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The Google IPO Auction: Bidding Strategies for Institutional Investors

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Auction Brief

The Google initial public offering (IPO) filing with the U.S. Securities and Exchange Commission of April 29, 2004 is still causing a stir in the financial community. Discussions and opinions abound regarding two aspects of the filing: (i) Google will have a dual share structure involving Class A and Class B shares. The IPO is for Class A shares which carry one voting right per share. Class B shares, in contrast, will not be offered in the IPO, but instead will be held by Google insiders. Class B shares carry ten voting rights per share. And (ii), the IPO will be run as a sealed bid auction.

There is probably a relationship between the auction format and the share structure. Both appear to be designed to keep as much control of the company as possible with Google insiders. In particular, we think the auction is easier to play for retail investors than for institutional investors. We may expect a rather larger number of retail investors than usual.

In this brief we illustrate the bidding strategy choices faced by institutional investors. In the financial world, Google's auction would be called a "Dutch auction."[1] Everyone who wants to buy Google Class A shares can submit an offer consisting of a price and a quantity of shares. In a simple Dutch auction, a bid would be:

Table 1: Bid in a Simple Dutch Auction

10 shares each @ $11.23 per share

The Google auction is slightly more general. Google allows investors to submit "more than one bid," and Google allows investors to withdraw bids without penalty. The minimum bid quantity has not been set. Suppose the minimum bid quantity is 5 shares and a fund manager wants to purchase up to 45 shares. Then the fund manager can submit the following bid:

Table 2: Bid in the Google Auction

15 shares @ $10.20	**13 shares @ $11.50**	**10 shares @ $13.50**	**7 shares @ $14.60**

[1] Unfortunately, in the academic literature, a Dutch auction refers to a different type of auction. We are using the financial meaning here of a Dutch auction, namely a uniform price sealed bid auction.

In other words, investors can submit a "demand curve." To see the effect, we first need to consider how the auction is cleared. Clearing is done in two steps: first, "speculative bids" are removed. Then the auction is cleared at or below the price at which demand by investors equals the number of shares offered. Every bidder with bids at or above the clearing price is a winning bidder and will pay the clearing price, regardless of how much he bid. If, in the example, the Google clearing price is $11, then the investor will receive 30 shares and pay 30 * $11 = $330.

Google says that it will set the clearing price at the point at which demand is equal to supply, but it will take bidding behavior into account and may lower the clearing price to below that figure. Under those circumstances some investors will be rationed and Google presents two different rationing mechanisms that it may employ.

The clearing mechanism is illustrative of the large amount of discretion that Google leaves for itself during the auction. Other discretionary items are that Google may change the quantity of shares offered, depending on the initial demand it sees.[2] Google also sets the closing time of the auction. The auction closes only two hours after Google announces the effectiveness of the registration, in other words, only two hours after the total quantity offered is known. Google also announces a price range and may change that range during the auction. As already mentioned, Google also can declare bids "speculative" and it is not clear how such a bid may be defined.

The price that Google pays for its discretion is that bidders are allowed to bid outside its price range, and, before the auction closes, bidders are allowed to withdraw and change bids without penalty. It is easy to see that this is a direct consequence of Google's discretion. Since Google may shift the price range, some bidders will find themselves outside. Since Google can reduce or increase the amount of shares offered, it will influence the expected clearing price so that investors must be allowed to withdraw.

[2] While this is a common feature for a fixed price IPO, it takes on a different meaning in an IPO auction where bidders bid both a price and a quantity.

This finishes our description of the Google auction and we can now turn to possible bidding strategies. Bidding strategies need to centre on two aspects: (i) how should bidders bid in a standard Dutch auction, and (ii) how should bidders handle the special aspects of the Google auction: namely their right to withdraw, change and submit bids at the time of their choosing and the share quantity adjustment that Google may carry out.

The most important insight into a standard Dutch auction is that, ex post, only one bid matters for setting the clearing price. The first implication of this insight is that a bidder with a very large bid is much more likely to set the price than a small bidder. In other words, each individual retail bidder is highly unlikely to set the price. Retail bidders are, in a sense, price takers. A retail bidder who wants the minimum allocation only could achieve that aim with relatively little price risk by bidding quite a high price (say 10 times the lower point of the price range). Presumably, Google retains the right to withdraw "speculative bids" for this reason.

The second implication is that if a bidder believes that he has quite a high probability of setting the price, it will become worthwhile for the bidder to act strategically by reducing his demand to keep the price low. This will be the case for institutional investors.

For an institutional investor, the Google IPO auction is similar to the relatively recent uniform price auctions for index linked Government bonds.[3] Institutional investors are likely to have a demand curve for Google shares: at a lower IPO clearing price, they would wish to demand more Google shares than at a higher price. The first step in any bidding strategy should be to estimate that demand curve. We will call this the true demand curve. The true demand curve depends on the risk preference of the investor and the desired risk profile of his portfolio. It does not depend on the preferences or actions of other institutional investors.

Auction theory suggests that there are strategies that may allow institutional bidders to reduce the clearing price. The idea is that, instead of submitting true demand curves, bidders submit *steeper* demand curves, or also *hockey stick* demand curves. With a steep demand curve, the bidders implicitly agree on a low price and a restriction of their own quantity. Every bidder voluntarily reduces their demand at what they think is the clearing

[3] On those auctions, K. Binmore and J.Swierzbinski (2000), Treasury Auctions: Uniform or Discriminatory?, *Review of Economic Design*.

price. Suppose the total allocation is 120,000 shares and three bidders each have true demand of 40,000 at $14 and 50,000 at $12. A low coordinated price would then consist of each bidder reducing their demand from 50,000 to 40,000 at $12, and the market would clear at $12 instead of $14.

This strategy naturally would lead to an incentive problem. If everyone else reduces their demand, then a single bidder may think that it may be worthwhile to "cheat" by bidding their true demand instead of their reduced demand at the expected clearing price. Since everyone would have the incentive to cheat on their own reduced demand, the low clearing price would break down.

In order to enforce the low clearing price, bidders therefore will reduce their true demands less at prices above the expected clearing price. In the example, we take an extreme case. We let bidders submit their full true demand on these so-called "inframarginal units." Bidders bid 40,000 at $14 and 40,000 at $12. The effect of this strategy is that if a bidder "cheats" by not submitting a reduced demand at the expected low clearing price of $12, then everyone will win the same amount of 40,000, but at $14 instead of $12.

Such a strategy is risky for bidders, since it relies on implicit coordination. This is especially true in a one-off IPO with a large and uncertain number of price taking bidders; also, the support given to it by auction theory is somewhat fragile. However, it nevertheless illustrates the point that large bidders have incentives to reduce their true demand around the expected clearing price.

For an investment manager, the existence of these incentives mean that he has to evaluate carefully who the other interested parties are and how much they may be willing to bid at what price. This may seem a daunting task at first, but it may come as a surprise that there are probably not as many institutional investors that would need to be monitored and analyzed as one may think. Once competitors for the auction have been identified, an auction game can be programmed that can be used to numerically simulate different strategies. In particular if Google shares are oversubscribed, it will be critical for an investor to find the best bid curve in order to avoid overpaying or being left with an insufficient allocation.

As we have stressed, the second aspect of the Google auction is the amount of discretion retained by the seller. In the first instance, discretion increases the complexity of the bidding process. However, it can also provide signals.

Without the discretion of increasing or reducing the number of shares, we would think that institutional investors should bid as late as possible in order to lower price expectations. In contrast, retail investors may not have the time to be available for the two-hour window between the effectiveness date and the close of the auction. They are more likely to bid early. We would therefore see retail investors bidding early and institutional investors bidding late.

With Google's discretion on the quantity of shares offered, institutional investors may wish to submit bids earlier in order to increase the share allocation. Therefore, the Google announcements and share allocation need to be monitored closely during the auction in order to achieve a large share, low price outcome. All information needs to be analyzed both from the investor's own point of view as well as from the point of view of the expected strategies of other fund managers.

If all parties submitted their true demand, then Google shares would be unlikely to have a large increase in value in the first days of trading. However, if many institutional investors follow the demand reduction approach, this may no longer hold true. Since they may feel underexposed as a result, they may wish to try and build up their portfolio in first trading days and put upward pressure on price. For that reason we may still see an upward trend in price, however, we would expect it to be significantly smaller than for past IPOs of the technology boom.

In this brief we illustrated the strategic steps we would recommend to fund managers for bidding in the Google IPO auction. It is remarkable how the role of the fund manager is being expanded. While fund managers will still be inundated with phone calls from Google's advisors, they cannot wait any more for a price to be announced. Instead they need to take decisions on both price and quantity. Fund managers should start working on their bidding strategies.

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