issued in 2004 from their date of issue until June 29, 2005 was 20.3%. Subsequent price appreciation averaged 39.2% for all IPO's issued in Google's broad industry area in 2004 and 90.1% for all IPO's in Google's Internet search area in 2004, all of which are much lower than Google's 186.8%.

Critics of Google's IPO initially argued that it was a failure because Google slashed the number of shares that it would sell at public auction from 25.7 million to 19.6

million shares, and dropped the target price range from the $108-$135 range projected in late July to the $85 to $95 price range.[6] At the time, many analysts suggested that the earlier Google price range had been overpriced; yet, Google's closing price reached the lower end of that price range after 18 days of trading and reached the higher end of that price range after 32 days of trading. [7] The lessening interest in Google at the time that it reduced the price range during the summer was possibly due to the lack of information provided by the company during the process about its uses of capital, due to a slump in price appreciation for June IPO's, or due to reservations on the part of investors about the use of the online process. It is possible that the reduction in the price range may have made investors feel as though Google were "on sale," and this greater desire to purchase may have subsequently placed upward pressure on the price, as did the subsequent aftermarket purchases of hedge funds and institutional investors who had sat out the auction process.

Who benefited from Google's price appreciation? Under the traditional process, the preferred clients of the underwriting investment banks can benefit from the initial IPO underpricing and subsequent price appreciation since they have the initial allocations. In the case of Google, the beneficiaries in the price appreciation have been: (1) those investors who bought Google when it first began trading and held it until the price increased substantially and (2) the Google co-founders and the chief executive, as well as

[6] "Google IPO fails to find results it sought," Knight Ridder Tribune Business News, August 19, 2004.
[7] Google's closing price on September 14, 2004 was $111.49, and its closing price on October 4, 2004 was $135.06.

the venture capital firm involved in financing Google, who were allocated shares early in the process, but who could not sell them until the "lock-up period" expired. [8]

Traditionally, an offer price which is set too low represents "money left on the table" for the issuing company, since the higher subsequent prices could have been reflected in the initial offer price. Nevertheless, since the Google co-founders, CEO, and venture capital investors held such a substantial number of shares, they were able to indirectly protect the company from the mispricing, since they actually financially benefited from the mispricing by selling their shares at a high price, which could enrich the company to the degree that these profits are plowed back. Some of the shares held by the founders would have initially been sold earlier at the lower offer price if the founders had not reduced the number of shares that they would sell when they reduced the initial price range and the number of shares offered in August, 2004. Similarly, Google's two venture capital backers, Sequoia Capital and Kleiner Perkins Caulfield and Byers, gained as a result of withdrawing from putting any shares up for sale in the initial IPO (in order to reduce the number of shares offered and the offer price) since they were later able to sell these shares at a higher price. The individuals who did not gain as much as they might have from Google's IPO were those investors who were not allowed to withdraw their shares from participating in the overallotment option when the initial offer price was

[8] The Google co-founders and the chief executive announced, at the end of November, their plans to sell 16.6 million shares over the next 18 months. The lock-up period on 39 million Google shares expired in the third week in November, and over the following three months, the lock-up period expired on 227 million shares. The venture capital firm involved in financing Google, Kleiner Perkins Caulfield & Byers, distributed shares to 200 investors, including 20 institutions and individuals who invested in its Fund IX-A, on the day that IPO restrictions ended on some of its Google holdings ("Google's Backers, Executives Cash In." Wall Street Journal. November 22, 2004)

lowered in August, 2004. [9] Consequently, in the case of Google, the mispricing of its initial offer price at $85 in the online auction had a positive externality which indirectly benefited the company.

Possible Causes and Solutions to Potential Problems in the Online Auction Process

The online process is not as successful as had been hoped in minimizing the first-day price surges of IPO's. Although it eliminates possible intentional mispricing by underwriters to benefit the larger financial institutions who assist them in building a "book" of orders, the system may have difficulty due to (1) a lack of information on the part of the small investors relative to larger financial institutions; (2) an adverse selection problem concerning the types of firms which choose to issue online; (3) inherent conservatism on the part of investors in using a new process.

The small investor in an online auction is at an informational disadvantage relative to the larger financial institutions which dominate the traditional issuance process in that they may lack access to sufficiently detailed information sources to appropriately price the security based on fundamentals, rather than based on name recognition. This potential problem is compounded by the lack of information that the online process (in contrast to the traditional IPO process) requires to be disclosed in the absence of the traditional bookbuilding process. Indeed, one of the criticisms of Google throughout the process was that it was "secretive" in how it would use its funds and conveyed little detailed information in its briefing at the Waldorf-Astoria Hotel in New York. [10] At the time, Google faced several strategic issues which, in the absence of more detailed

[9] "Google IPO Revisited: Insiders Got Choice Other Sellers Didn't," Wall Street Journal, September, 16, 2005.
[10] "Engine Trouble: How Miscalculations and Hubris Hobbled Celebrated Google IPO" Wall Street Journal, August 19, 2004.

information on the uses of the capital to be raised, may have been difficult for the smaller investors to evaluate. These included Google's lack of diversification in revenue sources and reliance on online advertising, rather than on the other subscription-based services (unlike Yahoo and Microsoft). Fortunately, despite Google's unforthcoming stance in providing information, it entered into a series of moves in the summer of 2005 which contributed to greater diversification, such as the introduction of software tools for Windows, including Google Desktop Search and Google Talk, and an expansion of Gmail, Google's web-based email service, to all users.[11] Despite the lack of external transparency in Google's strategic processes, it has continued to surpass analysts' earnings expectations. Nevertheless, the lack of information required by underwriters and the financial markets in the online auction process can be problematic for less successful companies. The online process could be used more by companies which may not have a clear sense of the uses for the funds that they are raising.

A second potential flaw of the online process lies in the possibility of an adverse selection problem inherent in the types of firms choosing to use the online process, relative to the traditional one, and the resulting lemons "discount" placed on these issues by uninformed investors. Due to the less rigorous scrutiny in the online process relative to the scrutiny of the investment banks in the traditional process, well-known firms which would have had difficulty in going public using the traditional IPO process may be more likely to use the online auction mechanism. The circumstances surrounding Morningstar's decision in January, 2005 to use the IPO auction process as its vehicle are consistent with this theory. Skeptics of Morningstar's decision have argued that

[11] "Google Gets Better. What's Up With That?," New York Times, August 25, 2005; "Google to Offer Instant Messaging and Voice Communications on Web," New York Times. August 24, 2005.

Morningstar chose the online auction mechanism because it was not confident about its prospects for going public using the traditional IPO issuance process. Indeed, its IPO filing under the traditional process had been dormant since May, 2004 and Morningstar has been the subject of several enquiries. In September, 2004, Morningstar was the subject of an SEC investigation concerning inaccurate data which had been on its website. In December, 2004, Eliot Spitzer, as well as the SEC, began looking into possible conflicts of interest from Morningstar Associates' recommendations to 401(k) on mutual fund investment options, while Morningstar itself provides fund ratings.[12] Indeed. Morgan Stanley executives warned Morningstar that "an auction carried a high risk of an 'adverse outcome,'" such that when Morningstar continued with the auction, instead of switching to the traditional process, Morgan Stanley resigned as the lead underwriter.[13] Despite the gloomy prognosis, Morningstar rose 8.4% on its first day of trading,[14] In conclusion, although the Morningstar auction was successful, Morningstar may not have been as successful if it had undergone the traditional process, since the greater scrutiny of underwriters in the bookbuilding process may have raised additional questions, whereas the small investors, whom the auction theoretically targeted, may have been more likely to focus on Morningstar's name recognition.

The recent SEC proposals to liberalize the "quiet period" may provide a solution to the possible informational problems inherent in the online auction process. During the "quiet period", companies traditionally have been only allowed to give out information orally (in presentations), but not in written form (except for the company's prospectus).

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[12] "Auction IPO's: First Google, Now Morningstar," The Wall Street Journal, January 11, 2005; "Morningstar's Bright Future Turns Cloudy," Fortune, January 10, 2005.
[13] "Why IPOs Still Use the Old Way," Wall Street Journal, July 6, 2005.
[14] "Why IPOs Still Use the Old Way," Wall Street Journal, July 6, 2005.

The "quiet period" provided an informational advantage to the institutional investors, since small investors are less likely to be able to attend company presentations. The greater involvement of the small investors in pricing in online auctions could have further exaggerated the impact of this informational asymmetry in the online process relative to the traditional process

In late October, 2004, the SEC voted to liberalize these rules by allowing companies planning an IPO to communicate information to investors verbally or in writing, provided that this information would be filed with the SEC. [15] Indeed, the SEC has also proposed to allow the marketing "roadshows" of IPO's to be broadcast online to all investors, although this is not a requirement such that companies which only want to present materials before the traditional audience can do so.[16] Smaller and less well-known companies, previously handicapped by their inability to use the media and the web during the "quiet period" to generate interest, are more likely to stimulate investor enthusiasm in their IPO. [17] The informational problem may be minimized by issuing companies providing more information on: (1) the uses for the capital that they are raising; (2) their strategies for overcoming potential challenges; (3) the corporate governance mechanisms within the firm (share of outsiders on the board, etc.); (4) their reasons for using the online auction process, rather than the traditional process; and (5) their involvement in any current or potential litigation.

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[15] "IPO Quiet Period could be getting a lot louder" Wall Street Journal, October 27, 2004.

[16] "IPO Outlook: SEC Proposes Increasing Role of Web in IPO's." The Wall Street Journal, January 3, 2005.

[17] "'The Quiet Period' Getting Overhaul," The Investment Dealers Digest, October 18 2004.

Conclusion

The online auction process was developed in response to the substantial increases between IPO's offer prices and their open prices at the peak of the dot-com era. Table 7 suggests that while the first day surges in an IPO's price are important, the problem that the online auction mechanism was partially developed to solve has lessened. The average offer-to-open price increase has dropped substantially from the 55.4%-92.5% range during 1999-2001 into the 6.3%-8.6% range of 2002-2004. This gradual reduction in the magnitude of first day price surges over time may be a reflection of more careful pricing by some underwriters in the wake of substantial litigation concerning their alleged manipulation of IPO's. A second explanation may be that many of the technology IPO's during the dot-com boom were in emerging industries, and, since most investors had a superficial understanding of the fundamentals and technology in these industries, they had difficulty in accurately pricing the issues and were influenced by "herd behavior."

The findings of this analysis suggest that the online auction process does not minimize the increase between the offer price and the open price of an IPO to the degree that was initially intended when the process was developed. When examining together all IPO's in all SIC codes issued by all underwriters, use of the online auction issuance process had a consistently statistically insignificant impact on the offer-to-open price. When examining the per underwriter average offer-to-open price increase, 82% of the IPO's issued in 2004 using the traditional IPO process experienced less of an average offer-to-open price increase. Further analysis suggests that the auction process was, on average more efficient in pricing IPO's than the traditional process for medium to high volume issuers, and on average less efficient than the traditional process for low volume

issuers. A comparison of auction IPO's with traditional IPO's issued in the same year and in the same three-digit SIC code suggests that 44% of the auction IPO's have greater offer-to-open price surges than their traditional counterparts. Moreover, in terms of subsequent price appreciation after the first day of trading, 89% of the online IPO's exhibited more substantial subsequent price appreciation than their traditional counterparts.

Although the online auction process increases the ability of small investors to participate in the IPO process, the process may suffer from several problems. First, small investors may lack the ability to efficiently price an IPO due to informational asymmetries either because small investors lack access to the sources of information that institutional investors have, or because companies are not required to provide detailed information in the online process since they don't undergo the rigorous scrutiny of investment banks in the traditional bookbuilding process. Second, since the informational scrutiny is reduced, the online process could be used more by companies which may not have a clear sense of the uses for the funds that they are raising or by well-known companies which may not have been successful in the traditional issuance process. This could lead to an adverse selection problem, as investors could have difficulty in distinguishing successful companies from "lemons", and, consequently could end up discounting the price of all online IPO's .

Nevertheless, with interest in IPO's rebounding and the growing belief of small investors that they can become involved early with new issues, it is likely that some of the weaknesses of the online process may be improved. Some of the solutions include: (1) the SEC reforms on the "quiet period", which will minimize the informational

asymmetry between small investors and larger institutional investors and (2) greater provision of information by issuing companies concerning uses of capital to be raised, etc., so that small investors can better distinguish good companies from “lemons” Developing new methods of IPO issuance, increasing available information, and involving more parties in the process are likely to lead to a more egalitarian and transparent process for providing new companies with capital.

Table 1
Regression Results of the Impact of the Online Auction Process on an IPO's Offer-to-Open Percentage Price Increase

Models	Coefficient for online auction IPO dummy	Significance for online auction dummy	Number of observations	Adjusted R-square
Model I	**-0.0348**	**0.958**	**1752**	**0.0990**
Model II	**0.0021**	**0.821**	**1752**	**0.1104**
Model III	**0.0640**	**0.920**	**1752**	**0.1148**
Model IV	**0.6120**	**0.751**	**1167**	**0.1622**
Model V	**0.0028**	**0.988**	**1167**	**0.1656**
Model VI	**0.0967**	**0.613**	**1167**	**0.2015**

This table shows the results of six different regression models estimating the impact of the online auction process on an IPO's offer-to-open percentage price increase. Models I-III used data on all IPO's issued in the US between February, 1999 and June, 2005 by all underwriters. Models IV-VI used data over the same period across all underwriters only for IPO's which were issued in the same two-digit SIC code as the online auction IPOs.

Model I: $(\text{offer-to-open price increase})_i = \alpha + \beta\,(\text{year dummies})_i + \Psi\,(\text{online auction IPO dummy})_i$

Model II: $(\text{offer-to-open price increase})_i = \alpha + \mu\,(\text{SIC code dummies})_i + \Psi\,(\text{online auction IPO dummy})_i$

Model III: $(\text{offer-to-open price increase})_i = \alpha + \beta\,(\text{year dummies})_i + \mu\,(\text{SIC code dummies})_i + \Psi\,(\text{online auction IPO dummy})_i$

Model IV $(\text{offer-to-open price increase})_i = \alpha + \beta\,(\text{year dummies})_i + \Psi\,(\text{online auction IPO dummy})_i$

Model V: $(\text{offer-to-open price increase})_i = \alpha + \mu\,(\text{SIC code dummies})_i + \Psi\,(\text{online auction IPO dummy})_i$

Model VI: $(\text{offer-to-open price increase})_i = \alpha + \beta\,(\text{year dummies})_i + \mu\,(\text{SIC code dummies})_i + \Psi\,(\text{online auction IPO dummy})_i$

Figure 1: Number of Underwriters in Each Average Offer to Open Price Increase Range

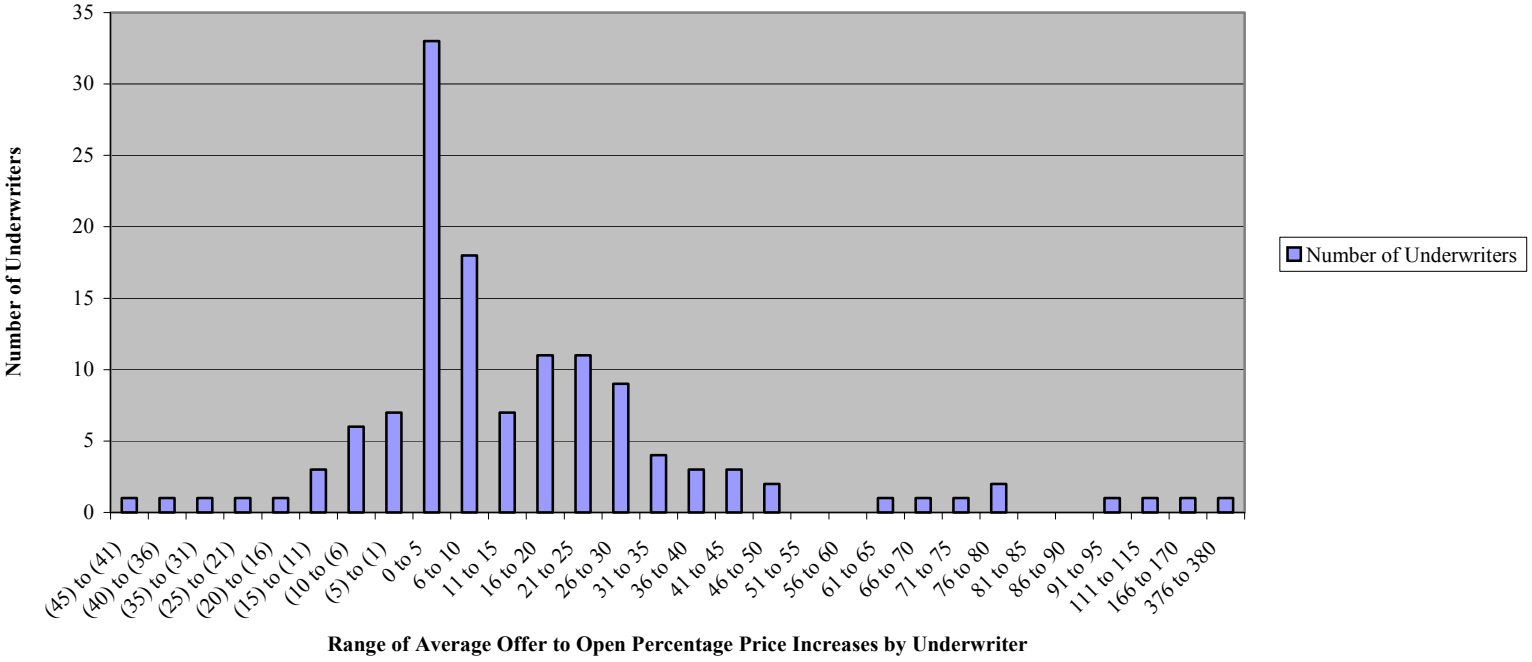

Figure 2: Average Number of IPO's Per Underwriter in Each Offer to Open Percentage Price Increase Range

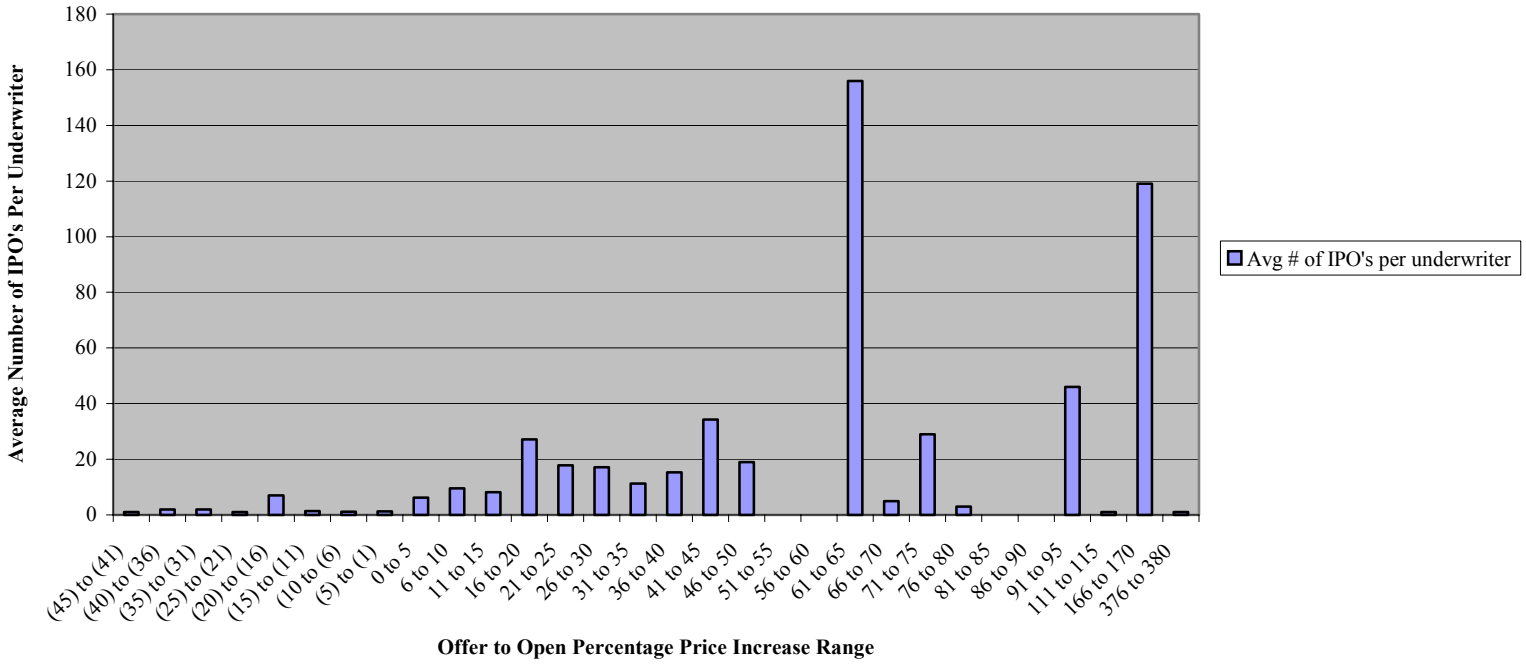

Figure 3: Average Value Per IPO Per Underwriter in Each Average Offer to Open Percentage Price Increase Range

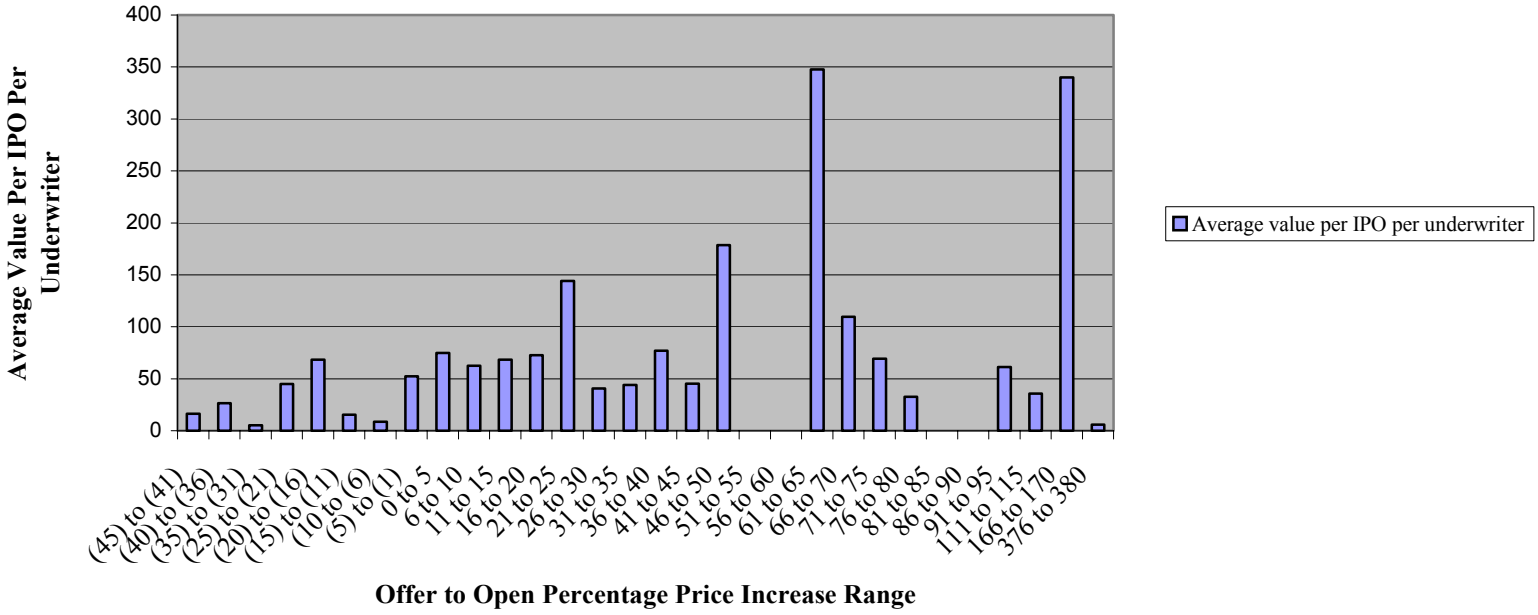

Table 2

Comparison of Weighted and Unweighted Average Offer-to-Open Price Increases Across Low Volume, Medium Volume, and High Volume Underwriters

	Unweighted average offer-to-open price increase across underwriters*	Average offer-to-open price increase across underwriters weighted by the total number of IPO's for each underwriter**	Average offer-to-open price increase across underwriters weighted by the total average value of IPO's for each underwriter***
All underwriters (excluding OpenIPO.com)	17.65%	37.10%	44.14%
Low volume issuers: All underwriters which served as primary bookrunner for under 14 IPO's between 1999 and 2005	13.23%	14.86%	19.94%
Medium to high volume issuers: All underwriters which served as primary bookrunner for over 14 IPO's between 1999 and 2005	36.78%	41.43%	45.50%
High volume issuers: All underwriters which served as primary bookrunner for over 40 IPO's between 1999 and 2005	42.85%	44.45%	47.96%

* Calculated as the average across underwriters of the average offer-to-open percentage price increase for each underwriter for all IPO's between February 1999 and June 2005 for which they served as the primary bookrunnner

** Calculated by multiplying the average offer-to-open price increase for each underwriter by the total number of IPO's that the given underwriter issued between February 1999 and June 2005, summing, and then dividing by the total number of IPO's issued by all underwriters during the period

***Calculated by multiplying the average offer-to-open price increase for each underwriter by the total number of IPO's issued by the given underwriter over the period multiplied by the average value per IPO per underwriter, summing, and then dividing by the product of the total number of IPO's per underwriter and average value per IPO per underwriter summed across all underwriters.

Table 3

Comparative Statistics on Auction IPO's and Traditional IPO's in the Same Three-Digit SIC Code Issued in the Same Year

Issue Date	Issuer	SIC Code	Offer-to-open percentage price increase	Price appreciation from original open price to June 29, 2005	Principal Amount of the Issue ($ mil)
4/8/1999	Hambrecht IPO: Ravenswood Winery	2084	3.61%	171%	10.5
3/30/1999	Comparable Traditional IPO: Pepsi Bottling Group	2086	-5.69%	34.3%	1955
1/25/2001	Hambrecht IPO: Peet's Coffee & Tea	2095	63.25%	161.2%	26.4
5/2/2005	Comparable traditional IPO: Coffee Holding Co.	2095	4%	93.27%	7
8/5/2004	Hambrecht IPO: New River Pharmaceuticals	2834	-6.25%	358.4%	33.6
	Average of traditional IPO's in 2004 for SIC 2830s		8.28%	-1.1%	58
10/29/2003	Hambrecht IPO: Genitope Corp	2836	11.1%	-20.5%	33.3
	Average of traditional IPO's in 2003 for SIC 2830s		3.125%	-13.77%	50.31
5/18/2000	Hambrecht IPO: Nogatech, Inc.	3674	-21.58%	-21.63%	42
	Average of traditional IPO's in 2000 for SIC 3670s		61.73%	-65.8%	148.053
5/2/2001	Hambrecht IPO: Briazz, Inc.	5812	0.375%	-99.87%	16
	Average of traditional IPO's in 2001 for SIC 5810s		7.24%	-13.4%	292.6
3/17/2004	Hambrecht IPO: Sunset Financial Resources, Inc.	6798	-0.769%	-28.37%	130
	Average of traditional IPO's in 2004 for SIC 6790s		4.22%	16.9%	208.44
6/22/1999	Hambrecht IPO: Salon.com	7372	-4.76%	-96.7%	26.3
12/8/1999	Hambrecht IPO: Andover.net Inc	7379	330.5%	-79.5%	72
	Average of traditional IPO's in 1999 for SIC 7370s		85.1%	-55.0%	65.72

8/18/2004	Hambrecht IPO: Google	7375	18%	186.8%	1666.4
	Average of traditional IPO's in 2004 for SIC 7375		17%	90.1%	54.28
	Average of traditional IPO's in 2004 for SIC 7370s		14.4%	31.4%	110.01

This table compares IPO's which debuted using the OpenIPO auction method with IPO's which debuted using the traditional method in the same year and in the same three-digit SIC code. Note that this table does not include the following OpenIPO IPO's because there were no other comparable traditional IPO's in their three-digit SIC code in the year of issue: RedEnvelope, Inc., Overstock.com, Morningstar, Bofl Holding, Inc.

Table 4
Comparison of Offer-to-Open Percentage Price Increases Across All SIC Codes and Within Google's SIC Codes Before and After Google's Debut

	IPO's issued in 2004	IPO's issued between January, 2004 and mid-August, 2004 (pre-Google)	IPO's issued between mid August 2004 and December 2004 (post-Google)
Percentage of IPO's issued across all SIC codes which had smaller offer-to-open price increases than Google	82% (247/303)	83% (152/184)	80% (95/119)
Percentage of IPO's issued in the SIC 7370s which had smaller offer-to-open price increases than Google	70% (14/20)	70% (7/10)	70% (7/10)
Percentage of IPO's issued in SIC 7375 which had smaller offer-to-open price increases than Google	60% (3/5)	50% (1/2)	66% (2/3)

This table shows the percentage of IPO's which had smaller offer-to-open price increases than Google on their first day of trading. The IPO's include new issues across all SIC codes, within Google's three-digit SIC code, and within Google's four-digit SIC code. The IPO's are also divided into new issues debuting during 2004, debuting prior to Google's debut (between January, 2004 and August 17, 2004), and debuting after Google's debut (between August 19, 2004 and December 31, 2004

Table 5
Comparison of Subsequent Price Appreciation Relative to Google for Pre-Google and Post-Google IPO's Across All SIC Codes and Within Google's SIC Codes

	IPO's issued in 2004	IPO's issued between January, 2004 and mid-August, 2004 (pre-Google)	IPO's issued between mid August 2004 and December 2004 (post-Google)
Percentage of IPO's issued across all SIC codes which had smaller subsequent price appreciation between their issue date and June 29, 2005 than Google	97% (295/303)	96% (177/184)	99% (118/119)
Percentage of IPO's issued in the SIC 7370s which had smaller subsequent price appreciation between their issue date and June 29, 2005 than Google	90% (18/20)	100% (10/10)	80% (8/10)
Percentage of IPO's issued in SIC 7375 across all SIC codes which had smaller subsequent price appreciation between their issue date and June 29, 2005 than Google	80% (4/5)	100% (2/2)	66% (2/3)

This table shows the percentage of IPO's which had less subsequent price appreciation than Google between their date of issuance and June 29, 2005. The IPO's include new issues across all SIC codes, within Google's three-digit SIC code, and within Google's four-digit SIC code. The IPO's are also divided into new issues debuting during 2004, debuting prior to Google's debut (between January, 2004 and August 17, 2004), and debuting after Google's debut (between August 19, 2004 and December 31, 2004

Table 6
Average Subsequent Price Appreciation for 2004 IPO's Across SIC Codes and Within Google's SIC Code

Average subsequent price appreciation from date of issue through June 29, 2005 for IPO's issued in 2004 across all SIC codes	20.38%
Average subsequent price appreciation from date of issue through June 29, 2005 for IPO's issued in 2004 within Google's three-digit SIC code (the 7370s)	39.2%
Average subsequent price appreciation from date of issue through June 29, 2005 for IPO's issued in 2004 within Google's four-digit SIC code (7375)	90.1%

Table 7
Annual Comparison of Offer-to-Open Percentage Price Increases Across All SIC Codes and Within Google's SIC Code

	Offer-to-open percentage price increase	Principal Amount of issue ($ mil)
All SIC codes		
1999	65.5%	115.7
2000	55.4%	118.9
2001	92.5%	305.6
2002	6.3%	239.1
2003	7.5%	326.3
2004	8.6%	227.5
2005 (through June 29, 2005)	1.3%	259.2

This table compares the average price increase between an IPO's offer price and its open price and the average principal amount of an issue on a yearly basis between February, 1999 and June, 2005 across all SIC codes.

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