

**A Better Understanding of Initial Public Offering Process:
Evidence from Google**

Mingsheng Li*

University of Louisiana at Monroe, Monroe, LA 71209, U.S.A.

Current version: April 2005

Corresponding author: Mingsheng Li, Department of Economics and Finance, College of Business Administration, University of Louisiana at Monroe, Monroe, LA 71209. Phone: 318-342-1169; Fax: 318-342-3096; E-mail: mingli@ulm.edu.

A Clinical Analysis of Google's Initial Public Offering

Abstract

Using the recent IPO of Google as an example, we provide empirical evidence to better understand issuers' decision process at the IPO stage. Our results suggest that Google timed its offering based on both the general market and the IPO market conditions. Selling shareholders took advantage of information gathered during the registration process and adjusted the number of secondary shares offered to maximize their wealth. We also show that IPO investors' investment increased the existing shareholders' wealth before trades started in the secondary market. The new issues diluted the existing shareholders' ownership, while the dilution on voting power was negligible.

Key words: Initial public offerings; ownership dilution; IPO clustering, voting power

JEL classification: G12, G14, G30, G39

1. Introduction

The initial public offering (IPO) is an important milestone in the life cycle of a private firm and has significant effects on its ownership structure and the existing (i.e., pre-IPO) shareholders' wealth. Firms go public for many different reasons: to raise capital for future growth and expansion, reduce debts, create a public market for current shareholders, or to rebalance accounts after high investment and growth [Ritter and Welch, 2002; Pagano, Panetta, Zingales, 1998]. Once a firm decides to go public, many important decisions must be made. The common questions include: when is the optimal time to file for registration? When should the offer start? What should be the offer price and how much should the new shares be discounted? How many shares need to be sold? How much money needs to be raised? What should be determined first, the total amount of money to be raised or the offer price and the number of shares to be issued?

A huge body of literature provides comprehensive studies on these issues and many inspiring theories have emerged. In this study, we take a different approach to revisit these issues and provide additional evidence to the existing literature. Unlike previous studies that draw conclusions focusing on one or a few issues based on statistic results by pooling hundreds or even thousands of firms together, we focus on one firm and provide in-depth analyses of the common issues related to most IPOs. We use the recent IPO of Google as our sample and address the following questions:

First, do issuers condition their filing for IPOs on the general market condition or do they time their offerings based on the recent IPO market? Second, do the market return and information collected during the registration period affect issuers' decisions on offer price and shares offered? Third, do the pre-IPO owners take advantage of the information gathered during the registration process and adjust the number of shares that they are willing to sell (secondary)? Or do they have a pre-determined ownership structure so that the number of shares they are selling is independent of the information gathered during the registration period? Fourth, what

premeditated actions do the pre-IPO owners take to maximize their wealth at the IPO? Fifth, given the well-documented underpricing and the huge amount of money left on the table by issuing firms, how do IPOs affect an issuing firm's value and its existing shareholders' wealth before the true value is realized in the aftermarket? Finally, how significant is the effect of an IPO on the ownership and voting power dilution of the existing shareholders?

Although the results based on one specific firm may not be representative, this in-depth study is important for several reasons. First, Google's search engine is used by millions of people daily. Its popularity is incomparable to that of any other firm in IPO history. As an example, a national TV host notes: "*It may seem bizarre, even blasphemous, but some people compare Google to God.*" This parity is made because, "*Google knows everything, goes everywhere, and is available to everyone in need.*"¹ Second, unlike most other firms that use "bookbuilding" as their IPO pricing process, Google set its offer price through an unorthodox auction. This difference affects offer price, the participants of investors, and the wealth of the existing and selling shareholders. Third, Google offered only Class A common shares at the IPO, while its pre-IPO owners held a huge amount of Class B common shares. This unusual dual-class structure of the common shares had a significant effect on the new investors' voting power and management control.

2. Background Information

Google Inc.

Google was founded by two Stanford University students and incorporated in California in September 1998. It provides Internet surfers with a simple and convenient way to search for information. It maintains the world's largest online index of Web sites and helps people get nearly instant search information from the vast online index free of charge. Its main source of revenue comes from selling text advertising through a simple, not flashy, quick-loading layout.

¹ CNN News, International, "Google Goes Public," Insight 11:00 PM (EST), July 14, 2004.

Advertisers pay Google a fee each time a user clicks on the ads displayed either on Google's Web sites or on the Web sites of its participating network members. Google's revenue increased from \$220,000 in 1999 to \$1.35 billion in the first six months of 2004.

Google filed its IPO with the Securities and Exchange Commission (SEC) April 29, 2004 and started trading August 19, 2004. The new shares were priced at \$85 per share and surged at \$100.01 per share when trades started on the Nasdaq market, which is \$15.01 higher than the offer price. The first-day trading price ended at \$100.34 at market closing. Investors who held the new shares realized a one-day return of 18.05% at the closing of the first day's trading.

Auction vs. bookbuilding

The prevailing IPO pricing procedure used in the United States is bookbuilding, which mainly consists of five steps: (1) selecting a book-running manager and co-managers; (2) filing the registration with the SEC; (3) marketing the offering by distributing the prospectus and holding a road show; (4) pricing and allocating shares; and (5) conducting aftermarket supports by the underwriter-market maker (stabilization and over-allotment options) [see Ellis, Michaely, and O'Hara, 2000]. During the road show, the underwriter receives bids from investors. However, the bids are only an indication of interests, not binding commitments. The day before the issuing date and after the market closing, the lead underwriter and the issuing firm discuss the final offer price and the number of shares to be offered. The issuing firm and the underwriter have complete discretion on share allocation.

Unlike most firms in the United States, Google adopted an auction process for pricing its IPO. The founders explained the reasons for using an auction in the cover letter to the SEC: "*It is important to us to have a fair process for our IPO that is inclusive of both small and large investors. It is also crucial that we achieve a good outcome for Google and its current shareholders.*" The auction was conducted in five stages. The general procedure is explained as the follows:

(1) *Qualification*. To qualify for submitting bids, investors are required to obtain a unique bidder ID and to meet an underwriter's account eligibility and suitability requirements. (2) *Bidding*. Once the auction commences, all qualified investors may submit bids indicating the price and the number of shares they are willing to purchase. Investors have the ability to modify any bid until the auction is closed and to withdraw a bid until the bid is accepted. (3) *Auction Closing*. The issuing firm and the underwriter accept successful bids and close the auction after the SEC declares the registration statement effective. Once the acceptance notice is sent out, successful investors are obliged to purchase the shares allocated to them in the allocation process. (4) *Pricing*. The final offer price is based on the clearing price revealed through the bidding process. However, the issuing firm and the underwriter have the discretion to set the offer price below the clearing price. (5) *Allocation*. All investors with successful bids will receive an allocation of shares based on either pro rata allocation or maximum share allocation.²

Bookbuilding is similar to an auction to the extent that the bookbuilding process solicits bids or indication of interest from potential investors. However, two key differences exist. First, in the bookbuilding process, the pricing and allocations rules are not announced, but are left to the discretion of the underwriter and issuer. Second, investors' bids are not a firm commitment for purchase, but merely an indication of interest. These differences affect underpricing and the participants of investors.

3. Data and Empirical Results

In this section, we provide detailed analyses on the questions raised in the introduction. We collect Google's filing data from the SEC's Electronic Data Gathering, Analysis, and Retrieval (EDGAR) system. To analyze whether market condition affects its filing decision, we use the daily closing prices of the NYSE composite index and S&P 500 index as proxies for

² According to CBS Market Watch (August 19, 2004), Google did not publicly disclose the allocation method it ultimately employed.

market condition. We obtain the daily closing prices of the NYSE composite index and S&P 500 index from NYSE and Standard & Poor's Web site, respectively. The daily closing prices up to December 2003 are verified with the most recent data available from the Center for Research in Security Prices (CRSP). The monthly number of IPOs and the average initial return are retrieved from Thomson Financial new issues database.

3.1. Market Timing of IPO

Many studies investigate whether firms condition equity offerings on market return. Loughran, Ritter, and Rydqvist (1994) find that IPO volumes are higher following periods of high market return. Baker and Wurgler (2000) show that firms issue more equity after a year of high return and before years of low market return. Lowry (2002) finds that a higher market-wide market-to-book (MB) ratio and higher market return are associated with higher IPO volume. Firms condition their equity offering on market return because a high market return indicates increases in investment opportunities or an increase in investors' optimism.

In this study, we revisit this issue using Google's IPO. Figure 1 presents the intertemporal changes in the daily closing price of the NYSE composite index and S&P 500 index. Since Google filed its registration with the SEC April 29, 2004, we analyze these indexes from May 1, 2003 (one-year prior to the filing) to August 18, 2004 (the offering day). It is obvious that the market return increased significantly during the one-year period prior to the filing day. As an example, the NYSE composite index increased by 25.9%, from 5,126 on May 1, 2003 to 6,452 on April 29, 2004. It peaked at 6,715 (a 31% increase) on April 5, 2004, two weeks before Google's filing. Similarly, the S&P 500 experienced an increase of 34.6%, from 1,019 on May 1, 2003 to 1,372 on April 29, 2004. This evidence confirms previous findings that firms tend to issue equity after high market return.

Other studies have analyzed whether a firm's decision to go public is affected by the current IPO market. A recent study by Lowry and Schwert (2002) shows that periods of high and

rising initial returns are followed by more IPOs. The positive relationship between the initial return and the subsequent IPO volume is due to information externality. The information gathered by the issuer and its underwriters during the bookbuilding process affects not only the pricing of that new issue but also the number of private firms issuing equity in the near future. More positive information in the form of higher expected valuations results in a higher initial return for the new issue and more companies filing for IPO thereafter. Benveniste, Busaba, and Wilhelm (2002) and Benveniste, Ljungqvist, Wilhelm, and Yu (2003) find that potential issuers benefit from information about a common valuation factor that spills over from the marketing efforts of other firms attempting public offerings. The information spillover leads potential issuers to attempt IPOs.

In light of those studies, we investigate whether Google filed its IPO to follow the IPO market trend. Figure 2 shows the number of IPOs and the average initial return in each month from May 2003 to August 19, 2004. Several things are noticeable. First, the IPO volume fluctuates over time and has a seasonal pattern. It appears that there are fewer IPOs in the first quarter of a year than in the later quarters. Second, after controlling for seasonal effect, IPO volume still shows a significant increase from 2003 to 2004. For example, only one IPO came to the market during the first quarter of 2003, whereas 36 IPOs were issued during the first quarter of 2004. The increase in the second quarter of 2004 is more pronounced. There were 70 IPOs in the second quarter of 2004, but only 12 IPOs in the second quarter of 2003. Third, IPO volume and initial return are negatively correlated, indicating that issuers benefit from small underpricing due to information spillover from the most recent IPOs.

These results help draw two preliminary conclusions. First, Google conditioned its IPO on the market condition and filed its registration after the stock market experienced an abnormal return (an annual return of 34.5% on the S&P 500 index and 25.9% on the NYSE composite index). Second, consistent with the IPO clustering, Google issued its IPO when IPO volume was

high. A caveat is in order. By drawing these conclusions, we do not intend to exclude other reasons why Google filed its IPO in this time period.

3.2. Information production and partial adjustment of offer price

Benveniste and Spindt (1989) argue that underwriters solicit information from informed investors about the expected value and market demand for the new issue and adjust the offer price accordingly. Thus, underpricing is used to reward the informed investors for revealing their private information in the bookbuilding process. Similarly, Sherman and Titman (2002) and Sherman (2003) suggest that underpricing is the payment to IPO investors for the amount of information they produce. Hanley (1993) finds that the adjustment of offer price relative to the initial filing range reveals investors' private information and is positively related to initial return. Similarly, Bradley and Jordan (2002) show that public information before the offer day predicts 35% to 50% of the variation in IPO initial return.

In this section, we analyze how Google amended its filings and adjusted the offering. This analysis helps infer the information collected during the registration process, since this information is not observable by the public. Table 1 presents Google's detailed filing information. Google first filed S-1 Form with the SEC April 29, 2004 and made nine subsequent amendments (S-1/A Form) before it filed 424B4 August 19, 2004. In the original filing (S-1 Form) and the first three subsequent amendments (up to July 12, 2004), neither the price range nor the number of shares offered was provided; only the proposed maximum aggregate offering amount (\$2.72 billion) was reported.³

The number of shares offered (24.6 million) and the price range (\$108-\$135) first appeared in the amendment filed July 26, 2004. In this amendment, the proposed maximum offering increased from \$2.72 billion in the previous amendment to \$3.82 billion. The secondary

³ It is noted on the prospectus that the proposed maximum offering amount is reported solely for the purpose of calculating the registration fee. Actually, this amount is the product of the total number of shares registered and the maximum offer price.

shares offered increased from 10.49 million to 11.56 million in the amendment filed August 9, 2004. In all the subsequent amendments up to August 16, 2004, both the filing range and shares offered remained the same. On August 18, 2004, one day before the offering, Google reduced both the filing range (from \$108 ~ \$135 to \$85 ~ \$95) and secondary shares offered (from 11.56 million to 5.46 million). The primary shares remained the same (14.14 million). The total number of shares offered was also reduced due to the reduction of secondary shares. The final offer price was set at the lower end of the filing range (\$85).

Although how the decision was made and what information was collected during the auction process are not available to investors, the detailed filings and amendments help reach the following conclusions. First, Google determined the amount of money to be raised before it decided on the offer price and shares to be offered. Or, at least, it did not want to report the offer price and the number of shares offered in the earlier filings for whatever reasons. Second, the reduction in the number of shares offered and the lowered filing price range indicate that the original filing price was over-priced. Third, the negative information revealed during the registration period is also associated with the declining market condition. During the registration process, from original filing (April 29, 2004) to the filing of 424B4 (August 19, 2004), the daily cumulative return on the NYSE composite index was -1.78% and the return on the S&P 500 index was -3.12% . This suggests that market condition during registration affects investors' sentiment, which, in turn, influences issuing firms' decisions on initial offerings.

According to the partial adjustment theory and empirical evidence of Hanley (1993) and Bradley and Jordan (2002), the adjustment of the offering price relative to the initial filing range predicts the first day return in the aftermarket. In contrast to these studies, Google lowered its filing range from \$108 ~ \$135 to \$85 ~ \$95 and offered its shares at the lower end of the reduced price range (\$85), but it experienced an initial return of 18.05%. We theorize that the reduction of secondary shares offered at the IPO alleviated the negative effect of the down-forward

adjustment of offer price, since the reduction of secondary shares suggests that the new shares were underpriced.

3.3. Issuing firms' wealth-maximizing strategies

Regardless of the reasons for going public, issuing firms want to issue the new shares at the highest possible price (a small discount). The amount of discount is also affected by the pre-IPO owners' participation in the offering. Habib and Ljungqvist (2001) find that the discount is negatively related to the proportion of shares sold by the pre-IPO owners to the total shares offered. However, insider selling per se sends out a negative signal that the shares are overvalued. Consequently, the insiders may not sell their shares at the expected value.

A recent study by Ang and Brau (2003) shows that insiders take premeditated actions to maximize their wealth at the IPO. To reduce the negative signal of insider selling, insiders frequently *underreport* the number of secondary shares they intend to sell in the prominent original filing and use less visible ways to report the true level of shares to be offered. Insiders also conceal their actions by adjusting the mix of secondary and primary shares strategically. To make it less visible, they keep the total number of shares offered relatively unchanged by adjusting (*switching*) primary shares to offset secondary shares. Insiders also take advantage of new information revealed during the bookbuilding and road show process. If the IPO investors' valuation is higher than the insiders expected (i.e., overpriced due to strong market demand), the insiders increase (reduce) secondary (primary) shares to cash out their overpriced shares. In contrast, if the price is lower than insiders expected (i.e., underpriced due to weak market demand), the insiders reduce the secondary shares and increase the primary shares in the final offer.

In the case of Google's IPO, the evidence does not fully support that Google underreported the secondary shares. The number of secondary shares (10.49 million) was first reported in the amendment filed July 26, 2004 and it increased by more than one million shares in the

following amendment (August 9, 2004). The number of secondary shares finally offered was cut to 5.46 million. The evidence does not show any switching strategy used by Google. The number of primary shares (14.14 million) remained the same in all the amendments. However, the reduction in the number of secondary shares does show that insiders took advantage of the information collected during the registration process. They withdrew half of the shares when the final offering range (\$85 to \$95) did not meet their original expectation (\$108 to \$135). This suggests that negative information was revealed during the auction process.

3.4. The wealth effects and ownership dilution

Overwhelming evidence shows that IPOs are highly discounted and issuing firms leave huge amounts of money on the table. The common and intuitive explanation for the IPO underpricing is that issuers put money on the table and the IPO investors get the benefits. For example, Loughran and Ritter (2002) find that the average first day return is 14% and firms leave \$9.1 million on the table on average for each IPO. Similarly, Habib and Ljungqvist (2001) report that the average wealth losses for the issuing firms are \$6.5 million due to the presence of highly underpriced offerings. The prospect theory of Loughran and Ritter (2002) suggests that issuers do not get upset about leaving money on the table because their wealth increases after price jumps in the aftermarket and the increase is larger than the loss of underpricing.

Most of the previous studies rely on comparing the offer price (or the midpoint of original filing) with the aftermarket price. We take a different approach to analyze pre-IPO owners' wealth change. We compare the net tangible book value (NTBV) per share before and after the IPO allocation, but before trades start in the aftermarket. This *ex ante* analysis is more reasonable than the *ex post* analysis, since neither the pre-IPO owners nor the investors know what the aftermarket price will be. However, the risk faced by the IPO investors is greater than that faced by the pre-IPO owners; the pre-IPO owners' wealth increases as long as the offer price

is greater than the NTBV before the IPO, whereas IPO investors gain only when the aftermarket price is higher than the offer price.

Table 2 summarizes the results. The net tangible book value per share was \$3.55 before IPO and \$7.66 after IPO (Panel A). This indicates that the pre-IPO owners' wealth increased by \$4.11 per share or 115.77% because of the offering. In contrast, the IPO investor's investment was diluted by 90.99%. These investors were allocated with the new issues at \$85 per share, but the net tangible book value was only \$7.66 per share (Panel B). Alternatively, the pre-IPO owners as a group experienced a \$1,056 million (257 million shares x \$4.11 per share) increase in net tangible assets before trades started in the secondary market.

Another issue related to initial public offerings is ownership dilution. The conventional wisdom is that the new shares issued through IPO dilute the pre-IPO shareholders' ownership. Table 2, Panel C shows that the existing shareholders held 94.8% of the firm after the IPO, i.e., a 5.2% reduction in ownership. However, the small ownership reduction was substantially rewarded by the IPO investors' cash contribution. The cash contribution of the existing shareholders as a group counted for 6.9% of the total cash contribution, whereas the contribution by the IPO investors counted for 93.1%.

These results offer a different explanation for why issuing firms do not get upset about leaving money "on the table."⁴ Loughran and Ritter (2002) argue that issuing firms do not get upset about leaving money on the table because the price jump in the aftermarket results in a net increase in wealth for the pre-IPO shareholders. Our results suggest that the pre-IPO owners experience significant wealth increase even before price jumps in the aftermarket. In addition, the

⁴ Many theories have emerged to explain why issuers are willing to put money on the table. Issuers use underpricing to send signals to investors and distinguish themselves from low quality firms (Allen and Faulhaber, 1989; Welch, 1989; and Grinblatt and Hwang, 1989), to avoid potential legal liabilities (Tinic, 1988; and Hughes and Thakor, 1992). Underpricing could increase ownership dispersion and improve aftermarket liquidity (Booth and Chua, 1996), and attract large institutional investors (blockholders) who provide monitoring service and help mitigate agency problems between managers and shareholders (Stoughton and Zechner, 1998). Underpricing could also create information momentum by attracting financial analysts' coverage, which shifts the demand curve for the stock outward and allows the managers to sell shares at higher prices at the lockup expiration (Aggarwal, Kriman, and Womack, 2002).

substantial cash contribution (over 93%) by the IPO investors is another reason why the existing shareholders are willing to accept the ownership dilution (5.2%).

3.5. Voting power dilution and management control

Showing that the existing shareholders' ownership is diluted by 5.2%, however, does not necessarily mean that the voting power is diluted by the same proportion. The ultimate effect on management control depends on the share structure and type of stocks owned by the pre-IPO owners. Google adopted a dual-class stock system, in which Class A common stocks are entitled to one vote per share and Class B common stocks are entitled to ten votes per share. One share of Class B common stock is convertible to one share of Class A stock at any time.

Table 3 presents voting power changes for the existing shareholders and major shareholders before and after the IPO. The new IPO investors held more than 19.6 million shares of Class A common stock, while the existing shareholders held more than 241.9 million shares of Class B common stock before the IPO (Panel A) and more than 237.6 million shares of Class B common stock after the IPO (Panel B). As a result, the exiting shareholders as a group experienced only 0.8% dilution in voting power, from 100% before the IPO to 99.2% after the IPO. The voting power of all insiders (including all executive officers and directors, for a total of 15 people) was 61.7% before the IPO and 61.4% after the IPO, a 0.3% reduction. Similarly, the 5% equity holders' voting power dilution was marginal, from 20.9% before the IPO to 20.7% after the IPO.

These results show that although the existing shareholders' ownership was diluted by 5.2% due to the issuing of new shares, the ownership dilution had almost no effect on the voting power of the existing shareholders. This confirms the notes in the founders' cover letter to the SEC: *"In the transition to public ownership, we have set up a corporate structure that will make it harder for outside parties to take over or influence Google...New investors will fully share in*

Google's long term economic future but will have little ability to influence its strategic decisions through their voting power."

This evidence suggests that the common wisdom about dilution on existing shareholders' voting power needs to be interpreted with caution. The dilution of the existing shareholders' ownership does not necessarily lead to the same degree of dilution of voting power. The ultimate effect of issuing new shares on voting power depends on the share structure, the proportion of shares in each class of common stocks held by the existing shareholders and the new investors, and the number of votes per share entitled to the stocks held by the IPO investors.

4. Conclusions

Going public involves many important decisions that have significant effects on both the existing shareholders and the IPO investors. Among the common issues related to most IPOs, we address the following questions: do the general market condition and the recent IPO volume affect the timing of the offering? How does the information collected during the registration period influence the offering price, the total number of shares offered, and the mixture of shares offered? What actions do insiders take to maximize their wealth at the IPO? How does the IPO investors' cash contribution impact the existing shareholders' wealth? What are the effects of new issuing on the dilution of the existing shareholders' ownership and voting power?

The main findings and the implications from our clinical study and in-depth analyses of Google's recent IPO are:

- 1) Google filed its IPO registration after substantial market growth and conducted its offering when the IPO volume was high. This finding is consistent with the IPO clustering documented in the literature.
- 2) The information gathered during the registration process played an important role in the decision on the offer price and the shares offered. The existing shareholders took advantage of the information gathered and adjusted the number of secondary shares

- strategically. The existing selling shareholders reduced the number of shares they were willing to sell when the offer price was below their expectations. This supports the argument that insiders take action to maximize their wealth at the IPO process.
- 3) In contrast to the partial adjustment theory, Google lowered its filing range of offer price and priced the new shares at the lower end of the reduced filing range, but its stocks experienced an initial return of 18.05%. This negative relation was likely due to the reduction of secondary shares offered, which suggests that the new issue was underpriced. This positive information boosted market demand in the aftermarket.
 - 4) Before trades started and the true price was revealed in the aftermarket, the existing shareholders experienced a wealth increase of more than 115% measured by the changes in the net tangible book value per share before and after the IPO allocation. In sharp contrast, the IPO investors' investment was diluted by more than 90%. They purchased the new shares at \$85 per share, while the net tangible book value including their cash contribution was only \$7.66 per share. This provides additional explanation for why the existing shareholders do not get upset about leaving money on the table.
 - 5) Although the existing shareholders' ownership was diluted by 5.2%, the reduction in their voting power was minimal (0.8%) due to the dual-class share structure and the enormous amount of Class-B shares held by the existing shareholders. Similarly, the reduction in voting power of insiders (executive officers and directors as a group) and the 5% equity holders was negligible.

References

Aggarwal, Rajesh, Laurie Krigman, and Kent L. Womack, 2002, Strategic IPO underpricing, information momentum, and lockup expiration selling, *Journal of Financial Economics* 65, 105-137.

Allen, Franklin, Gerald R. Faulhaber, 1989, Signaling by underpricing in the IPO market, *Journal of Financial Economics* 23, 303-323.

Ang, James S., and James C. Brau, Concealing and confounding adverse signals: insider wealth-maximizing behavior in the IPO process. *Journal of Financial Economics* 67, 149-172.

Baker, Malcolm, and Jeffrey Wurgler, 2000, The equity shares in new issues and aggregate stock returns, *The Journal of Finance* 55, 2219-2257.

Benveniste, Lawrence, Walid Busaba, and William Wilhelm, 2002, Information externalities and the role of underwriters in primary equity markets, *Journal of Financial Intermediation* 11, 61-86.

Benveniste, Lawrence, Alexander Ljungqvist, William Wilhelm, and Xiaoyun Yu, 2003, Evidence of information spillovers in the production of investment banking services, *The Journal of Finance* 58, 577-608.

Benveniste, Lawrence M., and Paul A. Spindt, 1989, How investment bankers determine the offer price and allocation of new issues, *Journal of Financial Economics* 24, 343-361.

Booth, James R. and Lena Chua (1996). Ownership dispersion, costly information, and IPO underpricing. *Journal of Financial Economics* 46, 291-310.

Bradley, Daniel, and Bradford Jordan, 2002, Partial adjustment to public information and IPO underpricing, *Journal of Financial and Quantitative Analysis* 37, 595-616.

Ellis, Katrina, Roni Michaely, and Maureen O'Hara, 2000, When the underwriter is the market maker: an examination of trading in the IPO aftermarket, *The Journal of Finance* 55, 1039-1074.

Grinblatt, Mark, Chuan Y. Hwang, 1989, Signaling and the pricing of new issues, *The Journal of Finance* 44, 393-420.

Habib, Michel, Alexander Ljungqvist, 2001, Underpricing and entrepreneurial wealth losses in IPOs: theory and evidence, *The Review of Financial Studies* 14, 433-458.

Hanley, Kathleen Weiss, 1993, The underpricing of initial public offerings and the partial adjustment phenomenon, *Journal of Financial Economics* 34, 231-250.

Hughes, Patricia J., Anjan V. Thakor, 1992, Litigation risk, intermediation, and the underpricing of initial public offerings, *Review of Financial Studies* 5, 709-742.

Loughran, Tim, Jay R. Ritter, 2002, Why don't issuers get upset about leaving money on the table in IPOs? *Review of Financial Studies* 15, 413-443.

Loughran, Tim, Jay R. Ritter, and Kristian Rydqvist, 1994, Initial public offerings: international insights, *Pacific Basin Finance Journal* 2, 165-199.

Lowry, Michelle, 2002, Why does IPO volume fluctuate so much? *Journal of Financial Economics* 67, 3-40.

Lowry, Michelle, and William Schwert, 2002, IPO market cycles: bubbles or sequential learning? *The Journal of Finance* 57, 1171-1200.

Pagano, Marco, Fabio Panetta, Luigi Zingales, 1998, Why do companies go public? An empirical analysis, *The Journal of Finance* 53, 27-64.

Ritter, Jay, and Ivo Welch, 2002, A Review of IPO activity, pricing and allocation, *The Journal of Finance* 57, 1795-1828.

Sherman, Ann, 2003. Global trends in IPO methods: book building vs. auction with endogenous entry. Working paper. University of Notre Dame.

Sherman, Ann, Sheridan Titman, 2002. Building the IPO order book: underpricing and participation limits with costly information. *Journal of Financial Economics* 65, 3-29.

Stoughton, Neal M., Josef Zechner (1998). IPO-mechanisms, monitoring and ownership structure. *Journal of Financial Economics* 49, 45-77.

Tinic, Seha M., 1988, Anatomy of initial public offerings of common stock, *Journal of Finance* 43, 789-822.

Welch, Ivo, 1989, Seasoned offerings, imitation costs, and the underpricing of initial public offerings, *Journal of Finance* 44, 421-450.

Figure 1: Daily Closing Price of NYSE Composite Index and S&P 500

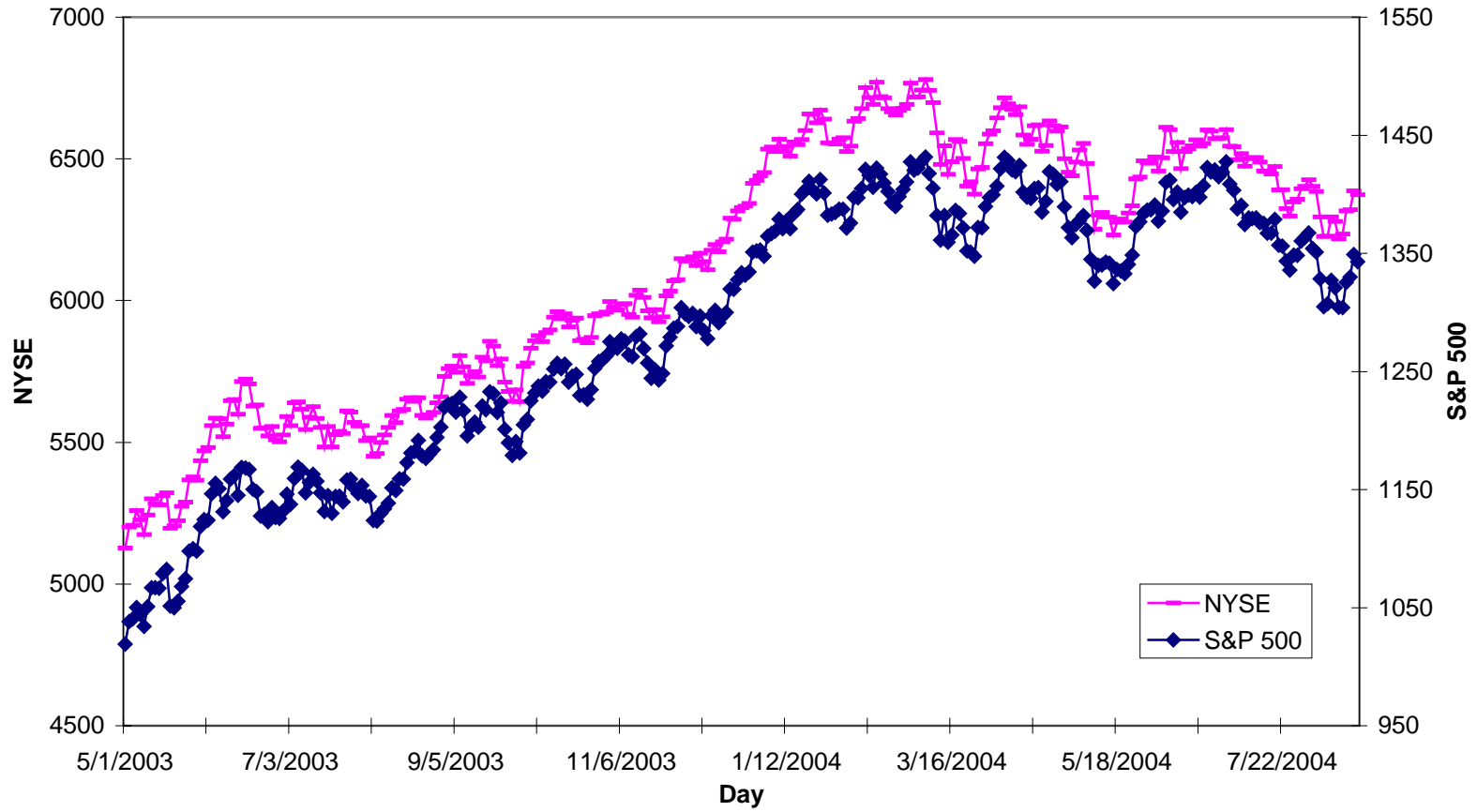


Figure 2: Monthly IPO statistics

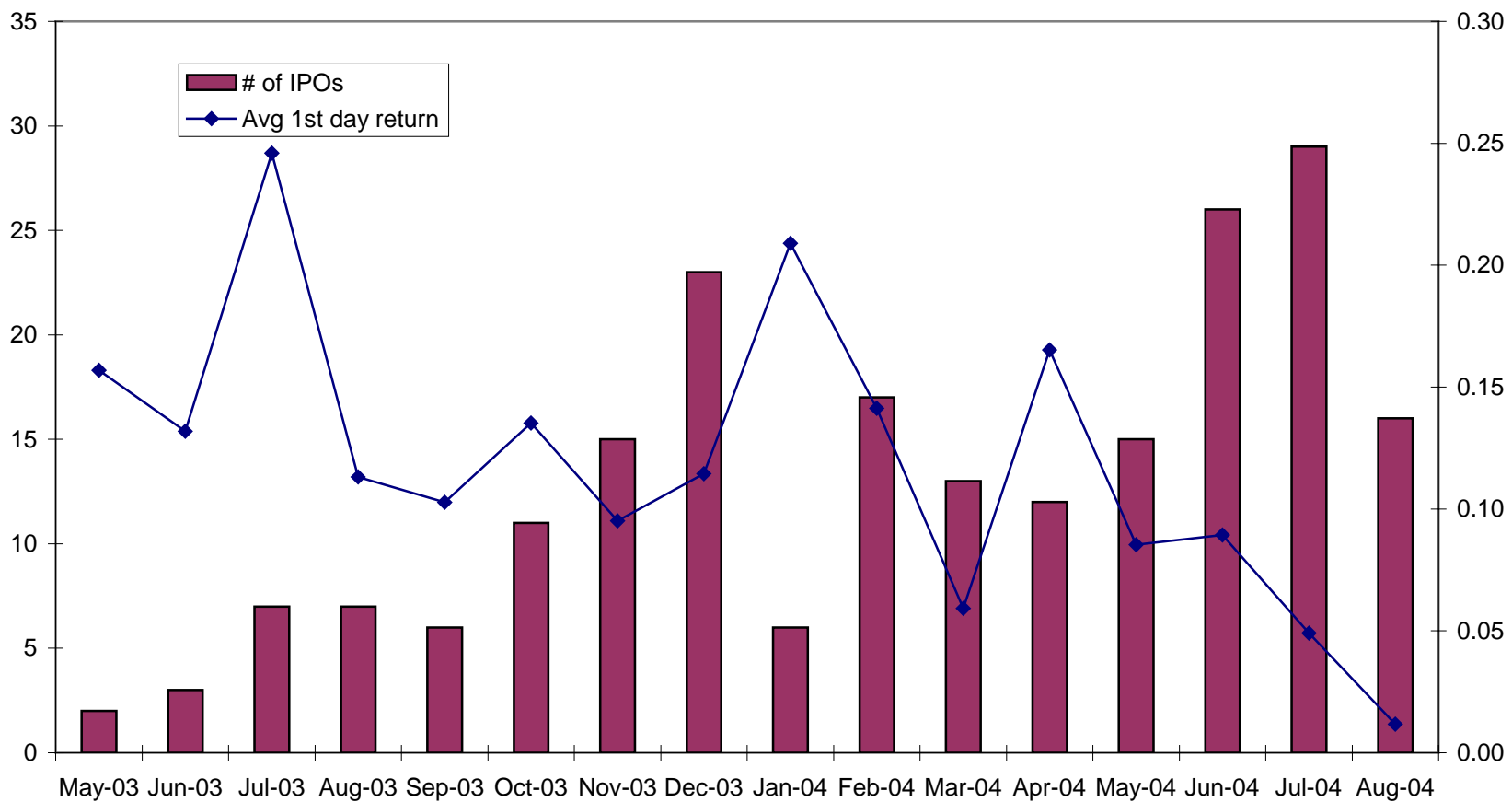


Table 1
Market condition and filing amendments

This table reports the data related to original filing (S-1), amendments (S-1/A), and final filing (424B4) for Google's IPO. We use the daily closing price of the NYSE composite index and S&P 500 index as a measure of general market condition. The filing data are collected from EDGAR online. The daily closing price of the NYSE composite index and S&P 500 index are obtained from the respective Web sites of the NYSE and S&P.

Date	Filing Form	Proposed max aggregate offering ^a (\$)	Total # of shares offered	Primary shares offered	Secondary shares offered	Offer price-low (\$)	Offer price-high (\$)	NYSE composite index	S&P 500 index
4/29/04	S-1	\$2,718,218,828	N/A	N/A	N/A	N/A	N/A	6,452.23	1,371.89
5/21/04	S-1/A	2,718,218,828	N/A	N/A	N/A	N/A	N/A	6,308.12	1,340.72
6/21/04	S-1/A	2,718,218,828	N/A	N/A	N/A	N/A	N/A	6,545.16	1,397.47
7/12/04	S-1/A	2,718,218,828	N/A	N/A	N/A	N/A	N/A	6,503.78	1,379.46
7/26/04	S-1/A	3,824,841,195	24,636,659	14,142,135	10,494,524	108	135	6,297.64	1,335.78
8/9/04	S-1/A	3,989,541,195	25,697,529	14,142,135	11,555,394	108	135	6,227.55	1,307.30
8/11/04	S-1/A	3,989,541,195	25,697,529	14,142,135	11,555,394	108	135	6,278.60	1,320.72
8/13/04	S-1/A	3,989,541,195	25,697,529	14,142,135	11,555,394	108	135	6,234.84	1,304.03
8/16/04	S-1/A	3,989,541,195	25,697,529	14,142,135	11,555,394	108	135	6,315.91	1,325.46
8/18/04	S-1/A	N/A	19,605,052	14,142,135	5,462,917	85	95	6,386.73	1,348.96
8/19/04	424B4	N/A	19,605,052	14,142,135	5,462,917	85 (final offer price)		6,372.63	1,342.92

a. Reported for estimating the amount of registration fee based on the total number of shares registered and the offer price at the upper range.

Table 2
Ownership and wealth change due to IPO allocation

The existing shareholders' wealth change due to the IPO is measured by the change of net tangible book value per share (NTBV) after IPO allocation but before trade starts in the secondary market. The new shareholders' wealth change is measured by the difference between the offer price and the NTBV per share after the IPO allocation but before trade started. Total cash contribution is reported as total consideration in the Prospectus.

Panel A: Existing shareholders' wealth change before trade started				
NTBV per share before IPO allocation (\$)	NTBV per share after IPO allocation	Net change in NTBV		
		Amount (\$)	%	
3.55	7.66	4.11	115.77%	
Panel B: New shareholders' wealth change before trade started				
Offer price per share (\$)	NTBV per share after IPO allocation (\$)	Net change		
		Amount (\$)	%	
85	7.66	-77.34	-90.99%	
Panel C: Ownership and cash contribution				
	Ownership		Total cash contribution	
	# of shares	%	Amount (\$) (000)	%
Existing shareholder	257,077,508	94.8	89,523	6.9
New shareholder	14,142,145	5.2	1,202,081	93.1
Total	271,219,643	100	1,291,604	100

Table 3
Voting power of existing shareholders

We collect the number of shares of Class A common stocks offered through the IPO and the number of shares of Class A and Class B common stocks outstanding after the IPO from the offering section of Prospectus. Insiders holding (all executive officers and directors) and 5% security holders' data are copied directly from the *Principal and Selling Stockholders* section of Prospectus. ^a Each share of Class A stock is entitled to one vote. Each share of Class B stock is entitled to 10 votes and is convertible at any time into one share of Class A common stock.

		All existing shareholders	Insiders (officers & directors)	5% equity holders
Panel A: Before IPO allocation				
Class A	Shares	19,461,251 ^b	157,000	3,746,834
Class B	Shares	241,956,117	151,281,553	50,436,395
Total	Shares	261,417,368	151,438,553	54,183,229
Voting power		100	61.7	20.9
Panel B: After IPO allocation				
Class A	Shares	13,998,334 ^c	157,000	2,685,964
Class B	Shares	237,616,257	149,236,902	49,886,507
Total	Shares	251,614,591	149,393,902	52,572,471
Voting power	%	99.2	61.4	20.7
Panel C: Changes in voting power due to the IPO				
Voting power	%	-0.8	-0.3	-0.2

- Applicable percentage ownership for insiders and 5% security holders is based on 22,359,204 shares of Class A common stock and 241,956,117 shares of Class B common stock outstanding on June 30, 2004. The Class A and Class B stocks are assumed to be 33,603,386 shares and 237,616,257 shares after the completion of the offering.
- The number of shares of Class A common stocks before the IPO is computed as: total Class A common stocks outstanding after the IPO – total Class A common stocks issued + Class A common stocks sold by the existing stockholders (33,603,386 – 19,605,052 + 5,462,917). This number is slightly different from the number reported in the Principal and Selling Stockholders section.
- Class A common stocks held by the existing stockholders after the IPO is the difference between the Class A common stocks before the IPO and the Class A common stocks sold by the existing stockholders through the IPO.