Universal Banking, Asset Management, and Stock Underwriting

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Abstract

This paper examines a group of IPO underwriters that also manage institutional funds from 1993 through 1998. We provide evidence that underwriters use their institutional funds as vehicles to help them earn more equity underwriting business. We also show that IPO underwriters use their superior information to earn annualized market adjusted returns 7.6% above non-underwriters, benefiting their institutional investors. Underwriters have the ability to make superior trades only when they have a lasting relationship with the firm they take public.

JEL Classification: G24

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Universal Banking, Asset Management, and Stock Underwriting

In recent years, researchers have produced a great deal of work analyzing conflicts of interest within universal banks and other financial institutions. With the increase in universal banking in the United States since the 1999 Gramm-Leach-Bliley Act, the potential for conflicts of interest within a financial institution has certainly increased. However, little research has been conducted concerning the conflict of two particular activities within the same institution: asset management and securities underwriting. The current paper investigates the stock holdings of financial institutions with underwriting divisions. In particular, we are interested in determining if fund investors suffer or benefit from institutions with both asset management and underwriting divisions.

There is anecdotal evidence in the press that asset management divisions of investment banks may feel pressure to hold recent IPOs brought forward by the same bank's underwriting division. A March 12, 2003 article in the *Wall Street Journal* describes such an event at Deutsche Bank. An underwriting executive at Deutsche phoned the chief investment officer at Deutsche's asset management unit and asked him to buy some of the struggling media company Vivendi Universal which Deutsche had helped bring public. The chief investment officer was told to "be a team player." Evidently a shouting match broke out between the two of them when the request was refused.

The SEC has expressed concern about this issue as well. A copy of a speech by SEC Director Stephen M. Cutler on September 9, 2003 says that "…an asset manager might feel pressured to invest in companies that its investment banking affiliate had

underwritten. But certainly a firm's advisory clients would be interested – not to mention, troubled – to learn that their portfolios were viewed by some as a tool for attracting investment banking business to the firm."

The literature in the area of universal banking focuses on two main conflicts of interest: bank lending/underwriting conflicts and sell side analysis/underwriting conflicts. For instance, Puri (1996, 1999) shows that bank lenders/underwriters can be effective in certifying underwritten securities, implying that the universal bank adds value to the underwriting process. Michaely and Womack (1999) provide evidence that sell side analysts working for the underwriter of an IPO give biased recommendations compared to non-underwriter analysts. In the context of SEO issues, Dugar and Nathan (1995) and Lin and McNichols (1998) find that analysts employed by SEO underwriters release more favorable earnings forecasts and stock recommendations than non-affiliated analysts. Ljungqvist, Marston, and Wilhelm (2006a) find that analyst initiations by investment bank affiliated analysts have no relationship with whether or not the investment bank will win future underwriting jobs as the lead manager. However, in subsequent work, Ljungqvist, Marston, and Wilhelm (2006b) find that aggressive analyst coverage does land future underwriting business in the form of membership in syndicates. This result is consistent with our findings that co-managers providing analyst coverage are more likely to obtain subsequent SEO business. Agrawal and Chen (2004) study stock recommendations and forecasts made by analysts at brokerages, investment banks, and combination brokerage/investment banks. Their results are consistent with brokerages providing more frequent and less accurate forecasts, possibly to increase the number of transactions by their stock clients.

Only three papers consider the relationship between asset management and stock underwriting: Ber, Yafeh, and Yosha (2001), Reuter (2006), and Ritter and Zhang (2006). Ber Yafeh, and Yosha (2001) explicitly considers the dynamic relationship between stock underwriting and fund management over time. However, their paper has a very limited sample size (82 IPOs) and focuses on the Israeli markets which could be quite different from the U.S. securities markets. They find that institutional portfolios show poor one-year post IPO stock performance when their asset management division buys IPOs brought public by their own underwriting unit. The work of Reuter (2006) and Ritter and Zhang (2005) is complementary to this work in that they study the allocation process of IPOs to mutual funds. They use the first quarter institutional holdings in IPOs as a proxy for the amount of shares institutions self-allocate at the time the IPO goes public. Reuter (2006) focuses on what drives underwriters to allocate shares from the initial offering to mutual funds, finding that mutual funds with allocations in underpriced IPOs pay more in brokerage fees to the underwriter.

Our paper is unique in that it is the first paper to examine the trading activity in underwriter accounts after IPOs and around SEOs, times when conflicts of interest might be the easiest to detect. We also look at the determinants of future SEO underwriting mandates. In contrast to Ber, Yafeh, and Yosha (2001), our paper shows that there are some benefits to utilizing asset managers who also have underwriting divisions. We find evidence that underwriter/asset managers utilize their underwriting relationship to benefit institutional investors. However, we also provide evidence that underwriters use their assets under management to gain future underwriting business.

Our focal point is a group of IPO underwriters that also manage institutional funds from 1993 through 1998. We consider only institutions that both underwrite stocks and have asset management divisions. For each IPO, we refer to "underwriters" as those investment bank/asset managers that underwrite the IPO and hold shares in a given quarter. We refer to "non-underwriters" as those investment bank/asset managers that did not underwrite the given IPO, but do hold shares in the given quarter. Underwriter purchases of their own IPOs occur frequently. Over 50% of the IPOs in our sample are purchased in underwriter institutional funds. Also, 68 of the 141 investment banks we analyze purchase stock in their own IPOs.

We test two hypotheses. The first we refer to as the Quid Pro Quo Hypothesis. This hypothesis implies that underwriters will utilize their institutional funds as a vehicle to earn more underwriting business. The second hypothesis is the Superior Information Hypothesis. Here we test whether underwriters use the information they discover during the underwriting process to earn superior future returns in their managed funds.

We first document that there is a statistical difference between the stock holdings (1.2% of shares outstanding) of IPOs for institutions that underwrite a particular IPO and the stock holdings (0.9%) of institutions that do not underwrite the same IPO, averaging holdings across the first eight quarters after the IPO. Consistent with Wermers (1999), we find that non-underwriter institutional holders are on average momentum traders in that they purchase stocks after they have gone up by a market adjusted 3.4% in the previous quarter. In contrast, underwriters are not momentum traders; underwriters purchase their own IPOs after a statistically insignificant previous quarterly return of

0.9%. This difference in trading behavior is consistent with the Quid Pro Quo Hypothesis.

For each of our IPO firms, we also document the trading patterns for underwriters and non-underwriters in the quarters surrounding subsequent SEOs and in-house analyst coverage initiations. Underwriters sell their holdings in quarters after they have initiated analyst coverage or have underwritten the firm's secondary offering. Non-underwriters do not sell after these events. These results show that underwriters could be trading for reasons other than to maximize institutional investor returns, also consistent with our first hypothesis.

We next document that the stock purchases of non-underwriters earn a future stock return that is not statistically different from zero, but large purchases by underwriters provide a statistically significant market adjusted return of 1.9% over the subsequent quarter or 7.7% per year. This finding implies that underwriters utilize superior information gleaned from the underwriting relationship with the firm to make decisions about the stocks they purchase.

If underwriters learn superior information about the firm during the IPO, we do not expect that the underwriter will be able to leverage that information under all conditions. We find that the superior future returns by underwriters are dependent on the information environment for the IPO and the underwriter reputation rank. We classify firms as to whether they have analyst coverage or not. When firms have no analyst coverage, underwriters earn statistically significant future quarterly returns of 1.8%. If firms do have analyst coverage, underwriters are not able to earn superior future returns. We then perform our tests for firms that have a high underwriter rank or a low

underwriter rank. The rank of an underwriter is important because higher ranked underwriters will have more mature banking structure with a better ability to effectively use information within the firm. We find that high rank underwriters earn significant quarterly market adjusted returns of 2.3%, where low rank underwriter returns are not significantly different from zero.

We show that IPO underwriters are able to exploit their superior information; SEO underwriters do not earn statistically significant future returns. We confirm the positive future abnormal returns for underwriters in both cross-sectional regressions and through calculating buy-and-hold abnormal returns based on both size and industry and size and book-to-market matching firm techniques.

The remainder of the paper is organized as follows. Section I discusses the theoretical motivation for the paper and proposes hypotheses to test. Section II describes our underwriter and institutional holdings sample. In section III we examine IPO holdings of institutional fund managers and test our motivating hypotheses. In the paper's last section, we offer implications of our findings and conclusions.

I. Motivation for Institutional Purchases of IPOs

We take the view that managers have a fiduciary responsibility to maximize the risk adjusted returns of their assets under management. As such, we characterize the actions taken by the asset management division of an investment banking firm as value decreasing or value increasing activities from the perspective of the persons that have given funds to the investment bank. Value decreasing activities generally take the form of a conflict of interest between the asset manager's fiduciary responsibilities to their

institutional investors and the incentive to purchase stocks that the institution has underwritten. If an institutional asset manager has sufficient liquid assets, perhaps he can stabilize stock prices by making a series of large stock purchases using the assets of the institutional fund. It is also possible that the institutional trader may hold the stock as a quid pro quo for the firm that went public. The underwriter/institutional trader might simply hold the stock to send a signal to the IPO firm that the underwriter is attempting to market the security. In the extreme form, value decreasing activities would include "stuffing," where underwriters of poor quality securities are disproportionately purchasing and holding these low quality stocks in their own asset management division. These activities are all potentially value decreasing from the perspective of an investor who has given assets to the investment bank to manage. However, these activities are all related to the investment bank's ability to gain future underwriting mandates from its current investment banking clients. This motivates our first hypothesis.

Hypothesis I Quid Pro Quo: Underwriter/asset managers will utilize their institutional funds as a vehicle to attract more underwriting business from newly public firms.

This hypothesis is analogous to the proposal made by Michaely and Womack (1999) that analysts are not acting in the best interest of their clients, but rather are trying to attract future underwriting business. The empirical implications of Hypothesis I are as follows. On average, underwriters will purchase more of their own poorly performing IPOs than non-underwriters will. We know from Wermers (1999) that on average,

institutional traders are momentum traders. Hypothesis I predicts that underwriters will trade less on momentum than non-underwriters.

Hypothesis I also predicts certain changes in portfolio holdings around the time of secondary stock offerings and analyst initiations. If investment bank asset management divisions hold stocks that their firm has underwritten in an effort to attract or keep their business as the SEO underwriter, we would expect to see the IPO underwriters hold large blocks of stock before the SEO. At the same time, the underwriter is likely to liquidate the stock position after the SEO once the firm has chosen the underwriter for its secondary offering. Holding large portfolios of sub-standard stocks or large underdiversified positions of stocks will hurt the fund performance of the underwriters. Therefore, underwriters will liquidate their stock holdings once they have obtained a subsequent underwriting mandate. Underwritten firms may view in-house analyst recommendations as possible substitutes for purchases by the asset management division. Therefore, underwriters might liquidate stock positions in sub-standard stocks once they have initiated analyst coverage. Quid Pro Quo predicts that the underwriter might hold the stock until its in-house analyst makes a recommendation, and then liquidate its position.[1]

Value increasing activities generally involve utilization of superior information obtained as the underwriter for a firm to benefit the investors that have funds under management by the underwriter. We know that institutional investors have the ability to

[1] We examine quid pro quo activities within an investment bank, but Hoberg and Seyhun (2005) examine another type of quid pro quo activity that involves investment banks. They find evidence that lead IPO underwriters and venture capitalists collaborate. Venture capitalists tolerate higher underpricing to benefit the IPO underwriters, and IPO underwriters provide positive price support prior to the expiration of lock-up periods. Venture capitalists typically distribute shares to their limited partners right after the lock-up expiration. This implies that venture capitalists are more concerned about the market price at the lockup expiration.

utilize superior information to earn abnormal returns [see Ben Dor (2003), Field and Lowry (2004), and Krigman, Shaw, and Womack (1999)]. The underwriter, through the process of taking a firm public and through its own due diligence will have access to more information than the general public and possibly more than other institutional investors. The underwriter has incentives to maintain a long-term relationship with the newly public firm for two main reasons: 1) to maintain or garner an information advantage in the markets and 2) to increase the likelihood of being selected as the underwriter for subsequent equity offerings. Although the asset management division and the underwriting division are separate entities, it seems possible, if not likely, that they would share information about firms.[2] The underwriter is in a good position to provide this superior information to the asset management division of the institution. Also, many underwriter analysts provide firm coverage for the IPO. It is not unreasonable to expect the information gleaned by the analyst or the underwriting division to be utilized by the institutional investing arm of the underwriter. Such trading on information should result in higher future returns for the fund under management by the underwriters.

Hypothesis II Superior Information: Underwriter/asset managers will purchase stocks that have superior future return prospects to benefit their institutional investors.

[2] It is fairly common for the asset management division of a firm and the underwriting division for the same firm to be in different buildings. This type of physical separation would help to reduce the amount of interaction between the underwriting division and the asset management division. However, one major investment bank executive we interviewed stated that employees often move across divisions within an investment bank and such movement would invariably result in personal contacts existing across divisions, even without the firm explicitly encouraging these relationships. It is possible that these relationships serve as one mechanism to allow the sharing of information from the underwriting to the asset management divisions.

This hypothesis goes one step further than the current finance literature in proposing that institutional investors have superior trading abilities (Field and Lowry 2004). We propose that underwriters of a stock have abilities beyond those of the average institutional trader and these abilities are obtained through their underwriting relationship with IPO firm. Whereas the Quid Pro Quo Hypothesis can be tested by looking at past returns and future underwriting mandates, the Superior Information Hypothesis can be tested by looking at future returns. If subsequent to all stock purchases, the stock value increases, then the underwriter is said to be trading on superior information.

What might motivate the underwriting division and the asset management division to interact? The asset management branch of the institution is likely to be compensated largely as a function of assets under management. The literature has generally shown that there is a positive correlation between past returns and future fund flows for institutional funds. As such, it is generally not in the asset management's best interest to hold stocks that are expected to perform poorly. The asset management division is likely to be receptive to the Superior Information sharing discussed in Hypothesis II, but is not likely to favor the Quid Pro Quo theory of Hypothesis I.

In contrast, the underwriting division is compensated for the number of security issuances the institution performs in the form of IPOs, SEOs, and other investment banking activities. Underwriters that take firms public successfully (i.e., with higher future stock returns) are more likely to attract new clients. Thus, the underwriting division would likely be in favor of the activities implied in Hypothesis I. The

underwriter could be indifferent between providing information to the asset management division of the institution as in Hypothesis II.

We see that the two institutional branches are motivated to engage in different activities: Quid pro quo for the underwriter and information sharing for the asset manager. In equilibrium it is possible that the underwriter will share information with the asset manager in exchange for the asset manager doing some degree of price stabilization or quid pro quo holdings of recent IPOs.

One important distinction to note is that there will likely need to be a strong relationship between the underwriter and the issuing firm for any of these empirical results to be observed. If underwriters see the taking of a firm through an IPO as a one-time arm's length transaction, then the underwriter is not likely to engage in quid pro quo activities. Likewise, a one-time underwriter may not be able to have sufficient links to the firm it takes public to gain information allowing the firm to make superior trades. Thus, we can see a hierarchy of underwriters and their propensity to conduct quid pro quo activities or to be able to trade on superior information. Underwriters with a one-time relationship may be able to make superior trades on the IPO firm stock for the first 1-2 quarters that the IPO publicly trades. However, these firms are not likely to have a sustainable informational advantage. In contrast, IPO underwriters with a strong relationship with the firm will be more likely to have a continued informational advantage and be better able to make superior trades for a longer period of time.

It is also likely that the general market information about a firm will influence the underwriters' ability to make trades resulting in positive abnormal profits. As the transparency of the firm increases, it should become more difficult to maintain an

informational advantage, even for an underwriter with a strong relationship with the firm. Thus, we may see that underwriters can maintain their informational advantage only if the firm has limited information available from outside sources such as analysts.

We should note that fund managers are prohibited by SEC rules from buying securities to benefit anyone but fund investors. In fact, until 1997, fund managers were limited to purchases of 4% or less of shares outstanding in stock deals where the banking affiliate participated. Under Wall Street pressure, the SEC increased this ruling to 25% of shares outstanding after 1997.[3]

II. Data and Institutional IPO Holdings

Our data source for IPOs from 1993 through 1998 is the Securities Data Company (SDC) new issues database. We examine IPOs prior to the internet/bubble period to avoid the influence of this period in our data sample.[4] Since 1978 the SEC has required institutional fund managers with discretionary holdings of more than 10,000 shares or $200,000 to report their holdings on a quarterly basis.[5] By institution name, we merge the IPO information from SDC to the Thompson Financial database of 13f filings for institutional holdings. We consider only underwriters that are listed in the SDC database as managing or comanaging underwriters.

[3] SEC Release IC-22775.
[4] Loughran and Ritter (2004) document a regime shift in several important control variables for our sample moving from 1993-1998 to post-1998 data.
[5] Similar to Field and Lowry (2005) we find that a large percentage of our data involves holdings below 10,000 shares and $200,000. We find that 11,901 data points or 25% of our dataset is below the threshold of 10,000 shares or $200,000.

We include quarterly holdings of IPOs for the first eight quarters the firm is publicly traded.[6] We examine only the first eight quarters because we think it is unlikely that underwriters would be able to leverage their superior information over the market for longer than two years. However, we do feel that quid pro quo activities may occur for more than eight quarters. In an effort to balance tests between these two hypotheses, we settle on an eight quarter horizon. We wish to look at analyst coverage and subsequent SEO activity as well, which precludes us from just looking at one or two quarters after the IPO.

The quarterly holdings from Thompson are already aggregated across all fund holdings within an institution. Our screening criteria yield a sample of 6,441 observations where IPO underwriters hold their own IPO in their managed funds, and 28,233 observations where institutional holders underwrite securities, but do not underwrite the specific IPO they hold. There are a total of 2,412 distinct IPOs.

To control for analyst coverage by the institutional investors, we utilize Thomson Financial's I/B/E/S database to obtain sell side analyst coverage of IPOs from 1993-2000. We merge this database into our holdings database based on the institution names. We use information about which firm the initiating analyst works for as well as how many quarters after the IPO the analyst initiates coverage of the IPO.

Since we are interested in controlling for SEO underwriting relationships, we use the Securities Data Company (SDC) new issues database to find secondary stock offerings as well. Once again, we merge the information about when a stock goes

[6] Quarter 1 holdings is the first quarter end from the date of the IPO. A firm that goes through its IPO on September 29, 1996 will have quarterly holdings recorded on September 30, 1996. A firm that goes through its IPO on July 1, 1996 will also have its first quarterly holdings listed on September 30, 1996.

through its secondary offering and who the underwriter is into the original IPO and institutional holdings data. Finally, stock return information comes from CRSP.

The format of the holdings data can be seen in Panel A of Table 1. This table contains the institutional holdings of Office Max for the first eight calendar quarters from the November 2, 1994 IPO date. We examine institutional holders that underwrite Office Max's IPO, as well as institutional holders who do underwrite IPOs, but were not part of the underwriting syndicate for Office Max. Quarter one holdings are for the first calendar quarter end after the IPO date, in this case, December 31, 1994. There are institutions that hold stock in the firm for as little as one quarter (HSBC Asset Management holds 41,850 shares in quarter five) or as many as eight quarters (William Blair & Company).

In Table 1 Panel B, we report the analyst coverage information for Office Max. There are two analysts in our dataset that initiate coverage of Office Max during the first eight quarters it publicly trades and hold stock sometime during that window. Morgan Stanley Group Inc, an underwriter for the stock, initiates coverage in quarter two. Bear Stearns & Co, a non-underwriter, also initiates coverage in quarter two. Finally, the secondary stock offering information for the company is contained in Table 1 Panel C. This table shows that the firm undergoes a secondary stock offering in quarter three and all three IPO underwriters are also SEO underwriting managers.

In Table 2 Panel A, we report the characteristics of IPO holdings for both underwriters and non-underwriters[7]. This table shows that underwriters hold slightly smaller firms with an average market capitalization of $1,020 million versus $1,230

[7] Once again, note that underwriters are defined as investment banks that hold stock in a particular IPO and have taken that firm public. Non underwriters are investment banks that hold stock in a particular IPO but did not underwrite that particular security.

million for non-underwriters. Underwriters hold IPOs with lower monthly turnover than non-underwriters. We define monthly turnover as the total monthly volume for a given IPO divided by its shares outstanding at the end of the same month. The IPOs that underwriters hold are less likely to be venture capital-backed than are the non-underwriter holdings. We use the investment bank reputation rankings from Loughran and Ritter (2004) available on Jay Ritter's website, bear.cba.ufl.edu/ritter/index.html, and average them across the firm's holdings in the same year. Firms who purchase their own IPOs have a higher ranking (8.4) than non-underwriter purchases (7.1). All differences between underwriters and non-underwriters are significant at the 1% level.

Underwriters frequently buy their own IPOs. In Table 2 Panel B, we report that underwriters purchase stock in 52% of the 2,412 IPOs that came public between 1993 and 1998. About one-fourth of the IPO sample goes through an SEO within the first eight quarters after the IPO, and over 40% of IPOs have analyst coverage initiated by their underwriter within eight quarters of the IPO. Also, the number of IPOs purchased by underwriters is not driven by just a few underwriting/asset management firms. Of the 141 firms who both underwrite and manage assets, 68 of them purchase their own IPOs.

We now turn to institutional holdings of IPOs averaged across the first eight quarters of trading, reported in Table 3 Panel A. From 1993-1998, average holdings of IPOs for all non-underwriter funds are 0.92% of total shares outstanding. The average underwriter holdings are 1.24% of total shares outstanding, for a statistically significant difference (p-value of 0.00) of 0.32% between the two groups.[8] The table also

[8] The share holdings of non-underwriters average 137,200 shares with a market value of $3.3 million. The share holdings of underwriters average of 245,600 shares with a market value of $6.2 million.

summarizes the average IPO holdings over the early and late 1990s. Underwriter holdings have increased from 1.19% in the 1993-1995 time period to 1.30% from 1996-1998. Non-underwriter holdings have dropped from 0.94% to 0.90% over the same time period.

Table 3 Panel B reports the percentage of shares held grouped by quarters. Underwriters hold more shares than non-underwriters across all quarter groupings. There is a decrease in the percentage of holdings across quarters for both underwriters and non-underwriters as time passes from the IPO. Underwriter holdings drop from 1.33% in quarters one through four to 1.11% in quarters five through eight. Non-underwriter holdings have a similar decline. Figure 1 shows the general trend of institutional holdings for underwriter and non-underwriters every quarter for the first eight quarters

III. IPO Holdings and Performance

Section A: Quid Pro Quo Hypothesis

We now move to testing Hypothesis I: Quid Pro Quo. The prior literature documents that institutional holders often follow a short-term momentum strategy (Wermers 1999). But if underwriters are trying to stabilize prices or gain more underwriting business from IPO firms, they may purchase shares in IPOs that are recent poor performers.

For each IPO, we form quarterly returns less the CRSP equally weighted index before and after the 13f quarterly filing dates. We do not calculate a return for what we call quarter zero, however, as each IPO will have a different period of time from the IPO

date to the required first filing.[9] We also classify the institutional holder as a buyer if the net change in shares from the previous quarter is positive for a given IPO. Out of 34,674 total observations, 75% show an increase in holdings over the previous quarter. The 13f filings report shares held on the last day of the quarter, but we have no way of knowing whether those shares were purchased at the beginning, middle, or end of the quarter.

Examining prior returns (quarter *t* -1) of stocks purchased in the future (quarter *t*) avoids timing ambiguity in that purchases made in quarter *t* are clearly occurring after prior returns. However, it is possible that institutional traders only consider stock price movements over the short term (less than one quarter) in their purchase decisions. We would not be able to detect any relationship between firm stock purchases and past stock returns in this case. By also examining contemporaneous returns and purchases for quarter *t*, we make our analysis timelier, but it is not possible to disentangle cause and effect. We choose to report both contemporaneous (quarter *t*) and prior (quarter *t* - 1) returns that correspond to changes in quarter *t* share holdings.

Based on Table 4 Panels A and B, we see that non-underwriters in general are momentum traders, consistent with prior research. Non-underwriters purchase stocks with a contemporaneous quarterly market adjusted return of 3.38%, and a prior quarterly market adjusted return of 3.40%. Underwriters, in contrast, make purchases subsequent to much lower positive returns. Underwriters purchase stocks with a contemporaneous market adjusted return of just 0.4% and a prior market adjusted return of 0.9%. The difference in underwriter and non-underwriter prior quarterly market adjusted returns is -2.5%, statistically significant at the one percent level.

[9] A firm that goes through its IPO on September 29, 1996 will only have one day of returns in quarter zero. In contrast, a firm that goes through its IPO on July 1, 1996 will have nearly a full quarter of returns.

We now continue to examine the Quid Pro Quo Hypothesis by testing to see if underwriting institutions are liquidating their stock positions after an SEO. If the firm is only holding the stock in order to get the SEO business, then we might expect to see investment banks that become SEO underwriters buying the stock ahead of the SEO, but selling it after the SEO.

In Table 5 Panel A, we compare the net purchases (measured in percent of shares outstanding) of IPOs in quarters pre- and post-SEO. Note that the net purchase can be negative (ie, the institution may be a net seller in any particular quarter). We see that all institutions, regardless of if they are the original IPO underwriter, are buying the stock before the SEO. IPO underwriters who are also the SEO underwriter purchase 0.20% of shares outstanding in the quarter before the firm goes through an SEO. Likewise, IPO non-underwriters who underwrite the subsequent SEO are buying 0.12% of shares outstanding.

Recall that institutional traders are, on average, momentum investors and thus buy shares as stock prices rise. SEOs are typically led by stock price run-ups so it is not surprising to see momentum investors buying before the SEO. However, in the quarter after the SEO, only the IPO underwriters are liquidating stock. They are selling 0.08% of shares outstanding for a statistically significant difference from before to after the SEO of 0.27%. Note that this figure is not only statistically significant, but is also very economically significant. With an average level of holdings of $5.6 million, this results in a decrease of nearly $1.75 million in stock holdings in the quarter after the SEO. In contrast, there is no difference between the pre- and post-SEO trades for institutions that did not underwrite the original IPO but did underwrite the SEO. There is also no

difference in pre- and post-SEO trades for those institutions that did not become the SEO underwriter.

Consistent with the Quid Pro Quo hypothesis, we see that IPO underwriters who are also the SEO underwriters change their behavior after the SEO. In contrast, all the other institutional groupings are on average still purchasing shares after the SEO. It may be that IPO underwriters are liquidating their higher than average holdings after an SEO in an effort to diversify their fund's holdings. In any case, it is clear that the underwriters are behaving differently from the non-underwriters in a way that could be a breach of their fiduciary responsibility. Underwriters of both the IPO and the SEO are investment banks with a very strong relationship with the issuing firm. These investment banks are clearly the most likely to have information from this close relationship and are likely to be in a good position to trade on this information.

We now use a probit regression framework to find the determinants of institutional buys. This framework allows us to incorporate the effects of prior returns on buying behavior, as well as the effects of other institutional services such as analyst coverage or SEO underwriting. The dependent variable is a dummy variable taking on a value of one (zero otherwise) if an institution purchases a stock during a particular quarter. We control for prior returns, firm size and institutional rank, as well as including dummy variables for analyst coverage and SEO underwriting in the previous quarter. These dummy variables measure whether the given institution initiates coverage or underwrites the SEO; they do not measure if other institutions provide analyst coverage or underwrite SEOS. Following Petersen (2005), we report p-values using clustered

standard errors in all regressions throughout the paper in an effort to control for serial correlation among manager observations.

Table 6 gives the determinants of stock purchases for an IPO underwriter and a IPO non-underwriter, respectively. The unconditional probability for an underwriter making a purchase over the first eight quarters that a stock trades is 65%, and 78% for a non-underwriter.

The regressions provide information consistent with both underwriters and non-underwriters acting as momentum traders in that their coefficients on the previous market adjusted returns are positive. Thus, the higher the previous quarterly return, the higher the probability that the underwriter and the non-underwriter will purchase the stock. This result is statistically significant at the one percent level although the economic significance is questionable. For instance, for the underwriters, if the previous quarterly excess return of the stock were to increase one standard deviation, the probability of purchasing the stock over the subsequent quarter would increase by 2.2%. Likewise for non-underwriters, the results are statistically significant, but economically questionable. An increase in the previous quarterly market adjusted return by one standard deviation results in an increase in the probability of a non-underwriter stock purchase by 2.6%.

The coefficient for an analyst initiation in the previous quarter provides a negative and statistically significant result of -0.19 (p-value of 0.02). This implies that if the underwriter initiated analyst coverage in the previous quarter, the underwriter is 7.4% less likely to buy stock in the current quarter. We consider two interpretations of this result. The underwriter could be selling the stock because the informational advantage

possessed prior to analyst initiation is no longer present. It is also possible that the underwriter is selling the stock because they have fulfilled their implicit obligation to their clients by holding the stock and/or providing analyst coverage. In contrast, non-underwriter analyst initiations have no effect on when non-underwriters purchase the stock.

Both probit regressions also include dummy variables for previous quarter SEOs. The resulting coefficient is statistically significant and negative for the underwriter. This means that the underwriter is 9.0% less likely to purchase the stock in the quarter after an SEO compared to another quarter. In contrast, previous SEOs have no statistically significant effect on non-underwriter purchases. These results are consistent with the purchase and sales data contained in Table 5. After becoming the SEO underwriter, the IPO underwriter starts selling the stock. If an IPO non-underwriter becomes the SEO underwriter, it has no effect on their decision to trade the stock.

Up to this point, we have several stylized facts that support the Quid Pro Quo Hypothesis. First, underwriters hold more shares of stock for the first eight quarters that the stock publicly trades. Our univariate results show that underwriters trade less on momentum than non-underwriter institutional traders do. In addition, IPO underwriters are selling their stock after they provide additional services to the firms they have underwritten. Once the underwriter initiates analyst coverage, they are more likely to sell the stock that they hold. Also, in the quarter after an SEO, the underwriter is more likely to sell stock. Non-underwriter purchases are not significantly influenced by either analyst coverage or SEO underwriting.

Now we wish to test if the actions taken by underwriters are successful in gaining additional business for the IPO underwriter. If the IPO underwriter is not more likely to gain future business by initiating analyst coverage on stocks, or buying and/or holding large amounts of stock, then the facts we have observed might simply be coincidental. One of the main ways underwriters can gain additional business from the firms they take public is from subsequent equity offerings. We now study if the actions taken by IPO underwriters are successful in gaining them future underwriting business with the firms they take public in the IPO.

We use a probit regression framework where the dependent variable is a dummy variable taking on a value of one (zero otherwise) if the institution is the underwriter of a secondary stock offering within the first eight quarters of trading. We use similar control variables as in our previous regressions. The variables of most interest are the IPO underwriter flag, the analyst initiations, and the buys by IPO underwriters and non-underwriters. These regressions use only 1,415 data points because we analyze only quarters when a seasoned equity offering occurs.

The first regression in Table 7 shows that the underwriter flag is large and statistically significant with a coefficient of 2.17. This result is not surprising as Ljungqvist and Wilhelm (2005) have reported that for 64% of firms, the firm IPO underwriters also underwrite subsequent SEOs. If a firm has analyst coverage from an investment bank in the previous quarter, then that investment bank is 30.5% more likely to be the SEO underwriter for the firm. This result is statistically significant at the one percent level. We are not suggesting causality, simply that SEO underwriters often initiate coverage for the firm prior to the underwriting of the new security. This is

another type of quid pro quo that we do not investigate here. Note that these results are consistent with Ljungqvist, Marston, and Wilhelm (2006b) who show that aggressive analyst coverage does increase the likelihood of being a syndicate member.

If a non-underwriter purchased the stock just in the previous quarter, there is no significant impact on whether they become the SEO underwriter. If the IPO underwriter purchased stock in the previous quarter, there is also not a significant impact on becoming the SEO underwriter. It may be that underwriters of the IPO build up their stock levels slowly over time so that our regression is not able to detect a relationship between purchases in the previous quarter and the identity of SEO underwriters. To this end, we run the second regression of Table 7 with institutional holdings as an explanatory variable. We feel that the level of holdings might be more important as they are the outcome of purchases over a longer period of time than simply one quarter.

These results show that the stock holdings of non-underwriters are not statistically significant determinants of SEO identity. However, IPO underwriters who hold more stock are rewarded for their higher holdings through a positive and statistically significant probability of obtaining future business as the stock underwriter (coefficient of 0.08 with a p-value of 0.02). In other words, a one standard deviation increase for the level of underwriter holdings provides an increase of 2.5% in the probability of being the underwriter for subsequent stock offerings. Note that this result obtains even after we control for the IPO underwriter identity, given that underwriting relationships are persistent. It appears that underwriter activities such as initiating analyst coverage and holding higher levels of stock subsequent to the IPO are in fact rewarded by future business with the firm in the form of SEO underwriting. We should also mention that

higher institutional rank makes it significantly more likely the firm will become the SEO underwriter.

Section B: Superior Information Hypothesis

We now turn to an analysis of Hypothesis II: Superior Information. For every 13f filing on quarter *t*, we calculate future returns for quarter *t* + 1. The first data column in Table 8 gives the results of a regression with future quarterly market adjusted returns as the dependent variable. The explanatory variables here include the prior quarterly return (to account for return autocorrelation), a dummy variable for institutional large buys, a cross-dummy for an underwriter large buy, the logarithm of market equity, the rank of the institution holding the stock, a dummy variable for analyst initiations by the institution in the previous quarter, and a dummy variable for the underwriter. We define a large buy as one in which the underwriter is both buying in the quarter and has stock holdings greater than the median across all observations.

We find that stock returns are positively autocorrelated in the short term as predicted by the past literature. The institutional large buy variable does not have significant predictive ability for future returns, although the underwriter large buy variable does. An underwriter buy predicts higher and statistically significant future quarterly returns of 1.92% or 7.68% per year.[10] Also, the results show that the larger the size of an IPO, the better the future performance. If an institution has a higher underwriter ranking, this does not appear to appreciably affect the subsequent returns of

[10] If we define large buys as the top 30th percentile of purchases and small buys as the bottom 30th percentile of purchases, this increases the strength and statistical significance of our results. Our results are not appreciably changed if we define the size of a large buy for each institution or for the population as a whole.

the institution's purchases. Analyst coverage initiation has no predictive ability for future returns.

The evidence presented in the "All Firms" column of Table 8 shows that underwriter/asset mangers make superior profits through their trading activities where non-underwriter institutional traders do not. However, we wish to determine when underwriters might have a particular informational advantage. As underwriters perform their due diligence, we may expect to see them make informed trades when they have the highest informational advantage. Firms with no analyst coverage might provide the best ability for underwriters to trade on their special knowledge. To this end, we run another regression using only firms that have no analyst coverage by any institution. In the "No Analyst Coverage" column of Table 8, we find that firms with no analyst coverage have a statistically significant return of 1.78% after underwriter large purchases. Note that there is no analyst coverage for the firm so the analyst coverage explanatory variable is no longer applicable for this regression. The significance of the other explanatory variables is consistent with the previous regression. When there is no analyst coverage, underwriters are able to use their special information gleaned from the due diligence process to make superior trades in the asset management division.

We then test the sample of firms that do have analyst coverage. The "Analyst Coverage" column in Table 8 reports that the underwriter buy variable is no longer statistically different from zero. This result implies that underwriters are not able to outperform in their large buys once there is analyst coverage for the firms. This result is consistent with the idea that underwriter managers have an informational advantage only as long as there is limited public scrutiny of a firm.

We also examine performance differences between high and low rank underwriters. High rank underwriters are defined as those underwriters with a ranking at the time of stock holdings of greater than 8. The fourth and fifth data columns provide the ranking results. High rank underwriters earn statistically significant market adjusted returns of 2.34% per quarter on their large purchases. Low rank underwriters, however, do not earn significant market adjusted returns.

Finally, we test to see if SEO underwriters are capable of making superior trades in their asset management portfolios. We find that unlike IPO underwriters, SEO underwriters earn a statistically insignificant return on their large purchases. The coefficient on the large SEO underwriter buys is 1.38% with a p-value of 0.35. Thus, it appears that IPO underwriters have an informational advantage that they can exploit until there is analyst coverage. In contrast, SEO underwriters do not appear to have any informational advantage that allows them to make superior trades.[11]

We have shown that underwriter asset managers have the ability to make stock purchases prior to positive future abnormal returns. However, it is possible that these are purchases of riskier stock that should in fact have higher expected future returns. Following the recommendations in Lyon, Barber, and Tsai (1999), we control for firm risk by creating abnormal returns using a matching firm for each IPO. We use two methods. First, we match on size and industry. Each quarter, we select a matching firm in the same industry (2-digit SIC code) as the IPO, with the closest market capitalization to the IPO. We require that the matching firms be "seasoned" in that they are at least five

[11] In untabulated results, we also test if underwriter market adjusted returns are clustered by institution, by industry, or by year. We find no statistical evidence that market adjusted returns from underwriter large purchases are driven by just a few institutions, a few industries, or occur in only a few years. Also, underwriters' superior returns are not confined to just the first few quarters.

years removed from their initial public offering. Second, we match on size and book-to-market. For each method, we calculate matching firm and IPO returns over identical quarters, and then subtract the matching firm return from the IPO return. If a matching firm is delisted during our measurement window, we simply select another size and industry or size and book-to-market matched firm at that point.

In Table 9, we report one-, two-, and three-month buy-and-hold abnormal returns for each underwriter grouping. For the size and industry matching, Panel A gives the abnormal returns according to large institutional buys, while Panel B reports small institutional buys. We separate purchases in this manner under the hypothesis that underwriters will most exploit their superior information through their large purchases. If underwriters are trading consistent with the Quid Pro Quo hypothesis, it would likely be through smaller transactions. Panels C and D provide similar information for the size and book-to-market matching.

For the large purchases in Panel A, the underwriters outperform the non-underwriters over both one- and two-month horizons. For example, over two months, the underwriters outperform non-underwriters by 1.65% (p-value of 0.01). Over three months, there is not a significant difference between the two groups. It is possible that the three-month returns are not significant because the institutional trades become public halfway through this return window. The trades of institutions are made available (through their 13f filing) to the public 45 days after the end of the quarter. Once the institutional trading information becomes available, it would be much more difficult for the institutions to earn abnormal returns. Our three-month returns are based on 45 days when the trading information would not be available, and 45 days when it would be.

In Panel B, we report abnormal returns after small institutional purchases. Returns are marginally different across the two groups at the one-month horizon, but not at the two- or three-month horizon. We see similar results in Panels C and D when using the size and book-to-market matching method. The results of Table 9 are consistent with underwriters using large purchases to exploit their superior information learned during the IPO underwriting process.

Section C: Robustness Tests

We provide evidence consistent with underwriters purchasing stocks after stock price declines. Our tests show results that are consistent with Hypothesis I: it appears that institutional asset managers are using their fund assets as a quid pro quo for firms going through IPOs. However, it is also possible that this result is consistent with Hypothesis II. If underwriters know that stocks are undervalued due to their superior information gathered as the underwriter, then it is only natural to expect firms to purchase stocks after a price decline. For this result to be consistent with Hypothesis II, we would expect these stocks to subsequently rebound in prices. In other words, if the underwriter is buying the stocks because they are underpriced, then the subsequent stock performance should be positive.

To this end, we examine the future returns of stocks purchased after the stock price has declined. We show in Table 10 that stocks purchased by the underwriters after down quarters have market adjusted returns of -0.22% over the subsequent quarter. Non-underwriter purchases made after quarters of negative returns have market adjusted returns of -0.21% in the subsequent quarter. The difference between these values is not statistically significant.

We also split our sample by small and large buys. We find that small underwriter buys after negative performance result in future market adjusted returns of -0.81% on average where non-underwriters have future market adjusted returns of -0.02%. For large buys, the figures for underwriters and non-underwriters are 0.35% and -0.41%, respectively. None of the differences between underwriters and non-underwriters are statistically significant at a meaningful level. These results imply that underwriters are not purchasing stocks after price declines in anticipation of higher future returns on these stocks.

IV. Discussion and Conclusion

There is a clear potential for conflicts of interest within an institution that underwrites securities and also manages institutional funds. At the same time, the combined underwriter/asset manager may possess superior information allowing the institution to make profits above those possible for other institutional traders. We test two main hypotheses relating the benefits and costs of underwriter/asset managers: the Quid Pro Quo Hypothesis and the Superior Information Hypothesis. We find evidence that underwriters utilize their institutional holdings to stabilize prices or otherwise provide a quid pro quo to firms they have brought public. We also find strong support for the statement that asset managing institutions are trading on their informational advantage as underwriters, earning an annualized market adjusted return of 7.7%. In particular, we find that underwriters/asset managers are able to make substantial profits when they are institutions with a high rank and when there is very little market information available about the firm as measured by analyst coverage.

The Quid Pro Quo Hypothesis constitutes a severe breach of trust for asset managers. One question of significance is can these activities take place in an efficient market equilibrium? In an economy with perfect information, it is clear that the underwriters of securities could never stabilize prices using institutional assets as this action would be penalized by the market. Institutions engaging in such activity would be severely punished by investors removing their assets from the management of that institution. Thus, institutional investors would not engage in price stabilization. If, however, the institutional asset manager can exploit superior information from the underwriter sometimes and provide quid pro quo for the underwritten securities at other times, it seems likely that both price stabilization and information sharing will occur in equilibrium. Our results are consistent with this conjecture. We find that while assets under management are utilized to attract more investment banking business, the assets also have positive abnormal profits in the large trades of the institution.

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Table 1
Quarterly Holdings, Analyst Recommendations, and Secondary Stock Offerings for Office Max
IPO date: November 2, 1994

Panel A: Quarterly holdings by institutional shareholder

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Underwriters for Office Max IPO								
Dean Witter Discover & Co			415,000	25,000				
Morgan Stanley Group Inc	121,000	356,100	713,525	671,120	2,051,960	1,617,890	610,072	155,689
William Blair & Co.	27,900	25,400	38,850	30,600	34,890	25,378	48,409	50,494
Non-Underwriters for Office Max IPO								
Advest Inc.							16,275	17,375
Bear Stearns & Co			10,200	44,252	16,650	17,800	83,100	84,435
Columbia Management Co					500,000	600,000	700,000	
Credit Suisse First Boston								11,100
Dillon Read & Co								11,000
Goldman Sachs & Co								17,550
HSBC Asset Management					41,850			
Kemper Financial Services		357,000	2,860,400	1,321,800				
Merrill Lynch & Co Inc	4,305	4,400		1,410	15,000			12,100
Montgomery Asset Management	30,400	30,400	45,600	42,000	70,000	42,000	30,900	28,900
National Investment Services	116,750							
Oppenheimer Management Corp	121,500							
Paine Webber Inc			4,840	5,775				51,863
Prudential Securities Inc		25,581	98,743	110,200	212,633	161,430	112,320	107,004
Salomon Brothers Inc								10,000
UBS Asset Management Inc	27,200	20,200	30,300	30,300	33,053	33,053	64,664	20,714

Panel B: Analyst recommendations by institutional shareholder

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Underwriters for Office Max IPO								
Morgan Stanley Group Inc		Strong Buy						
Non-Underwriters for Office Max IPO								
Bear Stearns & Co		Strong Buy						

Panel C: Secondary stock offerings (SEO)

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Underwriters for Office Max SEO								
Dean Witter Discover & Co			SEO					
Morgan Stanley Group Inc			SEO					
William Blair & Co.			SEO					

We examine underwriters that are classified in the SDC IPO database as lead underwriters between 1993 and 1998. These underwriters must also have an asset management division that files quarterly 13f statements with the SEC. For each IPO, we refer to "underwriters" as those investment bank/asset managers that underwrite the IPO and hold shares in a given quarter. We refer to "non-underwriters" as those investment bank/asset managers that do not underwrite the given IPO, but do hold shares in the given quarter. We acquire quarterly holdings data from Thomson Financial, and analyst initiations and reiterations from IBES. SEO information comes from the SDC database. Quarter one (Q1) is the first calendar quarter after the IPO date.

Table 2
Summary Statistics

Panel A: Averages across first eight quarters of trading

Average	Institutional Holder = UW	Institutional Holder = Non-UW	UW - Non-UW [p-value]
IPO Market Value (millions)	1,019.9	1,229.9	-210.0 [0.00]
IPO Monthly Turnover %	13.0	17.0	-4.4 [0.00]
IPO Offer Price	16.5	15.4	1.1 [0.00]
IPO VC-Backed %	27.7	34.0	-6.3 [0.00]
Institutional Holder Reputation Rank	8.4	7.6	0.7 [0.00]
N	6,441	28,233	

Panel B: Number of observations

	Institutional Holder = UW	Institutional Holder = Non-UW	Total Sample
Number of Distinct IPOs	1,255	2,340	2,412
Number of Distinct IPOs Issuing SEO	401	675	675
Number of Distinct IPOs with Analyst Coverage	721	506	992
Number of Distinct Institutions	68	140	141
Number of Distinct Institutions Providing Coverage	32	39	42

We examine underwriters that are classified in the SDC IPO database as lead underwriters between 1993 and 1998. For each IPO, we refer to "underwriters" as those investment bank/asset managers that underwrite the IPO and hold shares in a given quarter. We refer to "non-underwriters" as those investment bank/asset managers that do not underwrite the given IPO, but do hold shares in the given quarter. We acquire reputation rankings from Jay Ritter's website bear.cba.ufl.edu/ritter/index.html. Measurement of the first eight quarters of trading begins at the first calendar quarter after the IPO date. Two-tailed p-values (assuming independence and normality) are given in brackets.

Table 3
Percentage of IPO Shares Held

Panel A: Average percentage holdings across first eight quarters of trading

IPOs Issued in	N	Institutional Holder = UW	N	Institutional Holder = Non-UW	UW - Non-UW [p-value]
1993-1998	6,441	1.24	28,233	0.92	0.32 [0.00]
1993-1995	3,595	1.19	14,758	0.94	0.25 [0.00]
1996-1998	2,846	1.30	13,475	0.90	0.40 [0.00]

Panel B: Average percentage holdings grouped by quarters

Quarters Post-IPO	N	Institutional Holder = UW	N	Institutional Holder = Non-UW	UW - Non-UW [p-value]
1993-1998					
1 – 4	3,783	1.33	14,175	1.01	0.31 [0.00]
5 – 8	2,658	1.11	14,058	0.83	0.29 [0.00]

We examine underwriters that are classified in the SDC IPO database as lead underwriters between 1993 and 1998. These underwriters must also have an asset management division that files quarterly 13f statements with the SEC. For each IPO, we refer to "underwriters" as those investment bank/asset managers that underwrite the IPO and hold shares in a given quarter. We refer to "non-underwriters" as those investment bank/asset managers that do not underwrite the given IPO, but do hold shares in the given quarter. Measurement of the first eight quarters of trading begins at the first calendar quarter after the IPO date. Both panels report the percentage of shares held, defined as the number of shares stated in the quarterly 13f filings (obtained from Thomson Financial) divided by the number of shares outstanding (obtained from CRSP). Two-tailed p-values (assuming independence and normality) are given in brackets.

Table 4
Contemporaneous and Prior Quarterly Market adjusted Stock Returns for IPOs Bought by Institutions

Panel A: Contemporaneous quarterly market adjusted returns

Institutional Holder	N	Return %
UW	4,175	0.40
Non-UW	21,881	3.38
UW – Non-UW [p-value]		-2.98 [0.00]

Panel B: Prior quarterly market adjusted returns

Institutional Holder	N	Return %
UW	3,519	0.90
Non-UW	19,145	3.40
UW – Non-UW [p-value]		-2.50 [0.00]

For Panel A, we calculate quarterly market adjusted stock returns in quarter *t* for all institutional IPO purchases occurring in quarter *t*. For Panel B, we calculate quarterly market adjusted stock returns in period *t* - 1 for all institutional IPO purchases occurring in quarter *t*. We classify institutional buyers as those institutions whose quarterly change in holdings from the previous quarter is greater than zero for a given IPO. All market adjusted returns are less the CRSP equally weighted market index. Two-tailed p-values (assuming independence and normality) are given in brackets.

Table 5
Stock Buys Pre- and Post-Secondary Stock Offerings

Panel A: Percentage of shares bought before and after an SEO by SEO underwriter

Institutional Holder	N	Pre-SEO	N	Post-SEO	Pre SEO - Post SEO [p-value]
IPO UW	228	0.20	274	-0.08	0.27 [0.04]
IPO Non-UW	73	0.12	107	0.13	-0.02 [0.85]

Panel B: Percentage of shares bought before and after an SEO by SEO non-underwriter

Institutional Holder	N	Pre-SEO	N	Post-SEO	Pre SEO - Post SEO [p-value]
IPO UW	49	0.33	39	0.13	0.21 [0.35]
IPO Non-UW	973	0.20	1,438	0.15	0.05 [0.19]

Percentage of shares bought is defined as the number of shares purchased from the previous quarter divided by the number of shares outstanding. Pre-SEO refers to quarter t - 1 conditional on an SEO occurring in quarter t. Post-SEO refers to quarter t + 1 conditional on an SEO occurring in quarter t. Two-tailed p-values (assuming independence and normality) are given in brackets.

Table 6
Probit Regressions for Determinants of Institutional Buys

	Institutional Buyer = UW	Institutional Buyer = Non-UW
Return $_{t-1}$	0.002 [0.00]	0.001 [0.00]
Ln(ME) $_{t-1}$	-0.001 [0.93]	-0.090 [0.00]
Institutional Holder Rank $_{t-1}$	0.017 [0.77]	-0.009 [0.70]
Analyst Coverage $_{t-1}$	-0.193 [0.02]	0.153 [0.21]
SEO Offering $_{t-1}$	-0.243 [0.00]	-0.049 [0.30]
Intercept	0.258 [0.61]	1.327 [0.00]
N	5,484	24,822

The dependent variable is a dummy variable taking on a value of one (zero otherwise) if the institution purchases the stock in quarter *t*. Explanatory variables from quarter *t* - 1 include the quarterly market adjusted stock return (Return $_{t-1}$), the logarithm of the market capitalization of the stock (Ln(ME) $_{t-1}$), the reputation rank of the investment bank (Institutional Holder Rank $_{t-1}$), a dummy variable taking on a value one (zero otherwise) if the institution initiates analyst coverage in the quarter (Analyst Coverage $_{t-1}$), and a dummy variable taking on a value of one (zero otherwise) if the firm issues an SEO in the quarter (SEO Offering $_{t-1}$). All market adjusted returns are less the CRSP equally weighted market index. P-values are given in brackets, and reflect controls for heteroskedasticity and serial correlation among manager observations (clustered standard errors).

Table 7
Probit Regressions for Determinants of SEO Underwriter Identity

Return $_{t-1}$	0.001 [0.68]	0.001 [0.69]
Ln(ME) $_{t-1}$	-0.027 [0.64]	-0.036 [0.52]
Institutional Holder Rank $_{t-1}$	0.138 [0.00]	0.138 [0.00]
IPO UW flag	2.171 [0.00]	2.110 [0.00]
Analyst Coverage $_{t-1}$	1.246 [0.00]	1.236 [0.00]
Institutional Buy $_{t-1}$	-0.024 [0.84]	
IPO UW * Institutional Buy $_{t-1}$	0.012 [0.96]	
Institutional Holdings $_{t-1}$		-0.044 [0.35]
IPO UW * Institutional Holdings $_{t-1}$		0.076 [0.02]
Intercept	-2.408 [0.00]	-2.332 [0.00]
N	1,415	1,415

The regression includes only the quarters in which a firm issues a secondary equity offering. The dependent variable is a dummy variable taking on a value of one (zero otherwise) if the institution underwrites an SEO in quarter *t*. Explanatory variables from quarter *t* - 1 include the quarterly market adjusted stock return (Return $_{t-1}$), the logarithm of the market capitalization of the stock (Ln(ME) $_{t-1}$), the reputation rank of the investment bank (Institutional Holder Rank $_{t-1}$), a dummy variable taking on a value of one (zero otherwise) if the institutional holder is the IPO underwriter (IPO UW flag), a dummy variable taking on a value one (zero otherwise) if the institution initiates analyst coverage in the quarter (Analyst Coverage $_{t-1}$), a dummy variable taking on a value of one (zero otherwise) if the institution purchased stock in the quarter (Institutional Buy $_{t-1}$), the percentage shares the institution holds in the quarter (Institutional

Holdings $_{t-1}$), and two cross-variables between the underwriter flag and the institutional buy and institutional holding variables. All market adjusted returns are less the CRSP equally weighted market index. P-values are given in brackets, and reflect controls for heteroskedasticity and serial correlation among manager observations (clustered standard errors).

Table 8
Multivariate Regression for Determinants of Future Quarterly Market Adjusted Stock Returns

	All Firms	No Analyst Coverage	Analyst Coverage	High Rank UW	Low Rank UW	SEO UW
Return $_{t-1}$	0.03 [0.00]	0.03 [0.00]	0.04 [0.00]	0.03 [0.00]	0.03 [0.01]	0.03 [0.00]
Institutional Large Buy $_{t-1}$	-0.08 [0.86]	-0.14 [0.80]	0.34 [0.63]	-0.36 [0.51]	0.59 [0.36]	0.23 [0.59]
IPO UW * Institutional Large Buy $_{t-1}$	1.92 [0.00]	1.78 [0.04]	1.72 [0.13]	2.34 [0.00]	0.63 [0.73]	
SEO UW * Institutional Large Buy $_{t-1}$						1.38 [0.35]
Ln(ME) $_{t-1}$	0.96 [0.00]	0.17 [0.30]	1.38 [0.00]	0.82 [0.00]	1.17 [0.00]	0.97 [0.00]
Institutional Holder Rank $_{t-1}$	0.02 [0.84]	0.06 [0.71]	0.02 [0.91]	0.38 [0.44]	0.30 [0.17]	0.00 [0.97]
Analyst Coverage $_{t-1}$	-0.44 [0.72]		0.26 [0.86]	1.34 [0.38]	-1.06 [0.63]	1.09 [0.41]
IPO UW Flag	-0.94 [0.03]	-1.13 [0.08]	-0.85 [0.24]	-1.04 [0.04]	-1.59 [0.06]	
SEO UW Flag						-1.46 [0.18]
Intercept	-5.67 [0.00]	-2.19 [0.18]	-7.57 [0.00]	-8.02 [0.04]	-8.32 [0.00]	-5.77 [0.00]
N	33,979	22,164	11,815	25,028	8,951	33,979

The dependent variable is quarterly market adjusted stock returns in quarter *t* for all institutional IPO buys or sells occurring in quarter *t - 1*. Explanatory variables from quarter *t* – 1 include the quarterly market

adjusted stock return (Return $_{t-1}$), the logarithm of the market capitalization of the stock (Ln(ME) $_{t-1}$), the reputation rank of the investment bank (Institutional Holder Rank $_{t-1}$), a dummy variable taking on a value of one (zero otherwise) if the institutional holder is the IPO underwriter (IPO UW flag), a dummy variable taking on a value of one (zero otherwise) if the institutional holder is the SEO underwriter (SEO UW flag), a dummy variable taking on a value one (zero otherwise) if the institution initiates analyst coverage in the quarter (Analyst Coverage $_{t-1}$), a dummy variable taking on a value of one (zero otherwise) if the institution makes a large stock purchase in the quarter (Institutional Large Buy $_{t-1}$), , and cross-variables between the IPO and SEO underwriter flags and the institutional large buy variable. A large buy is defined as those institutions that hold more shares than the median and also buy in a given quarter. All market adjusted returns are less the CRSP equally weighted market index. Analyst coverage (no analyst coverage) observations are IPOs that have at least one (zero) analyst that have covered the firm since the IPO date. High (low) underwriter rank observations have a ranking at the time of stock holdings of at least (not more than) 8.1. Pre-SEO are observations that occur only pror to any SEO occurring for the IPO firm. Post SEO are observations occurring in quarters contemporaneous with or after an SEO occurs. P-values are given in brackets, and reflect controls for heteroskedasticity and serial correlation among manager observations (clustered standard errors).

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Table 9
Future Style Adjusted Stock Returns for IPOs Bought by Institutions

Panel A: Abnormal returns (%) for large institutional buys, size and industry match

	N	1-Month	2-Month	3-month
IPO UW	2,088	-0.06	0.40	0.95
IPO Non-UW	10,505	-0.93	-1.25	0.11
IPO UW - IPO Non-UW [p-value]		0.87 [0.05]	1.65 [0.01]	0.84 [0.17]

Panel B: Abnormal returns (%) for small institutional buys, size and industry match

	N	1-Month	2-Month	3-month
IPO UW	2,001	0.51	-0.13	0.01
IPO Non-UW	10,651	-0.21	-0.69	0.14
IPO UW - IPO Non-UW [p-value]		0.72 [0.09]	0.56 [0.21]	-0.14 [0.44]

Panel C: Abnormal returns (%) for large institutional buys, size and B/M match

	N	1-Month	2-Month	3-month
IPO UW	1,912	-0.04	0.30	0.84
IPO Non-UW	10,048	-0.86	-1.07	0.06
IPO UW - IPO Non-UW [p-value]		0.82 [0.05]	1.37 [0.02]	0.78 [0.24]

Panel D: Abnormal returns (%) for small institutional buys, size and B/M match

	N	1-Month	2-Month	3-month
IPO UW	1,850	0.32	-0.24	0.10
IPO Non-UW	10,651	-0.14	-0.53	0.18
IPO UW - IPO Non-UW [p-value]		0.46 [0.12]	0.29 [0.19]	-0.08 [0.46]

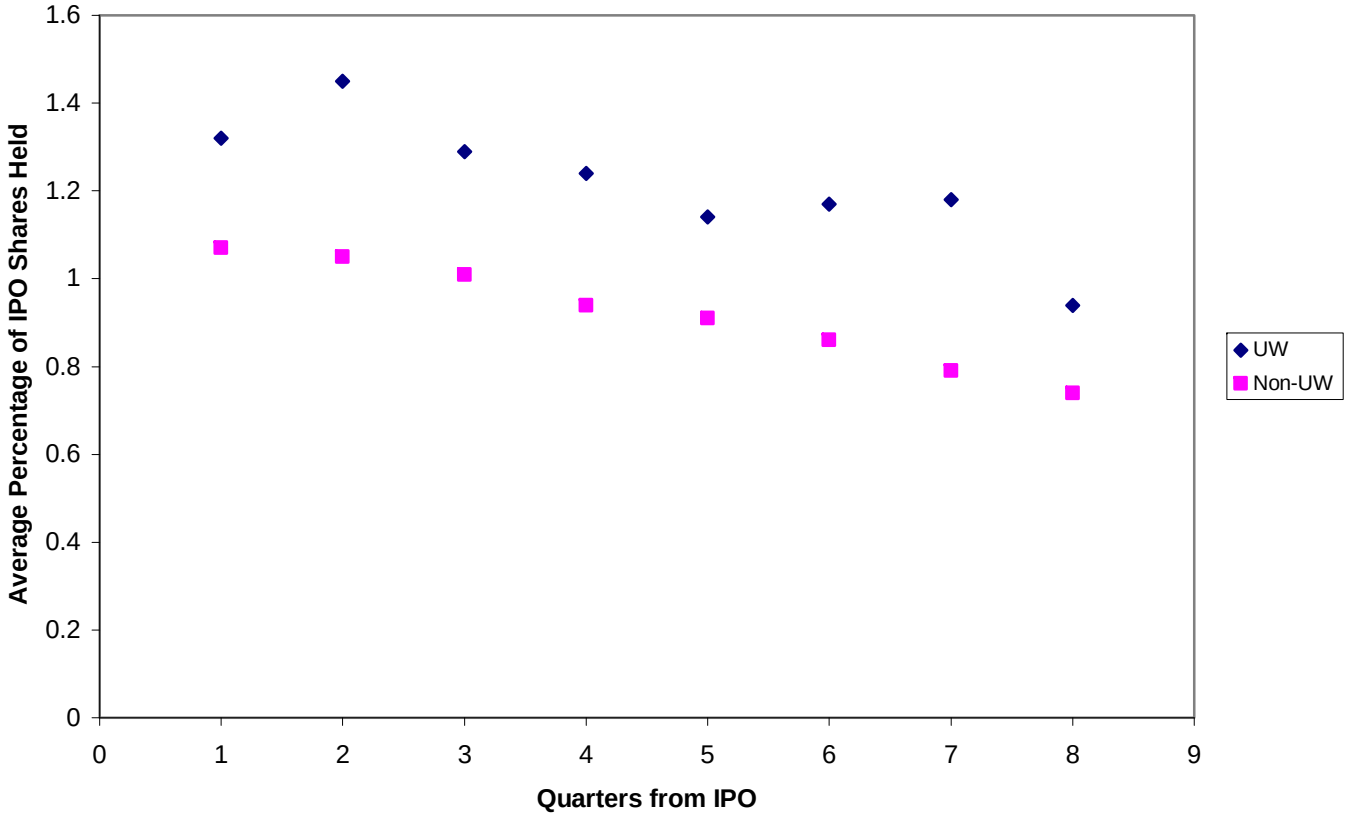
Panel A reports the quarterly style adjusted stock returns in quarter t for all institutional IPO large purchases occurring in quarter *t - 1*. A large buy is defined as those institutions that hold more shares than the median and also buy in a given quarter. Panel B reports the quarterly style adjusted stock returns in quarter t for all institutional IPO small purchases occurring in quarter *t - 1*. A small buy is defined as those institutions that hold fewer shares than the median and also buy in a given quarter. Style adjusted returns are calculated using two matching firm techniques. First, for each IPO, a matching firm is chosen in the same industry (2-digit SIC code) with the closest market capitalization for the given quarter. Second, firms are matched on size and book-to-market. Matching firm and IPO returns are calculated over identical periods. Style adjusted returns reflect the IPO return minus the matching firm return. One-tailed p-values (assuming independence and normality) that test whether the return difference is greater than zero are given in brackets.

Table 10
Future Quarterly Market Adjusted Stock Returns for IPOs Bought by Institutions
(Negative Prior Returns Only)

Institutional Holder	N for all Buys	Return % for all Buys	Return % for Small Buys	Return % for Large Buys
IPO UW	2,244	-0.22	-0.81	0.35
IPO Non-UW	10,817	-0.21	-0.02	-0.41
IPO UW – IPO Non-UW [p-value]		-0.00 [0.50]	-0.79 [0.78]	0.76 [0.21]

We calculate quarterly market adjusted stock returns in quarter *t* for all institutional IPO purchases occurring in quarter *t - 1*, but consider only observations where the market adjusted return in quarter *t - 1* is negative. A large buy is defined as those institutions that hold more shares than the median and also buy in a given quarter. A small buy is defined as those institutions that hold fewer shares than the median and also buy in a given quarter. All market adjusted returns are monthly returns less the CRSP equally weighted market index. One-tailed p-values (assuming independence and normality) that test whether the return difference is greater than zero are given in brackets.

Figure 1: Underwriter and Non-Underwriter IPO Holdings



We examine underwriters that are classified in the SDC IPO database as lead underwriters between 1993 and 1998. These underwriters must also have an asset management division that files quarterly 13f statements with the SEC. For each IPO, we refer to "underwriters" as those investment bank/asset managers that underwrite the IPO and hold shares in a given quarter. We refer to "non-underwriters" as those investment bank/asset managers that do not underwrite the given IPO, but do hold shares in the given quarter. Measurement of the first eight quarters of trading begins at the first calendar quarter after the IPO date. The percentage of shares held is defined as the number of shares stated in the quarterly 13f filings (obtained from Thomson Financial) divided by the number of shares outstanding (obtained from CRSP).