

# Allocation of initial public offerings and flipping activity

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## Abstract

There is a general perception that the large trading volume in initial public offerings is mostly due to “flippers” that are allocated shares in the offering and immediately resell them. On average, however, flipping accounts for only 19% of trading volume and 15% of shares offered during the first two days of trading. Institutions do more flipping than retail customers and hot IPOs are flipped much more than cold IPOs. Institutions do not quickly flip cold IPOs to take advantage of price support activities by the underwriter. Explicit penalty bids are rarely assessed against flippers.

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## **Allocation of initial public offerings and flipping activity**

### **1. Introduction**

The stock price performance of initial public offerings (IPOs) has long been a puzzle and researchers are still trying to understand the price behavior of these offerings.<sup>1</sup> On average, IPOs jump up in price considerably on the first day of trading and provide excess returns to investors who are able to buy at the initial offer price and sell immediately in the secondary market. Recent literature examines the activities of underwriters in the aftermarket.<sup>2</sup> These activities are generally referred to as stabilization activities because they provide price support for weak offerings that tend to trade at or below their offer price. Stabilization activities include exercise of the overallotment option, short covering in the aftermarket, and the use of penalty bids to restrict flipping.

This paper integrates the literature on underpricing of IPOs and aftermarket activities. The initial stock price performance of IPOs partly depends on how shares are priced, how they are allocated, and what investors do with these shares. Investment banks have the discretion to allocate IPO shares, and investors have the option to hold onto their allocated shares or to sell

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<sup>1</sup> See Aggarwal and Rivoli (1990) and Ritter (1991) for short-run and long-run performance.

<sup>2</sup> For example, see Aggarwal (2000), Aggarwal and Conroy (2000), Aggarwal, Prabhala, and Puri (2002), Benveniste and Busaba (1997), Ellis, Michaely, and O'Hara (2000), Krigman, Shaw, and Womack (1999), Logue, Rogalski, Seward, and Foster-Johnson (2002), Benveniste, Busaba, and Wilhelm (1996), Hanley, Lee, and Seguin (1996), Hanley, Kumar and Seguin (1993), Chowdhry and Nanda (1996), Benveniste, Erdal, and Wilhelm (1998), and Houge, Loughran, Suchanek, and Yan (2001).

them immediately in the aftermarket.<sup>3</sup> Investors who sell their shares in the first few days after trading begins are referred to as flippers and investment banks have implemented schemes to discourage flipping because this activity puts downward pressure on the stock price. Flipping is the term used when shares are sold in the immediate aftermarket by investors who receive an initial allocation at the offer price and does not include purchases in the aftermarket. The lead underwriter does not disclose the proportion of shares allocated to institutions versus individuals, and the public does not know who has flipped shares. However, the lead underwriter and each syndicate member maintain a detailed account of initial allocations and each customer's flipping activity.

A recent article in the *Wall Street Journal* reported, "Traditionally, individuals get between 10% and 20% of IPO shares at the offer price" (*Wall Street Journal*, February 28, 2000, p. C21). Another article reported that 60% of the IPO of AT&T Wireless Group was allocated to institutions and 40% was allocated to retail customers (including a large allocation to employees):

Trading volume was high: More than 137.4 million shares changed hands on the Big Board, making it the most active stock on the exchange. That indicates that many institutional investors who received shares on the offering were immediately "flipping" them to cash in. (*Wall Street Journal*, April 28, 2000, p. C19)

In the case of the Goldman Sachs IPO in May 1999, the shares reportedly were placed "with a group of institutional investors and rich individuals who Goldman believed would remain loyal, long-term holders and not flip the stock after its offering" (*Wall Street Journal*, May 5, 1999, p.

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<sup>3</sup> See Smith (1986) for an overview of the capital raising process and the role of underwriters. Sherman (2000) and Sherman and Titman (2002) discuss the book-building method used in IPOs.

C19). Even then trading volume was heavy on the first day, and the financial press concluded that this was due to trading by individuals.

I use a unique data set that permits a comprehensive empirical analysis of the flipping activities of investors after adjusting for allocations made to institutional and retail customers. The perception that heavy trading volume during the first few days of trading in an IPO is due to flippers is not found to be true. I conclude that during the first few trading days, even though trading volume as a percentage of shares offered is high (mean of 81.97% and median of 74.10%), high trading volume is not just due to flipping. On average, flipping accounts for 18.95% (median of 16.67%) of trading volume and 15.00% (median of 7.34%) of shares offered in the IPO. Therefore, the high trading volume is partly a result of other factors, such as buying and selling by investors who are not necessarily original buyers of the IPO, and partly a result of trading activity between market makers. Aggarwal and Conroy (2000) and Ellis, Michaely, and O'Hara (2000) document the important role of market makers, particularly wholesalers, who are dealers/market makers for Nasdaq IPOs and receive payment for order flow. These wholesalers are not original investors in IPOs but are major intraday traders who might conduct several transactions (including taking short positions) in order to satisfy each customer's order and thereby add to trading volume. Geczy, Musto, and Reed (2002) discuss in detail the equity lending market in IPOs and document significant short selling activities in the first few days of trading.

It has generally been argued that large proportions of an IPO are allocated to institutional investors, the so-called "strong hands," because they are long-term investors and will not flip IPOs in the aftermarket. However, institutions are found to consistently flip a much larger percentage of the shares allocated to them than do retail customers. Another open question in the literature is whether flipping occurs more often in hot or cold IPOs. It has been suggested that

institutions are smart investors so they flip more of the cold IPOs during the first few days while the investment bank is still providing price support. I find that institutional investors on average flip 46.74% of the shares allocated to them in IPOs with the highest initial returns and only 19.90% with the lowest initial returns. Retail customers flip 27.86% of the shares allocated to them in IPOs with the highest initial returns and 11.53% in IPOs with the lowest initial returns. Krigman, Shaw, and Womack (1999) find that flipping accounts for a larger proportion of trading volume in weak IPOs than in hot IPOs. However, this result is driven by the low trading volume in weak IPOs (high trading volume in hot IPOs) and is not due to more flipping. True flipping activity can be measured only by relating flipping to initial allocations. Based on my analysis, there is more institutional and retail flipping in hot IPOs.

In the model developed by Fishe (2002) and Boehmer and Fishe (2000), underpricing is necessary for aftermarket liquidity. They argue that underpricing induces flipping and that aftermarket trading produces revenue for the underwriter. Underpricing reduces gross spread income but increases profits from the market-making function. Krigman, Shaw, and Womack (1999) use a proxy to determine seller-initiated block trades (10,000 shares or more) to empirically measure the extent of flipping. Based on their proxy, they find that flipping accounts for 45% of trading volume on the first day of trading for cold IPOs and 22% for hot IPOs. My proportions are much lower than theirs. First, it is possible that seller-initiated block trades are not correctly identified by their algorithm, and it is also possible that all seller-initiated trades are not due to flipping. They also make an adjustment to reflect double counting in the case of Nasdaq volume. Their cutoff size is 10,000 and 5,000 shares, but I find that the average size of institutional flips is less than that.. It is possible that institutions split their orders into smaller sizes in order to reduce the price impact. I particularly find this to be true for hot IPOs. In hot

IPOs, each institution gets only a small proportion of the allocation requested and this can also contribute to the small transaction size of each trade.

Field (1995) finds large variations in institutional holdings of IPOs several months after the offering. My results demonstrate that because there are variations in IPO allocations and in the amount of flipping activity, the findings of Field (1995) and of Hanley and Wilhelm (1995) documenting that institutions are allocated similar proportions of both weak and strong offerings are not inconsistent. Institutions may be initially allocated similar percentages in most IPOs but after six months their ownership can be different due to the larger proportion of flipping in very hot IPOs.

Benveniste and Spindt (1989) argue that investment banks favor allocating shares to informed investors in order to induce them to reveal their private information. Cornelli and Goldreich (2001) find that higher allocations are given to those institutional investors who participate regularly and to those who provide more information (for example, a limit price). The winner's curse model proposed by Rock (1986) predicts that informed investors are allocated a larger proportion of underpriced IPOs. Brennan and Franks (1997) suggest that allocation is done to ensure dispersed ownership. However, Stoughton and Zechner (1998) argue that allocating shares to large blockholders helps to increase firm value. Aggarwal and Dahiya (2000) also argue that institutional participation is necessary for an IPO to be successful. Hanley and Wilhelm (1995) and Ljungqvist and Wilhelm (2002) find that institutions are allocated almost two-thirds of an offering.

The rest of the paper is organized as follows. Section 2 describes the process used by underwriters to allocate shares and the procedures by which they track flipping activity. Section 3 describes the details of the allocation and flipping data, along with the sources for other data

used in the analysis. Section 4 discusses the empirical findings, and Section 5 provides a summary.

## **2. Process of allocations and flipping**

Underwriters perform a number of functions in the IPO process. They initially start by doing due diligence and examining every aspect of the issuing company. The underwriter also arranges the road show, after which the offering is priced. The book-building procedure is used on Wall Street to determine the price and allocation of an IPO. At the road show, senior managers of the issuing company make presentations to potential investors. For example, the Goldman Sachs road show before their IPO in May 1999 involved 38 cities, 18 countries, 63 one-on-one meetings, and 27 group meetings to approximately 1,100 institutional investors. During the road show, the investment bank starts to build the book and gets a sense of the demand for the offering and the type of investors interested in buying it. Based on information provided by potential investors, the underwriter decides how to price the issue and whether to revise the filing range. At this time, investors might also indicate what they will do with their shares. For example, an allocation of only 50,000 shares may be too small for the portfolio of a large mutual fund. Therefore, the mutual fund manager has the option of either buying more shares in the aftermarket or unloading the initial allocation for a quick profit.

Investment banks keep track of flipping activity by investors because the immediate reselling of shares in the aftermarket can exert downward pressure on the stock price, particularly for weak offerings. The lead underwriter considers the impact of flipping in pricing the offering. The road show and the book-building process help the underwriter to estimate demand for an offering. Offerings that are oversubscribed by several times can absorb the flipped shares and still result in the aftermarket price rising above the offer price. Investment banks are frequently pleased to see flipping in hot IPOs because this generates trading

commissions for the firm. However, in the case of weak offerings, they do not want investors to flip the stock. Flipping in weak offerings creates selling pressure that can lower the price even below the offer price. This forces the underwriter to engage in stabilization activities to prevent the stock price from falling below the offer price. Investment banks end up buying flipped shares in the aftermarket. Excessive flipping also implies that shares are not placed with long-term investors and this disappoints the issuer. However, too little flipping can result in a lack of market liquidity and problems in price discovery. It can also mean lower trading profits for market makers in the stock (see, Ellis, Michaely, and O'Hara, 2000).

Consequently, investment banks use a number of methods to deter flipping. These include penalizing flippers by excluding them in future deals (just the threat itself can work) or imposing penalty bids. In a penalty bid, the lead underwriter takes away the commission paid to a syndicate member for selling shares (part of the gross spread) that were flipped by its customers. Each syndicate member receives a selling concession based on the number of shares it sells/distributes. If the syndicate member's customers flip their shares, then the selling concession on those shares is forfeited and credited back to the lead underwriter. The syndicate investment bank in turn takes the commission away from the broker who sold the shares. The lead underwriter decides whether or not to assess a penalty bid. Questions have been raised about the use of penalty bids and whether they are assessed only for shares flipped by retail customers.

Flipping of shares is formally tracked via the Depository Trust Company's (DTC) Initial Public Tracking System (for details, see SEC Release No. 34-37208, May 13, 1996). The system was implemented in June 1996 on a pilot basis and was fully implemented on June 2, 1997. It allows the lead underwriter and syndicate members to monitor flipping activities through two types of reports. The first report, which is sent only to the lead underwriter, contains a list of all

syndicate members whose allocated shares were flipped. This report is generated daily in either hard copy or machine-readable format and contains the sale price, trade date, number of shares, and the clearing agent's participant number. This report does not contain detailed information about customers for other syndicate members. The second report, which is sent to each syndicate member (including the lead underwriter), contains details of the sales transactions of institutional and retail customers.

Although tracking can continue for as long as 120 days, the lead underwriter can request to stop it at any time, and the tendency is to stop it earlier. Even for IPOs that considerably increase in price, the practice is to track for 30 days. (The costs of using the DTC Tracking System are minimal and do not depend on the length of the tracking period.) In such cases, penalty bids might not be imposed, but investment banks like to collect the information for future use. If a customer has positions in the same security purchased in both an IPO and in the secondary market, then shares from the secondary market purchase are used to complete delivery first and are not considered flipped. The DTC IPO Tracking System allows monitoring in a book-entry method and also eliminates the need to distribute physical certificates. The Securities and Exchange Commission (SEC) approved the system reasoning that it should "further aid in the efficiencies of the clearance and settlement system because the IPO Tracking System should reduce costs, risks, and delays associated with the physical delivery of certificates (SEC Release No. 34-37208, May 13, 1996).

### **3. Data**

I used the Securities Data Company (SDC) New Issues database to identify all IPOs that took place during the period May 1997 to June 1998. SEC data on allocation and flipping from the lead underwriter are available only for this period. This proprietary information is not automatically submitted to the SEC but is maintained by the lead investment bank. For the

purpose of this study, the records were requested from nine large and small investment banks for all issues in which they were a lead manager.

A total of 617 IPOs were issued during the period May 1997 to June 1998. The nine investment banks included in the sample took 193 of 617 companies public during the sample period. As shown in Table I, these offerings were bigger in size than the population of all IPOs, with a median offer price of \$15 and a median issue size of \$64.40 million. The median offer price and proceeds are \$12 million and \$36 million, respectively, for the full sample. Because our sample consists of larger IPOs, the average gross spread is lower, although the median gross spread of 7% is equal for both groups. The initial median return of 12.50% is also higher than that of the full sample, 8.98%.

For each offering, the data include both the allocation of shares between retail and institutional clients and information on the flipping activity of retail and institutional investors. Therefore, we know how many retail and institutional clients who originally bought shares then sold them in the aftermarket during the first 30 days. This information was provided only for the clients of the lead underwriter because each syndicate member (including the lead underwriter) gets customer-level details only for its own customers. Therefore, the analysis on retail versus institutional flipping is based on the shares distributed by the lead underwriter. The lead underwriter receives an additional report showing the aggregate flipping activity for each syndicate member, but this does not include client-level details (for example, retail versus institutional customers).

The SDC database provides information on offer price, offer date, offer size, number of shares issued, and underwriter compensation. Much of the data was also checked against the information directly provided by the lead manager for each offering. The data on the size of the

overallotment exercised and the date when the option was exercised were obtained directly from the lead underwriter.

#### **4. Empirical analysis**

##### *4.1. Allocations and flipping*

I first examine trading volume during the first two trading days. Aggarwal and Conroy (2000) show that IPOs typically do not start trading at 9:30 AM when the market opens on the first day of trading; many IPOs start trading after 12:00 PM. They find that hot IPOs start trading later in the day. Therefore, I examine trading volume and flipping activity during the first two days, although extending the time period does not change my findings. Trading volume in the first few days after an IPO starts trading is extremely high but drops off quickly. Trading volume in the first two days is, on average, 81.97% (median of 74.10%) of shares offered. Both researchers and practitioners are aware of this initial high trading volume. Brav and Gompers (2002) and Field and Hanka (2002) find that almost all IPOs have lock-up provisions for 180 days restricting the firm's management and pre-public investors from selling their shares in the immediate aftermarket. Their results suggest that insiders who own large proportions of the stock do not contribute to the initial trading volume and flipping activity. In my sample, the shortest lock-up is 90 days, with the 10<sup>th</sup> and 50<sup>th</sup> percentile being 180 days. These data are gathered from the SEC filings of each issuer. I did not collect data for early release of lock-ups for my sample because the findings of Brav and Gompers (2002) and Field and Hanka (2002) show that early releases are rare.

It is generally believed that a large proportion of this high initial trading volume is due to flippers, but because of the lack of data, no one has been able to determine the proportion of this volume that is the direct result of flipping. Krigman, Shaw, and Womack (1999) rely on a proxy for institutional flipping. The two measures used in my study to examine flipping activity are

shares flipped as a percentage of trading volume and shares flipped as a percentage of shares offered in the IPO. As shown in Table 1, only 18.95% of the trading volume on the first two days is due to shares being flipped. A large proportion of trading volume is therefore not due to flipping by investors who were initially allocated shares at the offer price. (I address the issue of double counting Nasdaq volume later in the paper and do not believe that this alone accounts for the low volume of flipping.)

Shares flipped as a percentage of shares offered in the IPO is independent of trading volume. Only 15% of shares offered in the IPO (median of 7.34%) are flipped in the first two days. Therefore, the remaining 85% of shares allocated in the deal are not flipped right away. This result implies that the original investors hold onto their shares for the most part. However, when this small percentage of shares is flipped, the shares are traded several times, resulting in high volume. The high volume does not result from the sale of a large proportion of shares by the original owners; instead it results from the same shares being sold again and again. Short selling also contributes to trading volume, consistent with the finding of Geczi, Musto, and Reed (2002) that equity lending in IPOs is extremely active during the first few days of trading. Boehmer and Fishe (2000) conclude that IPOs are underpriced to encourage flippers so that there is liquidity in the aftermarket. My results show that a small percentage of flipped shares can have a large multiplier effect on trading volume. Therefore, liquidity in the aftermarket is due to more than flipping. The volume of trading between market makers (who are not original IPO investors), particularly wholesalers, also adds to trading volume. Wholesalers are market makers that may receive payment for order flow, and along with other market makers they might conduct several transactions in order to complete one client transaction. Market makers are also known to take intraday short positions to satisfy customer orders.

Similar to findings in Hanley and Wilhelm (1995), the proportion of IPO shares allocated to institutions, on average, is 73.33% (median of 74.66%) for my sample. The members of the syndicate sell and distribute shares in an IPO. As discussed by Chen and Ritter (2000), 60% of the gross spread is normally a selling concession. Members of the selling syndicate receive this selling concession based on the number of shares they sell. However, the lead underwriter itself sells a large percentage of the shares and hence keeps the selling concession for these shares. Under a penalty bid arrangement, the lead underwriter can take away the selling concession from syndicate members for shares flipped by their clients. I find that, on average, the lead underwriter sells 62.47% of the offering. The lead underwriter, on average, allocates 81.86% of its shares (median of 84.49%) to institutions.

#### *4.2. Filing range and flipping activity*

There are large variations in flipping activity among IPO groups classified by final offer price relative to the filing range, as shown in Fig. 1 and Table 2. In my sample, 25 IPOs are priced below the amended filing range, 48 IPOs are priced above the filing range, and 120 are priced within the filing range. Repeating the analysis using the original filing range yields similar results, although there are fewer IPOs within the filing range. IPOs priced below the filing range have a mean initial return of 7.42 % (median of 0.86%) and IPOs priced above the range have a mean initial return of 28.39% (median of 21.52 %).

The differences in trading volume are very pronounced among the three groups. Trading volume (as a percentage of shares offered) is, on average, only 44.13% for IPOs priced below the filing range, 82.71% for IPOs priced within the range, and 99.80% for IPOs priced above the trading range. The median values are lower but similar.

Flipping accounts for a somewhat larger percentage of trading volume for IPOs priced below the range; 22.75% of trading volume for IPOs priced below the filing range is due to

flipping, compared with 19.12% for IPOs priced within the range, and 17.50% for IPOs priced above the range. Initial volume turnover for IPOs priced above the range is almost three times (based on medians) the volume turnover for offerings priced below the range. Therefore, flipping accounts for a smaller proportion of volume for IPOs priced above the range. However, the proportion of shares flipped as a percentage of shares offered is highest for IPOs priced above the range at 16.86% and lowest for IPOs priced below the range at 9.82%. The result that flipping relative to total volume is highest for weak offerings is due to the low total volume in weak offerings. By other, more appropriate measures, flipping activity is actually lower in cold IPOs.

Next, for the first time we are able to examine the extent of flipping by institutional and retail customers and relate it to the number of shares actually allocated to each group. In Table 3, the flipping activity of retail customers and institutions is grouped according to whether the IPO's final price is below the filing range, within the filing range, or above the filing range. Three variables are estimated for both institutions and retail customers: shares flipped as a percentage of shares allocated, shares flipped as a percentage of total shares traded, and shares flipped as a percentage of total shares offered. This analysis is based on the shares distributed by the lead underwriter. As noted previously, the lead underwriter distributes, on average, 63% of the total shares.

There are three main results from this analysis: (1) Institutions flip more than retail customers; 2) the largest proportion of shares flipped by both institutions and retail customers is for IPOs priced above the filing range; and (3) the transaction size of shares flipped, measured by the average number of shares in a transaction, is larger for institutions than for retail customers, but lower than previously assumed.

Institutions flip a larger percentage of shares allocated to them than do individuals, as reported in Table 3. They flip 10.62% (median of 7.22%), 26.40% (median of 22.87%), and 32.07% (median of 25.94%) of the shares allocated to them in IPOs priced below, within, and above the filing range, respectively. Retail flipping is 13.15% (median of 2.17%) for IPOs priced below the filing range and 40.83% (median of 20.99%) for IPOs priced above the range. Institutional flipping accounts for a much larger percentage of trading volume (mean of 15% to 20%) than retail flipping (mean of 2% to 6%). The same pattern holds true using the third measure, shares flipped by institutions as a percentage of total shares offered. Results based on the last two measures are expected because on average institutions are allocated larger proportions of an IPO so they have a higher proportion of flipping. But the first measure, which analyzes flipping relative to shares allocated to each group (institutional and retail), tells the real story about institutional flipping after controlling for allocations.

The median size of an institutional flipping transaction is 11,922 shares for IPOs priced below the filing range, 3,809 shares for IPOs priced within the range, and 2,022 shares for IPOs priced above the range. The median size of retail flipping transactions is less than 500 shares in each case. These results are consistent with the results of Krigman, Shaw, and Womack showing more block trading in cold IPOs than in hot IPOs.

On average, allocation to institutions is lowest for the group priced below the filing range at 67.51% and highest for the group of IPOs priced above the filing range at 75.21%. This is consistent with the book-building argument of Benveniste and Spindt (1989) and Cornelli and Goldreich (2002) in which underwriters reward investors who provide strong indications of interest by allocating than larger proportions of shares in IPOs with strong pre-market demand. The lead underwriter itself distributes 53.03% of shares in offerings priced below the range and 66.26% in offerings priced above the range. IPOs priced below the range are weak offerings that

are harder to sell and therefore the lead underwriter distributes a smaller percentage of these as compared to IPOs priced above the range. The lead underwriter allocates to institutions a larger proportion of offerings (mean of 85.70%) priced above the filing range than of offerings priced below the range (mean of 76.78%). The final offer price of an IPO is usually set the evening before the IPO takes place when the underwriter mostly knows the demand for the offering and the extent of oversubscription. IPOs that are more heavily oversubscribed tend to be priced above the filing range. It is in these deals that the underwriter gives larger allocations to institutions. After an IPO starts trading in the aftermarket, its stock price reflects further market information and investors decide whether to flip their shares or not. I next examine flipping activity classified by aftermarket stock returns.

#### *4.3. Aftermarket price performance and flipping activity*

The sample is split into four categories classified as very cold, cold, warm, and very hot. There are 36 very cold IPOs with raw returns on day 1 of zero percent or less. Fifty IPOs are considered as cold because their day 1 return is greater than zero percent but less than or equal to 10%, 93 IPOs are classified as warm with day 1 returns between 10% and 60%, and 14 IPOs are considered very hot with day 1 returns greater than 60%. I also did the analysis using other cutoffs, but these cutoffs are consistent with previous literature (see Krigman, Shaw, and Womack, 1999).

Volume turnover for the first two days increases monotonically based on the aftermarket price performance categories. As shown in Fig. 2 and Table 4, turnover is much higher for very hot IPOs, averaging 188.63% compared to very cold IPOs at only 58.40%. It has been suggested that flipping accounts for a large proportion of the volume in weak IPOs and I also find this to be true. Mean flipping is 20.71% of trading volume in very cold IPOs, 19.45% in cold IPOs, 17.00% in warm IPOs, and 14.69% in very hot IPOs. However, further analysis shows that the

results are due to low trading volume in very cold and cold IPOs. Because volume is low for cold IPOs, flipping accounts for a large proportion of this volume. The percentage of shares offered that are flipped ranges, on average, from a low of 9.80% for very cold IPOs to a high of 30.21% for very hot IPOs. The magnitude of flipping activity measured as a percentage of shares offered is much larger for very hot IPOs.

Benveniste, Busaba, and Wilhelm (1996) suggest that stabilization activities benefit institutional investors, but Chowdhry and Nanda (1996) conclude that price stabilization helps to alleviate the winner's curse for uninformed investors. In order to take advantage of stabilization activities, original investors should flip their shares in the aftermarket while underwriters are still providing price support. Our results suggest that there is little flipping in very cold IPOs so it is not clear to what extent original IPO investors are benefiting from price support activities by the underwriter. These findings are contrary to the belief that investors flip cold IPOs while the underwriter is still providing price support. However, Aggarwal (2000) and Benveniste, Busaba, and Wilhelm (1996) also discuss the use of penalty bids to control flipping, particularly in weak IPOs. My results suggest that such explicit and implicit mechanisms might explain the much lower flipping activity in very cold IPOs. Of the 154 offerings with information on penalty bids, penalties are assessed in only 20 offerings. Penalties are assessed for weak offerings; the mean day 1 return is only 1.07% for this group. The average total penalty assessed amounts to 8.39% of the gross spread. Smaller investment banks tend to assess penalties, probably because they lack clout. Large banks have sufficient bargaining power that the implicit threat that investors will be left out of allocations in future offerings can deter investors from flipping and account for the particularly low flipping in cold IPOs.

In order to address the issue of whether institutions are smart and flip more of the weak IPOs to benefit from the underwriter's price support activities, I next examine the level of

flipping activity by institutions and retail customers separately. If institutions are truly strong hands and invest for the long term, then we should find less flipping by institutions. This is the first time in the literature that the question is being answered empirically using actual data and not proxies for flipping and for institutional versus retail flipping. I am also able to directly connect flipping activity to actual share allocations to institutional investors. Table 5 presents results on the extent of flipping and the average size of flipping transactions by institutions and retail customers grouped by initial returns. The main results are: (1) Institutions flip a much larger proportion of the shares allocated to them than do individuals, irrespective of returns on day 1; (2) institutions and retail customers both flip a greater percentage of their allocation when the IPO is hot rather than cold; (3) only a small percentage of trading volume is due to flipping by either institutions or retail customers; and (4) institutional flipping is not necessarily done in large blocks.

On average, institutions flip 46.74% (median of 41.50%) of the shares allocated to them in very hot IPOs and individuals flip 27.86% (median of 25.33%). In hot IPOs, institutional and retail demand is high, so each institution is allocated only a small number of shares. Each institution must then decide what to do in the aftermarket. Institutions that do not have a sizable position in the stock have two options: to buy additional shares in the aftermarket or to flip their original shares. If the price of the IPO has already jumped up considerably then institutions might not want to purchase additional shares at the high price and might decide to flip their shares. Institutions also know that investment banks are not too concerned about flipping in hot IPOs whose price has jumped up significantly and for which price support is not required. The percentage of shares flipped for very cold IPOs is, on average, 19.90% (median of 14.52%) and 11.53% (median of 2.80%) for institutions and retail customers, respectively. The percentage of

shares allocated to retail customers that are flipped is lower than the proportion of shares allocated to institutions in each of the four categories.

Institutions thus flip more than retail customers, and hot IPOs are flipped more than cold IPOs. In order to study the differences in flipping activities between institutional and retail customers, it is important to relate flipping to allocations rather than to trading volume. The trading volume accounted for by institutional flipping is 18.91% and 18.92 % for very cold and very hot IPOs, respectively. Retail flipping as a share of total trading volume ranges from a high of 6.22% to a low of 2.44%. Results based on trading volume might lead one to incorrectly believe that more flipping occurs in cold IPOs.

The average size of a flipping transaction, measured by number of shares, is much larger for very cold IPOs than for very hot IPOs. As expected, the transaction size of trades by institutions also is much larger than the size of trades by retail customers. The average number of shares flipped by institutions is 37,097 shares (median of 4,586 shares) for very cold IPOs and 3,083 shares (median of 1,810 shares) for very hot IPOs. The transaction size changes monotonically for institutional flipping based on initial returns. The number of shares flipped by retail customers in each transaction is much lower. These results suggest that using only block trades of 10,000 shares or even 5,000 shares does not capture a large proportion of flipping activity. Even when institutions have a large block to trade, they might split it into smaller transactions in order to minimize market impact. In the case of very hot IPOs, it is also possible that each institution is allocated fewer shares, so they have fewer shares to sell and the transaction size is smaller. For weak offerings, it is known that the underwriter is stabilizing the deal; therefore, even large blocks might not have a large impact on price.

Total institutional allocation varies from a low of 69.70% for very cold IPOs to a high of 76.12% for very hot IPOs. The differences are less pronounced than those based on filing price

range. Therefore, there is little support for reports in the popular press suggesting that higher proportions of very hot IPOs are sold to institutions. Institutions do get the bulk of an IPO, but that tends to be the case for all offerings. These results are in contrast to earlier results based on grouping by final offer price relative to filing range. Underwriters allocate larger proportions of IPOs priced above the filing range to institutions, with the understanding that institutions will also help out with weak offerings.

The underwriter typically has 30 to 45 days to exercise the overallotment, and the exercise of this option determines the total number of shares outstanding. This can in turn affect the price performance and volume of trading in an IPO. In very hot IPOs, the Green Shoe is exercised to the maximum of 15% with the option being exercised in two to three days, on average. In very hot IPOs, more shares are outstanding because of the exercise of the Green Shoe and this can add to trading volume.

#### *4.4. Type of lead underwriter, allocations, and flipping activity*

Conversations with investment banks revealed that banks with large retail operations often manage offerings during weak market conditions or offerings that are expected to be hard to distribute. Some of the nine investment banks in my sample have a major retail brokerage operation. For the purpose of this study, I group them together and call them retail banks. All others are grouped into a second category called non-retail banks. The allocation and flipping activity based on this classification is presented in Table 6. The size of IPOs (as measured by proceeds) handled by retail banks is larger than that of IPOs handled by non-retail banks, but the difference in means is not statistically significant. IPOs handled by retail banks have a first-day return of 14.82% (median of 11.18%) compared with returns of 20.45% (median of 13.54%) for IPOs handled by non-retail banks. The differences in these returns are not statistically significant.

Retail banks allocate a significantly lower proportion of an IPO to institutions, with a mean of 63.07%, as compared to non-retail banks, which allocate 75.94% to institutions on average. The lead underwriter in the case of the retail bank group sells a significantly smaller percentage of the offering itself (58.15%) than is the case in the non-retail bank group (63.63%). The selling concession received by the lead underwriter depends on the proportion of the offering that it sells. Trading volume as a percentage of shares offered is significantly lower for retail banks at 63.99% than for non-retail banks at 87.27%. Only 5.75% (median of 5.41%) of shares offered in an IPO are flipped in the first two days of trading for retail banks, but 16.69% (median of 10.29%) of shares are flipped in IPOs for non-retail banks. (A classification based on underwriter reputation (defined by market share) does not find these differences.) The difference is statistically significant, suggesting that customers of retail banks flip less than the customers of non-retail banks. It has already been shown that retail banks allocate a larger percentage of an IPO to individuals than do non-retail banks. But even institutions that receive allocations by a lead underwriter with a major retail operation flips less than institutions in general. On average, institutions flip 17.14% of the shares allocated to them in deals led by the retail bank group; for non-retail bank deals the average flipping is statistically higher at 27.91%. This difference can also be due to the earlier finding that flipping is more for offerings that have higher initial returns. The difference in flipping by retail customers of the two groups is not statistically different. The IPO literature has typically classified investment banks based on reputation. My results suggest that other classifications might be more appropriate depending on the research question.

#### 4.5. *Exchange, allocations, and flipping activity*

In Table 7 the allocation and flipping analysis is presented done by listing exchange. There are 122 IPOs on Nasdaq and 71 on the New York Stock Exchange or the American Stock

Exchange (NYSE/AMEX). Nasdaq IPOs are smaller as measured by issue size and offer price. They also have higher initial returns at 23.98%, compared with 10.89% for NYSE/AMEX IPOs. Volume turnover of Nasdaq IPOs is almost double that of NYSE/AMEX IPOs and could be attributable to two factors that cannot be easily separated. The high volume of Nasdaq could be due to high initial returns or to double counting. However, flipping measured by shares flipped as a percentage of shares offered is independent of the volume bias and is higher on Nasdaq. Institutions are allocated more of the better-performing Nasdaq IPOs than NYSE/AMEX IPOs.

#### *4.6. Regression results for flipping*

I ran two sets of regressions; the dependent variable in the first set is shares flipped by institutions as a percentage of shares allocated to institutions, and in the second set it is retail flipping as a percentage of shares allocated to retail customers. The independent variables are the percentage day 1 return (offer price to day 1 close), the percentage of the Green Shoe exercised, the log of proceeds, a dummy variable equal to one if the lead underwriter has a major retail brokerage operation and zero otherwise, and a dummy equal to one if the IPO trades on NYSE/AMEX and zero otherwise.

Table 8 presents the results of the regression estimates. The first model excludes the retail bank dummy and the exchange dummy. Institutions flip a larger percentage of shares allocated to them in IPOs with higher initial returns. This result is statistically significant and relates to the earlier finding that the hotter is the IPO, the more flipping is done by institutions. Institutions observe aftermarket returns in addition to other information and accordingly decide to flip their shares. The other two variables, overallotment exercised and log of proceeds, are not statistically significant in explaining institutional flipping. The dummy variable for retail banks is negative and statistically significant. This confirms the earlier finding of less institutional flipping in IPOs lead-managed by an investment bank with a major retail operation. The results

for retail flipping are generally not significant. Even the day 1 return is not significant in explaining flipping by retail customers.

#### 4.7. *Trading volume in IPOs*

The paper has documented that flipping, on average, accounts only for a small proportion of the high trading volume observed in the IPO aftermarket. It removes the misperception that the high trading volume is mainly due to flippers. However, the results raise several questions to be tackled by future research. If flipping is not the major contributor to trading volume then we need to examine what else creates the liquidity in the aftermarket. The high volume could be a result of several factors including transactions between dealers, short sale activities, and trading by aftermarket investors. Geczy, Musto, and Reed (2002) document significant short selling activity in IPOs during the first few days of trading. Day traders are known to actively trade volatile stocks, as during the 1997-1998 period in particular. The intraday volatility in IPO prices makes them a suitable candidate for trading by day traders. This flipping analysis is a major step for future research examining IPO trading volume.

### 5. **Summary**

This paper attempts to address the following unresolved issues in the IPO literature: (1) Does flipping account for the large trading volume in the initial aftermarket? (2) Are institutions really “strong hands” that are, on average, allocated larger proportions of an offering because they do not flip their shares? (3) Are institutions “smart investors” that flip large proportions of cold IPOs that are initially being stabilized by the underwriter? (4) To what extent do investment banks use mechanisms such as penalty bids to deter flipping? (5) Does institutional flipping take place in large blocks?

Consistent with the previous literature, I find initial trading volume to be high in IPOs. On average, however, flipping accounts for only a small proportion of this trading volume.

Flipping does make up a large proportion of the volume in cold IPOs relative to hot IPOs, but this is due to the low total trading volume in cold IPOs rather than due to more flipping, as becomes clear by analyzing other, more accurate measures of flipping. I do find flipping to be relatively high in very hot IPOs. Penalty bids are assessed in only 13% of all offerings and amount to a small percentage of the total spread. However, penalties do not need to be assessed explicitly; just their threat and the threat of reduced allocations in the future can deter flipping and this can result in less flipping of cold IPOs.

Institutions consistently flip a larger proportion of shares allocated to them than do retail customers. This result does not lend support to the hypothesis that institutions are strong hands that hold onto their shares for the long term and are therefore favored in the allocation process. Both institutions and retail customers flip a much larger percentage of their allocations in very hot IPOs than in cold IPOs. This finding does not support the hypothesis that institutions are smart investors who quickly get out of weak offerings that are still being supported by the underwriter.

The median transaction size of each institutional flip is 2,483 and 1,677 shares for warm and very hot IPOs, respectively. Institutions potentially split their orders into smaller sizes in order to reduce the impact on market price. Transaction size is higher for cold IPOs. In hot IPOs, each institution obtains a smaller allocation than in cold offerings, which could also lower the transaction size. There is considerable interest in a better understanding of the IPO process including allocation practices, pricing, stabilization, and aftermarket activities. I hope that the findings of this paper will trigger future research into several unanswered questions with regard to aftermarket activities and trading in IPOs.

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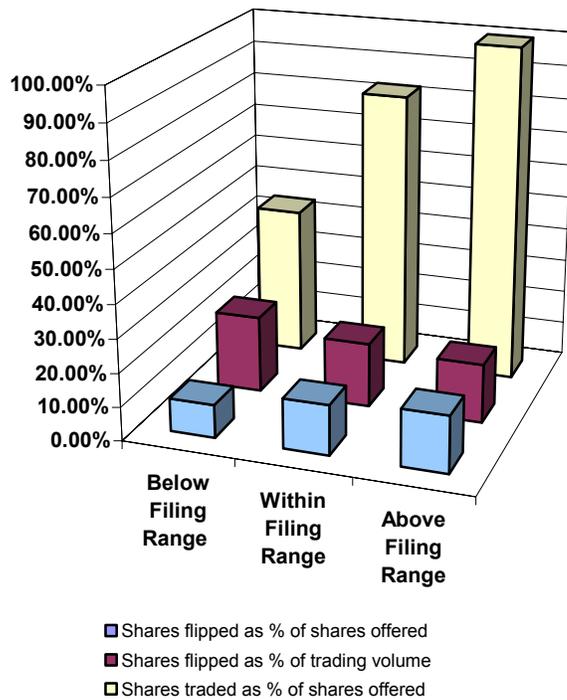
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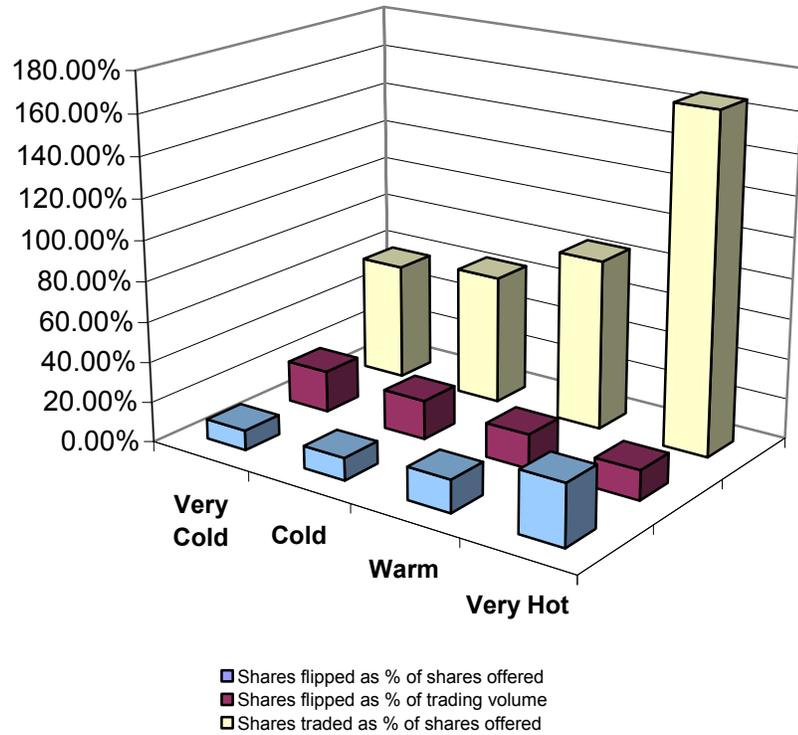
**Figure 1**  
**Trading volume and flipping activity by filing range**

The three variables plotted are the total number of shares flipped during the first two trading days as a percentage of shares offered in the IPO, total number of shares flipped in the first two trading days as a percentage of total number of shares traded in the first two trading days, and total number of shares traded in the first two trading days as a percentage of shares offered in the IPO. IPOs are classified based on whether the final offer price is below, above, or within the amended filing range.



**Figure 2**  
**Trading volume and flipping activity by IPO performance**

The three variables plotted are the total number of shares flipped during the first two trading days as a percentage of shares offered in the IPO, total number of shares flipped in the first two trading days as a percentage of total number of shares traded in the first two trading days, and total number of shares traded in the first two trading days as a percentage of shares offered in the IPO. Very hot IPOs are defined to have day 1 returns (offer price to day 1 close) greater than 60%, warm IPOs have returns between 10% and 60%, cold IPOs have returns between 0% and 10%, and very cold IPOs have returns less than or equal to zero percent.



**Table 1**  
**Descriptive statistics on sample IPOs**

There were a total of 617 IPOs during the sample period from May 1997 to June 1998. My sample consists of 193 IPOs. The table provides mean and median statistics: N is the number of observations; offer price is the initial offer price; issue size refers to the dollar proceeds; gross spread is the underwriter spread as a percentage of offer price; day 1 return is the percentage difference between the opening price on day 1 and the offer price; shares traded as % of total shares offered is the total number of shares traded in the first two days as a percentage of total shares offered; shares flipped as % of the total trading volume is the total number of shares flipped on the first two trading days divided by the total number of shares traded on the first two trading days; shares flipped as % of shares offered is the total number of shares flipped on the first two trading days divided by the total number of shares offered in the IPO; institutional allocation is the percentage of an issue allocated to institutional investors; lead UW's % of the offering is the percentage of shares in the offering distributed by the lead underwriter; and lead UW's institutional allocation is the percentage of shares allocated to institutions from the lead underwriter's quota.

|                                                    | All IPOs<br>(N = 617) |        | Sample IPOs<br>(N=193) |        |
|----------------------------------------------------|-----------------------|--------|------------------------|--------|
|                                                    | Mean                  | Median | Mean                   | Median |
| <b>Offer price (\$)</b>                            | 12.37                 | 12.00  | 15.11                  | 15.00  |
| <b>Issue size (millions of \$)</b>                 | 75.55                 | 36.00  | 131.87                 | 64.40  |
| <b>Gross spread (%)</b>                            | 7.23                  | 7.00   | 6.76                   | 7.00   |
| <b>Day 1 return (%)</b>                            | 14.27                 | 8.98   | 20.29                  | 12.50  |
| <b>Shares traded as % of total shares offered</b>  | -                     | -      | 81.97                  | 74.10  |
| <b>Shares flipped as % of total shares traded</b>  | -                     | -      | 18.95                  | 16.67  |
| <b>Shares flipped as % of total shares offered</b> | -                     | -      | 15.00                  | 7.34   |
| <b>Institutional allocation (%)</b>                | -                     | -      | 73.33                  | 74.66  |
| <b>Lead UW's % of the offering</b>                 | -                     | -      | 62.47                  | 59.34  |
| <b>Lead UW's inst. allocation (%)</b>              | -                     | -      | 81.86                  | 84.49  |

**Table 2**  
**Flipping activity by filing range**

The sample of IPOs is split in three groups based on whether the final offer price was above, within, or below the amended filing range. Shares traded as % of total shares offered is the total number of shares traded in the first two days as a percentage of total shares offered; shares flipped as % of the total trading volume is the total number of shares flipped on the first two trading days divided by the total number of shares traded on the first two trading days; and shares flipped as % of shares offered is the total number of shares flipped on the first two trading days divided by the total number of shares offered in the IPO.

|                                                    | <b>Below filing range<br/>(N=25)</b> |               | <b>Within filing range<br/>(N=120)</b> |               | <b>Above filing range<br/>(N=48)</b> |               |
|----------------------------------------------------|--------------------------------------|---------------|----------------------------------------|---------------|--------------------------------------|---------------|
|                                                    | <b>Mean</b>                          | <b>Median</b> | <b>Mean</b>                            | <b>Median</b> | <b>Mean</b>                          | <b>Median</b> |
| <b>Day 1 return (%)</b>                            | 7.42                                 | 0.86          | 17.92                                  | 11.11         | 28.39                                | 21.52         |
| <b>Shares traded as % of total shares offered</b>  | 44.13                                | 33.95         | 82.71                                  | 74.12         | 99.80                                | 91.35         |
| <b>Shares flipped as % of total trading volume</b> | 22.75                                | 22.14         | 19.12                                  | 15.77         | 17.50                                | 6.40          |
| <b>Shares flipped as % of total shares offered</b> | 9.82                                 | 8.94          | 14.80                                  | 7.46          | 16.86                                | 6.29          |

**Table 3**  
**Institutional versus individual allocation and flipping by filing range**

The table shows flipping activity (based on the first two trading days) by institutions and individual customers partitioned by whether the final offer price was above, within, or below the amended filing range. Shares flipped as % of shares allocated is the total number of shares flipped by institutions (retail investors) divided by the total number of shares allocated to institutions (retail) in the IPO; shares flipped as % of shares traded is the total number of shares flipped by institutions (retail) divided by the total number of shares traded; shares flipped as % of shares offered is the total number of shares flipped by institutions (retail) divided by the total number of shares offered in the IPO; average size of institutional (retail) flip is the average number of shares flipped in each flipping transaction; institutional allocation is the percentage of an issue allocated to institutional investors; lead UW's % of the offering is the percentage of shares in the offering distributed by the lead underwriter; and lead UW's institutional allocation is the percentage of shares allocated to institutions from the lead underwriter's quota.

|                                                                                | <b>Below filing range<br/>(N=25)</b> |               | <b>Within filing range<br/>(N=120)</b> |               | <b>Above filing range<br/>(N = 48)</b> |               |
|--------------------------------------------------------------------------------|--------------------------------------|---------------|----------------------------------------|---------------|----------------------------------------|---------------|
|                                                                                | <b>Mean</b>                          | <b>Median</b> | <b>Mean</b>                            | <b>Median</b> | <b>Mean</b>                            | <b>Median</b> |
| <b>Shares flipped by institutions as % of shares allocated to institutions</b> | 10.62                                | 7.22          | 26.40                                  | 22.87         | 32.07                                  | 25.94         |
| <b>Shares flipped by retail as % of shares allocated to retail</b>             | 13.15                                | 2.17          | 18.21                                  | 10.42         | 40.83                                  | 20.99         |
| <b>Shares flipped by institutions as % of total shares traded</b>              | 14.68                                | 15.54         | 19.96                                  | 17.68         | 19.79                                  | 20.30         |
| <b>Shares flipped by retail as % of total shares traded</b>                    | 2.40                                 | 0.88          | 5.77                                   | 1.14          | 4.13                                   | 2.48          |
| <b>Shares flipped by institutions as % of total shares offered</b>             | 5.04                                 | 3.85          | 14.39                                  | 12.44         | 19.44                                  | 19.51         |
| <b>Shares flipped by retail as % of total shares offered</b>                   | 1.05                                 | 0.27          | 2.28                                   | 0.88          | 2.93                                   | 1.97          |
| <b>Average size of institutional flip (shares)</b>                             | 14044                                | 11922         | 17224                                  | 3809          | 2626                                   | 2022          |
| <b>Average size of retail flip (shares)</b>                                    | 687                                  | 450           | 1364                                   | 211           | 1049                                   | 222           |
| <b>Institutional allocation (%)</b>                                            | 67.51                                | 64.36         | 73.71                                  | 74.66         | 75.21                                  | 75.03         |
| <b>Lead UW's % of the offering</b>                                             | 53.03                                | 51.18         | 62.56                                  | 58.00         | 66.26                                  | 68.13         |
| <b>Lead UW's inst. allocation (%)</b>                                          | 76.78                                | 75.96         | 81.14                                  | 83.90         | 85.70                                  | 87.91         |

**Table 4**  
**Flipping activity by initial returns**

The sample of IPOs is split in four groups based on day 1 returns (offer price to day 1 close): very cold, cold, warm, and very hot. Shares traded as % of total shares offered is the total number of shares traded during the first two days as a percentage of total shares offered; shares flipped as % of the total trading volume is the total number of shares flipped during the first two trading days divided by the total number of shares traded during the first two trading days; and shares flipped as % of shares offered is the total number of shares flipped during the first two trading days divided by the total number of shares offered in the IPO.

|                                                    | <b>Very cold</b>             |               | <b>Cold</b>                          |               | <b>Warm</b>                           |               | <b>Very hot</b>              |               |
|----------------------------------------------------|------------------------------|---------------|--------------------------------------|---------------|---------------------------------------|---------------|------------------------------|---------------|
|                                                    | <b>Day 1 return &lt;= 0%</b> |               | <b>0 &lt; Day 1 return &lt;= 10%</b> |               | <b>10 &lt; Day 1 return &lt;= 60%</b> |               | <b>Day 1 return &gt; 60%</b> |               |
|                                                    | <b>(N = 36)</b>              |               | <b>(N=50)</b>                        |               | <b>(N=93)</b>                         |               | <b>(N=14)</b>                |               |
|                                                    | <b>Mean</b>                  | <b>Median</b> | <b>Mean</b>                          | <b>Median</b> | <b>Mean</b>                           | <b>Median</b> | <b>Mean</b>                  | <b>Median</b> |
| <b>Day 1 return (%)</b>                            | -1.28                        | 0.00          | 4.67                                 | 5.00          | 24.61                                 | 22.21         | 87.41                        | 79.31         |
| <b>Shares traded as % of total shares offered</b>  | 58.40                        | 48.32         | 64.36                                | 56.32         | 84.50                                 | 80.75         | 188.63                       | 175.57        |
| <b>Shares flipped as % of total shares traded</b>  | 20.71                        | 18.29         | 19.45                                | 10.37         | 17.00                                 | 17.82         | 14.69                        | 13.69         |
| <b>Shares flipped as % of total shares offered</b> | 9.80                         | 7.22          | 11.10                                | 5.35          | 16.09                                 | 11.17         | 30.21                        | 25.11         |

**Table 5**

**Institutional versus retail flipping by initial returns**

The table shows flipping activity (based on the first two trading days) by institutions and retail customers who were initially allocated shares in the offering. Mean and median values are reported for each variable. Shares flipped as % of shares allocated is the total number of shares flipped by institutions (retail investors) divided by the total number of shares allocated to institutions (retail) in the IPO; shares flipped as % of shares traded is the total number of shares flipped by institutions (retail customers) divided by the total number of shares traded; shares flipped as % of shares offered is the total number of shares flipped by institutions (retail) divided by the total number of shares offered in the IPO; average size of institutional (retail) flip is the average number of shares flipped in each flipping transaction; institutional allocation is the percentage of an issue allocated to institutional investors; lead UW's % of the offering is the percentage of shares in the offering distributed by the lead underwriter; lead UW's institutional allocation is the percentage of shares allocated to institutions from the lead underwriter's quota; Green Shoe exercised is the percentage of the overallocation exercised (maximum is 15%); and days to exercise the Green Shoe is the number of days taken by the lead underwriter to exercise the option (typical maximum is 45 days).

|                                                                                | <b>Very cold</b>                                |               | <b>Cold</b>                                           |               | <b>Warm</b>                                            |               | <b>Very hot</b>                               |               |
|--------------------------------------------------------------------------------|-------------------------------------------------|---------------|-------------------------------------------------------|---------------|--------------------------------------------------------|---------------|-----------------------------------------------|---------------|
|                                                                                | <b>Day 1 return &lt;= 0%</b><br><b>(N = 33)</b> |               | <b>0 &lt; Day 1 return &lt;= 10%</b><br><b>(N=48)</b> |               | <b>10 &lt; Day 1 return &lt;= 60%</b><br><b>(N=93)</b> |               | <b>Day 1 return &gt; 60%</b><br><b>(N=14)</b> |               |
|                                                                                | <b>Mean</b>                                     | <b>Median</b> | <b>Mean</b>                                           | <b>Median</b> | <b>Mean</b>                                            | <b>Median</b> | <b>Mean</b>                                   | <b>Median</b> |
| <b>Shares flipped by institutions as % of shares allocated to institutions</b> | 19.90                                           | 14.52         | 21.87                                                 | 18.79         | 27.16                                                  | 24.27         | 46.74                                         | 41.50         |
| <b>Shares flipped by retail as % of shares allocated to retail</b>             | 11.53                                           | 2.80          | 11.11                                                 | 6.57          | 34.08                                                  | 15.90         | 27.86                                         | 25.33         |
| <b>Shares flipped by institutions as % of total shares traded</b>              | 18.91                                           | 16.17         | 16.74                                                 | 16.58         | 20.93                                                  | 18.87         | 18.92                                         | 16.26         |
| <b>Shares flipped by retail as % of total shares traded</b>                    | 6.22                                            | 0.83          | 3.18                                                  | 0.96          | 5.87                                                   | 1.86          | 2.44                                          | 1.36          |
| <b>Shares flipped by institutions as % of total shares offered</b>             | 8.63                                            | 6.77          | 11.86                                                 | 8.62          | 16.11                                                  | 14.46         | 28.93                                         | 30.22         |
| <b>Shares flipped by retail as % of total shares offered</b>                   | 2.32                                            | 0.31          | 1.64                                                  | 0.65          | 2.44                                                   | 1.53          | 3.50                                          | 2.74          |
| <b>Average size of flip (shares) – institutions</b>                            | 37097                                           | 4586          | 8120                                                  | 4583          | 5157                                                   | 2483          | 1667                                          | 1632          |
| <b>Average size of flip (shares) – retail</b>                                  | 2133                                            | 382           | 1162                                                  | 282           | 1054                                                   | 273           | 133                                           | 92            |
| <b>Institutional allocation (%)</b>                                            | 69.70                                           | 72.32         | 70.29                                                 | 72.32         | 75.74                                                  | 75.25         | 76.12                                         | 74.74         |
| <b>Lead UW's % of the offering</b>                                             | 59.59                                           | 50.20         | 61.11                                                 | 57.88         | 63.94                                                  | 61.54         | 63.54                                         | 50.08         |
| <b>Lead UW's inst. allocation (%)</b>                                          | 76.97                                           | 75.96         | 79.16                                                 | 81.60         | 84.76                                                  | 87.91         | 83.14                                         | 81.55         |
| <b>Green Shoe exercised (%)</b>                                                | 4.41                                            | 0.00          | 9.16                                                  | 13.75         | 13.72                                                  | 15.00         | 15.00                                         | 15.00         |
| <b>Days to exercise Green Shoe</b>                                             | 22.25                                           | 26.00         | 18.68                                                 | 26.50         | 9.28                                                   | 5.00          | 3.14                                          | 2.50          |

**Table 6**  
**Allocation and flipping by type of lead underwriter**

The sample of IPOs is split into two groups based on the type of lead underwriter: retail and non-retail. The lead investment bank is defined to be retail if it has a major retail brokerage operation, otherwise it is non-retail. The table provides mean and median statistics: N is the number of observations; offer price is the initial offer price; issue size refers to the dollar proceeds; gross spread is the underwriter spread as a percentage of offer price; day 1 return is the percentage difference between the opening price on day 1 and the offer price; shares traded as % of total shares offered is the total number of shares traded during the first two days as a percentage of total shares offered; shares flipped as % of the total trading volume is the total number of shares flipped during the first two trading days divided by the total number of shares traded during the first two trading days; and shares flipped as % of shares offered is the total number of shares flipped during the first two trading days divided by the total number of shares offered in the IPO; institutional allocation is the percentage of an issue allocated to institutional investors; lead UW's % of the offering is the percentage of shares in the offering distributed by the lead underwriter; and lead UW's institutional allocation is the percentage of shares allocated to institutions from the lead underwriter's quota.

|                                                                                | Retail banks<br>(N=44) |        | Non-retail banks<br>(N=149) |        | Difference in<br>means |
|--------------------------------------------------------------------------------|------------------------|--------|-----------------------------|--------|------------------------|
|                                                                                | Mean                   | Median | Mean                        | Median | t-statistic            |
| <b>Offer price (\$)</b>                                                        | 15.78                  | 15.00  | 14.91                       | 14.00  | -1.22                  |
| <b>Issue size (millions of \$)</b>                                             | 137.86                 | 88.63  | 130.10                      | 59.50  | -0.23                  |
| <b>Gross spread (%)</b>                                                        | 6.76                   | 7.00   | 6.76                        | 7.00   | -0.05                  |
| <b>Day 1 return (%)</b>                                                        | 14.82                  | 11.18  | 20.45                       | 13.54  | 1.64                   |
| <b>Shares traded as % of total shares offered</b>                              | 63.99                  | 61.30  | 87.27                       | 79.24  | 3.00*                  |
| <b>Shares flipped as % of total trading volume</b>                             | 20.62                  | 10.30  | 18.64                       | 19.16  | -0.28                  |
| <b>Shares flipped as % of total shares offered</b>                             | 5.75                   | 5.41   | 16.69                       | 10.29  | 5.16*                  |
| <b>Institutional allocation (%)</b>                                            | 63.07                  | 64.59  | 75.94                       | 76.31  | 5.56*                  |
| <b>Lead UW's % of the offering</b>                                             | 58.15                  | 60.24  | 63.63                       | 59.16  | 2.03*                  |
| <b>Lead UW's inst. allocation (%)</b>                                          | 69.05                  | 70.55  | 85.91                       | 88.53  | 9.20*                  |
| <b>Shares flipped by institutions as % of shares allocated to institutions</b> | 17.14                  | 13.04  | 27.91                       | 24.17  | 2.40*                  |
| <b>Shares flipped by retail as % of shares allocated to retail</b>             | 20.39                  | 15.15  | 23.74                       | 10.78  | 0.38                   |

\* indicates significant difference from zero at the 5% level, assuming normality and independence

**Table 7**  
**Allocation and flipping by exchange**

The sample of IPOs is split into two groups based on the listing exchange. The table provides mean and median statistics: N is the number of observations; offer price is the initial offer price; issue size refers to the dollar proceeds; gross spread is the underwriter spread as a percentage of offer price; day 1 return is the percentage difference between the opening price on day 1 and the offer price; shares traded as % of total shares offered is the total number of shares traded in the first two days as a percentage of total shares offered; shares flipped as % of the total trading volume is the total number of shares flipped on the first two trading days divided by the total number of shares traded on the first two trading days; and shares flipped as % of shares offered is the total number of shares flipped on the first two trading days divided by the total number of shares offered in the IPO; institutional allocation is the percentage of an issue allocated to institutional investors; lead UW's % of the offering is the percentage of shares in the offering distributed by the lead underwriter; and lead UW's institutional allocation is the percentage of shares allocated to institutions from the lead underwriter's quota.

|                                                        | <b>Nasdaq<br/>(N=122)</b> |               | <b>NYSE and AMEX<br/>(N=71)</b> |               | <b>Difference in<br/>means</b> |
|--------------------------------------------------------|---------------------------|---------------|---------------------------------|---------------|--------------------------------|
|                                                        | <b>Mean</b>               | <b>Median</b> | <b>Mean</b>                     | <b>Median</b> | <b>t-statistic</b>             |
| <b>Offer price (\$)</b>                                | 13.70                     | 13.00         | 17.54                           | 16.00         | -5.15*                         |
| <b>Issue size (millions of \$)</b>                     | 76.58                     | 44.90         | 226.87                          | 112.00        | -4.84*                         |
| <b>Gross spread (%)</b>                                | 6.92                      | 7.00          | 6.48                            | 6.86          | 5.16*                          |
| <b>Day 1 return (%)</b>                                | 23.98                     | 16.93         | 10.89                           | 8.95          | 4.54                           |
| <b>Shares traded as % of total<br/>shares offered</b>  | 101.24                    | 98.75         | 48.85                           | 48.71         | 8.75*                          |
| <b>Shares flipped as % of total<br/>trading volume</b> | 16.54                     | 13.80         | 22.54                           | 19.95         | -1.56                          |
| <b>Shares flipped as % of total<br/>shares offered</b> | 18.36                     | 8.94          | 9.84                            | 5.97          | 2.8*                           |
| <b>Institutional allocation (%)</b>                    | 76.41                     | 76.64         | 67.66                           | 69.49         | 4.52*                          |
| <b>Lead UW's % of the<br/>offering</b>                 | 63.80                     | 59.64         | 60.13                           | 58.11         | 1.16                           |
| <b>Lead UW's inst. allocation<br/>(%)</b>              | 83.68                     | 87.01         | 78.70                           | 81.46         | 2.57*                          |

\* indicates significant difference from zero at the 5% level, assuming normality and independence

**Table 8**  
**IPO allocations and flipping activity regressions**

Two sets of regressions are run. The first set uses shares flipped by institutions as a percentage of shares allocated to institutions as the dependent variable, and the second set shares flipped by retail customers as a percentage of shares allocated to retail customers. The independent variables are the day 1 return (offer price to day 1 close), Green Shoe percentage exercised, log of initial proceeds, a dummy variable equal to one if the lead investment bank is classified as retail and zero otherwise, and a dummy equal to one if the IPO trades on NYSE/AMEX and zero otherwise.

|                                   | Dependent variable                              |                    |                                          |                   |
|-----------------------------------|-------------------------------------------------|--------------------|------------------------------------------|-------------------|
|                                   | Institutional flipping as % of shares allocated |                    | Retail flipping as % of shares allocated |                   |
| <b>Constant</b>                   | 29.13<br>(3.47)*                                | 36.63<br>(4.10)*   | -17.64<br>(-1.01)                        | -26.91<br>(-1.41) |
| <b>Day 1 return</b>               | 0.34<br>(3.99)*                                 | 0.36<br>(4.30)*    | 0.13<br>(0.72)                           | 0.07<br>(0.37)    |
| <b>Green Shoe % exercised</b>     | -0.19<br>(-0.64)                                | -0.33<br>(-1.10)   | 0.86<br>(1.39)                           | 0.90<br>(1.43)    |
| <b>Log of proceeds</b>            | -1.68<br>(-0.96)                                | -3.16<br>(-1.55)   | 0.87<br>(1.39)                           | 9.95<br>(2.29)*   |
| <b>Retail IB dummy</b>            | -                                               | -12.02<br>(-2.68)* | -                                        | 1.11<br>(0.12)    |
| <b>Exchange dummy</b>             | -                                               | 6.09<br>(1.36)     | -                                        | -13.01<br>(-1.37) |
| <b>Adjusted R<sup>2</sup> (%)</b> | 11.73                                           | 15.78              | 3.12                                     | 3.04              |
| <b>F-statistic</b>                | 6.67*                                           | 5.80*              | 2.38**                                   | 1.81              |

\* indicates significant difference from zero at the 5 % level, assuming normality and independence

\*\* indicates significant difference from zero at the 10 % level, assuming normality and independence