Why do firms going public raise too much financing?

AMBRUS KECSKÉS*

ABSTRACT

It has been observed that newly listed firms hold more cash than comparable seasoned firms. I hypothesize that firms going public raise too much financing to buy investor recognition and thereby increase firm value. I first show that firms do raise too much financing. I then show that firms use excess financing to buy better underwriting services, greater liquidity, and greater investor interest, especially firms that normally have low investor recognition. Finally, I show that the impact of investor recognition bought with excess financing on firm value is economically significant and persists for many years. Overall, the evidence supports my hypothesis.

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*Joseph L. Rotman School of Management, University of Toronto. Email: ambrus.kecskes03@rotman.utoronto.ca. I greatly appreciate the valuable comments of Craig Doidge, and especially of Laurence Booth, François Derrien, Jan Mahrt-Smith, and Kent Womack.

1. Introduction

Both academics and practitioners have long recognized that attracting greater investor attention can increase firm value. Merton (1987)'s seminal work on so-called "investor recognition" relaxes the standard assumption of perfect capital markets and supposes that each investor only knows about some subset of all available securities. Since not all firms are included in every investor's portfolio choice decision, firm value now depends on how many investors are paying attention to the firm. Greater investor recognition can decrease information production costs, increase the speed at which new information is impounded into prices, apply more pressure for better governance, and so on. Consequently, firms may be willing to bear costs to increase investor recognition and thereby increase firm value.

The positive effect of greater investor recognition on firm value has received extensive empirical support in the literature. Grullon, Kanatas, and Weston (2004) find that firms with greater product market visibility have a greater number of investors. Chaplinksy and Ramchand (2000) study domestic and global seasoned equity offerings and find that global offerings have more favorable (less negative) announcement returns than domestic offerings and the more so the greater is the increase in the number of foreign investors. Chung and Jo (1996) find that firms with greater analyst coverage have higher valuations. Arbel, Carvell, and Strebel (1983) document that firms with greater institutional ownership have lower returns, which is consistent with greater investor recognition decreasing the cost of capital. There is also much research that shows that expanding the location of trading increases firm value. For example, Kadlec and McConnell (1994) study firms that first trade over-the-counter and then list on the NYSE. Foerster and Karolyi (1999) and Miller (1999) study firms that cross-list in the U.S. In all three

studies, the number of shareholders and firm value both increase, and the greater is the increase in the number of shareholders, the greater is the increase in firm value.

There is direct evidence that firms take actions to increase investor recognition. For instance, Amihud, Mendelson, and Uno (1999) study firms that intervene to relax minimum transaction size constraints. As a result, the number of shareholders and firm value both increase, and the greater is the increase in the number of shareholders, the greater is the increase in firm value. Firms going public therefore may strive to maximize their exposure to prospective investors, and there is evidence that they in fact do so by deliberately underpricing their shares. For example, Cliff and Denis (2004) find that firms underprice their shares to attract analyst coverage. Aggarwal, Krigman, and Womack (2002) find that firms underprice their shares to build information momentum in the secondary market, which drives up their stock price and allows managers to cash out after the IPO more profitably.

The IPO literature has focused exclusively on underpricing as a mechanism for attracting attention. However, in addition to underpricing their shares, firms can also attract attention by raising more financing than they need. Bates, Kahle, and Stulz (2006) observe that newly listed firms hold more cash than comparable seasoned firms. I hypothesize that firms raise too much financing because they use it to buy investor recognition and thereby increase firm value.

More financing can buy greater investor recognition in several interrelated ways, namely, through better underwriting services, greater liquidity, and greater investor interest. By raising more financing, a firm can buy better underwriting services. This is because the more shares a firm sells, the greater is both the underwriting spread (a fixed fraction of IPO proceeds) and the greater are soft dollar trading commissions earned by the underwriter from allocating more underpriced shares to its clients.

At the same time, a firm can broaden its shareholder base by selling a larger fraction of the firm. Firms going public are usually small capitalization firms, which makes it difficult for many investors, especially institutions, to take positions. As long as demand is sufficient to absorb more underpriced shares, the number of investors will generally increase when the firm sells more shares. Also, investors demand a premium for holding less liquid stocks (see Amihud and Mendelson (1986) and Brennan and Subrahmanyam (1996)). A firm may be able to increase liquidity by selling more shares and thereby creating a larger public float in dollar terms. With a larger public float and a more liquid market in its shares, the firm may become investable for more investors. Insofar as more investors, particularly institutions, are interested in the firm, equity research analysts will be more motivated to cover the firm. The underwriter also benefits from greater liquidity and investor interest since the underwriter is also the lead market maker for the stock (see Ellis, Michaely, and O'Hara (2000)).

Excess financing has a decisive advantage in increasing investor recognition over excess underpricing. Only selling more shares can increase the firm's public float and improve liquidity and thereby make the firm investable for more investors. By contrast, underpricing may stimulate temporary demand for the stock but it is not obvious how underpricing makes the stock permanently more attractive to a broad range of investors. Nevertheless, the impact of excess financing and excess underpricing on investor recognition is ultimately an empirical matter.

In this paper, I examine the following questions: Do firms going public raise too much financing? If so, does excess financing buy investor recognition? Finally, does the investor recognition bought with excess financing ultimately increase firm value?

To answer the question of whether firms going public raise too much financing, I match each IPO firm to a seasoned firm based on industry and size. I find that even five years after

going public, the average IPO firm has roughly 15 percentage points higher cash-to-net assets than its matched firm. For small firms, the difference is much greater, roughly 30 percentage points. More complex methodologies similarly confirm that firms going public raise too much financing. Given the underpricing (typically 15%) of and underwriting spread (typically 7%) on shares sold in the IPO, firms presumably see some benefit to raising so much financing in the IPO. This benefit may be higher firm value via greater investor recognition.

I therefore examine whether firms use excess financing to buy investor recognition. I focus on three sets of investor recognition proxies, namely, underwriting services, liquidity, and investor interest. I estimate excess financing from a model of normal cash holdings. Since firms may buy investor recognition with excess underpricing, I also control for excess initial returns. I also account for determinants of investor recognition and firm quality. I find that firms that raise more excess financing tend to have more reputable underwriters, a larger underwriting team, and a wider distribution of the offering. Such firms also tend to have greater trading activity. Finally, such firms tend to be covered by a greater number of analysts and owned by a larger number of investors. These effects are more pronounced for firms that normally have low investor recognition, in particular, for small firms. Excess underpricing is also positively associated with investor recognition, but the economic magnitude of the relationship is typically much smaller than for excess financing. The results are consistent with the argument that excess financing buys investor recognition.

Finally, I examine whether investor recognition bought with excess financing ultimately increases firm value. I measure firm value using a standard relative valuation methodology. I decompose my investor recognition proxies into two components, one correlated with excess financing and the other uncorrelated with excess financing. I do likewise for excess underpricing.

I also account for firm characteristics and firm quality. I find that a one-standard deviation change in the component of investor recognition bought with excess financing is associated with roughly 20% higher valuations even five years after the IPO. By comparison, for excess underpricing, there is no difference in valuations several years after the IPO. In other words, the impact of excess financing on firm value is economically significant and persists for many years. Moreover, excess financing is not associated with lower stock performance. In summary, the evidence is consistent with firms raising too much financing to buy investor recognition and thereby increase firm value.

The central finding of this paper raises a number of questions for further research. Firms raise too much financing and they bear higher underpricing to attract attention to themselves. What other costs are firms willing to bear to buy investor recognition? For instance, do firms strategically feed the market a steady diet of new information to stimulate trading in the stock and thus attract more investors? Or more generally, do firms implement a comprehensive approach to managing investor relations? Which categories of investor recognition are the most cost effective in increasing firm value? How do the answers to the previous questions depend on firm characteristics? How do the answers depend on the structure of financial markets and economic systems, e.g., across countries? I leave these questions to future research.

The rest of this paper is as follows. Section 2 describes the data. Section 3 presents the results. Section 4 presents robustness tests. Section 5 concludes.

2. Data

I construct my sample of IPO firms by extracting all IPOs between 1980 and 2004 from Securities Data Company's New Issues database (10,715 firms). I retain only firms that can be matched to CRSP and that have CRSP listing dates sometime within thirty-one days of the SDC

IPO date (leaves 9,842 firms). I retain only U.S. operating firms, defined as firms with CRSP share codes of 10 or 11 (8,138 firms). I exclude financial and utility firms, defined as having CRSP SIC codes of 6000-6999 and 4900-4949, respectively (leaves 7,153 firms). Finally, I retain only firms that have net assets at the fiscal year end before the IPO in at least the second net assets decile (leaves 4,420 firms). Net assets are defined as total assets less cash. I construct net asset deciles each year using all Compustat firms that are U.S. operating firms and are not financial or utility firms.

I construct the sample of firms that I use in my model of normal cash holdings as follows. From Compustat, I obtain all firm-years such that the fiscal year end is between 1980 and 2005 (296,547 firm-years). I retain only firm-years that are matched to CRSP. I split these firm-years into two groups, namely, firm-years for which the fiscal year end is more than five years after the CRSP listing date (leaves 115,115 firm-years corresponding to seasoned firms) and firm-years for which the fiscal year end is on or after the CRSP listing date but on or before five years after the CRSP listing date (leaves 65,527 firm-years corresponding to IPO firms). For IPO firms, I retain only firms that do an IPO between 1980 and 2004 according to SDC and that can be matched to CRSP (leaves 37,762 firm-years). Next, for both groups, I retain only U.S. operating firms (leaves 94,668 and 31,039 firm-years, respectively) and I exclude financial and utility firms (leaves 74,307 and 27,686 firm-years, respectively). Finally, for seasoned firms, I retain only firm-years for which net assets are in at least the second net assets decile (leaves 68,849 firm-years and 8,229 firms). For IPO firms, I retain only firms that have net assets at the fiscal year end before the CRSP listing date in at least the second net assets decile (leaves 18,166 firm-years and 4,420 firms).

From CRSP, I obtain stock returns, stock prices, shares outstanding, trading volume, share codes, SIC codes, listing dates, delisting dates, reasons for delisting, and returns on the CRSP equally weighted and value weighted indices. Volume data for NASDAQ firms only begin in November 1982. From Ken French's website, I obtain factor returns.

From Compustat, I obtain cash (item #1), current assets (item #4), current liabilities (item #5), total assets (item #6), long-term debt due in more than a year (item #9), sales (item #12), EBITDA (item #13), common shares outstanding at the fiscal year end (item #25), deferred taxes and investment tax credits (item #35), long-term debt due within a year (item #44), R&D expenditures (item #46), book value of common equity (item #60), cash dividends (item #127), capital expenditures (item #128), acquisitions expenditures (item #129), and stock prices at the fiscal year end (item #199).

From SDC's New Issues database, for each IPO I obtain the IPO date, the number of primary shares offered in the U.S., the number of primary shares offered in all markets, the number of secondary shares offered in all markets, the offer price (i.e., the final prospectus price), the midpoint of the filing range (i.e., the preliminary prospectus price), the underwriting spread, the name(s) of the underwriter(s), the number of lead and co-managing underwriters, and whether the firm is venture capital backed. I also obtain follow-on offering data, namely, the SEO date, the number of primary shares offered in all markets, the offer price, and the underwriting spread. From Jay Ritter's website, I obtain the Carter and Manaster (1990) underwriter rankings for the lead underwriters of my IPO firms (covers IPOs from 1980 to 2004), a monthly time series of the total number of IPOs, and a monthly time series of the mean initial returns on IPOs.

From I/B/E/S, for the last day of each month, which I call the "summary date", for each firm, I compute analyst coverage as follows. I begin with the earnings estimates detail file and retain only estimates that are for the next fiscal year end. Estimates in the detail file only begin in 1983. I then keep only estimates with fiscal year end dates that fall within one year after the summary date. I then keep only estimates with fiscal year end dates equal to the first fiscal year end date after the summary date, i.e., the earliest fiscal year end date within one year after the summary date. Then, for each broker covering the firm, I keep the latest estimate, i.e., the estimate with an estimate date closest to but on or before the summary date. For the remaining estimates, one per firm-broker, I compute the number of U.S. operating firms covered by each broker, and I drop all observations for each broker that covers less than 25 U.S. operating firms. Finally, I count the number of brokers covering the firm.

From Thomson's 13f filings data, I obtain a list of all institutions owning every firm every calendar quarter. I keep only U.S. operating firms. I then count the total number of institutions each quarter as well as the number of institutions owing each firm.

Throughout the paper, all real amounts are in December 2004 dollars. All winsorized variables are winsorized at the 1st and 99th percentiles unless otherwise stated. Event years include year -1, 0, +1, +2, … , +5, where year -1 is the fiscal year end before the IPO date, year 0 is the IPO date, and years +1 through +5 are the fiscal year ends one through five years after the IPO date.

3. Results

3.1. Do firms going public raise too much financing?

Bates, Kahle, and Stulz (2006) observe that newly listed firm hold more cash than comparable seasoned firms. I therefore examine the cash holdings of my sample IPO firms

relative to comparable seasoned firms. I also examine whether firms going public that normally have low investor recognition, such as small firms, have particularly high excess cash, which should be the case if they raise too much financing to buy investor recognition.

I begin by finding a matched firm for each IPO firm as follows. For each IPO firm, for each of years -1, +1, +2, … , +5, I consider as candidate match firms all Compustat firms that can be matched to CRSP, that have fiscal year end dates within the event year, that have been listed for at least five calendar years at the time of their fiscal year end date, that do not delist before the IPO date, that are U.S. operating firms, and that have the same two-digit SIC code as the IPO firm. I select as the matched firm the candidate firm with the closest net assets to the IPO firm. By matching every IPO firm, for every event year, I ensure that there is always a matched firm that is most similar to the IPO firm that year. An IPO firm may have as many as six different matched firms.[1]

For each of years -1, 0, +1, +2, …, +5, I compute mean and median winsorized cash-to-net assets ratios for IPO firms and matched firms. In addition to computing results for all firms together, I break out results for big and small firms. Throughout this paper, big and small firms are defined based on my sample IPO firms as above and below median real net assets at the fiscal year end before the IPO, respectively. Year 0 cash-to-net assets are year -1 cash-to-net assets adjusted for the net primary proceeds of the IPO (net of the underwriting spread).

[Insert Table 1 about here]

Table 1 presents the results. From Panel A, we see that matched firms have fairly constant cash ratios in all event years (mean (median) of roughly 25% (10%)), whereas IPO

[1] If I match only at year -1, the results of this paper are the same. However, in this case, discrepancies arise in the survival of IPO firms and matched firms, so I report results based on matching each year.

firms have a slight cash deficit in year -1 and a huge influx of cash from the IPO. Once firms have rebalanced their capital structure after the IPO, cash falls drastically for IPO firms from year 0 to +1 (mean (median) drop of roughly 100 (65) percentage points) and again from year +1 to +2 (mean (median) drop of roughly 20 (10) percentage points), but then levels out. This decline in cash is partly attributable to an increase in firm size as firms season.

From Panels B and C, we see the same event time patterns as in Panel A. However, the difference in cash between IPO firms and matched firms is driven primarily by small firms. For big firms, the difference in cash is economically insignificant even in year +1, but for small firms, even in year +5, the mean (median) difference is roughly 30 (10) percentage points. In summary, IPO firms raise a lot of financing in the IPO, too much financing in the case of small IPO firms judging by the excess cash holdings sitting around many years later. It is precisely for these firms that investor recognition is normally low and for which excess financing should have the greatest incremental impact on investor recognition.

To pursue the question of whether excess financing buys investor recognition, I need a benchmark for cash holdings. Hence I construct a model of normal cash holdings and I use this model to estimate excess cash for my IPO firms. I follow Bates, Kahle, and Stulz (2006) and Dittmar and Mahrt-Smith (2007) in constructing my model. I begin with my sample of firm-years between 1980 and 2005 for seasoned and IPO firms. I define cash holdings as ln(CASH/NA) because it does not suffer from the right-skewness of CASH/NA seen in Table 1. My explanatory variables are as follows:

- ln(NA): ln(real net assets), a measure of size
- CAPEX/NA, R&D/NA, and ACQN/NA: All measures of investment
- EBITDA/NA: A measure of cash flows

- Industry median SD(EBITDA/NA): A measure of cash flow risk. Within each industry based on two-digit SIC codes, for each year, for each U.S. operating firm, I compute EBITDA/NA for the current year and each of the last nine fiscal years. As long as there are at least five of ten observations for a firm-year, I compute the standard deviation of EBITDA/NA, and I use the median standard deviation in that industry that year.
- NWC/NA: A measure of cash substitutes. Net working capital is calculated as current assets minus current liabilities minus cash.
- B/M: A proxy for investment opportunities, calculated as book value of common equity plus deferred taxes and investment tax credits all divided by market capitalization at the fiscal year end.
- LTD/NA: Leverage, calculated as long-term debt due in more than a year plus long-term debt due within a year
- Pays dividends dummy: A measure of firm maturity

I also include five dummy variables for whether the IPO firm was listed 1, 2, 3, 4, or 5 years ago as well as calendar year dummy variables to capture any year to year changes in macroeconomic conditions. All variables other than dummy variables are winsorized.

I cannot use book-to-market itself in regressions of excess cash holdings because cash and book-to-market may be endogenous. Instead, I run two-stage regressions, instrumenting for book-to-market in the first stage with industry book-to-market and including all other variables from the second stage as well.[2] Within each industry based on two-digit SIC codes, for each year, for each U.S. operating firm, I compute the median book-to-market ratio. I run two sets of two-

[2] If I instrument with industry median sales growth instead of industry median market-to-book, the results are the same.

stage regressions, one without and one with firm fixed effects. Some firms may have consistently high cash holdings, especially IPO firms if they raise too much financing to buy investor recognition, so I control for this with firm fixed effects.

[Insert Table 2 about here]

Table 2 presents the results. By way of a brief summary, bigger firms, firms that spend more on acquisitions, firms with more cash substitutes, and firms with higher leverage hold less cash. Firms with greater capital expenditures, firms with greater R&D expenditures, firms with greater cash flows, more risky firms, firms with more investment opportunities, and firms that pay dividends hold more cash.

The coefficient estimates on the five dummy variables for how many years ago the firm was listed are somewhat deceptive. The results in Table 2 suggest that IPO firms only hold more cash than comparable seasoned firms in the year after the IPO. I replicate the two-stage regressions with the addition of interacting each of the five dummy variables with the small firm dummy variable. It turns out that as in Table 1 the difference in cash is driven primarily by small firms. Even five years after the IPO, small IPO firms have more than thirty (ten) percentage points excess cash-to-net assets without (with) firm fixed effects. Firms going public do raise too much financing even controlling for firm characteristics.[3]

It is worth stressing at this point that the results of this paper are robust to how I measure "too much financing". My sample of IPO firms consists of the larger IPO firms because I impose a minimum net assets decile restriction. Partly for this reason, if I measure cash holdings scaled

[3] If firms raise too much financing to buy investor recognition and thereby increase firm value, it is not surprising that they hold too much cash even five years after going public. If firms were to return their excess cash to investors via a repurchase, they would reverse the liquidity and investor interest increases caused by excess cash.

by total assets or sales rather than net assets, the results are the same. Similarly, if I select matched firms based on additional dimensions, such as investment and cash flows, or on alternative measures of size, such as total assets or sales, the results are the same. Perhaps most telling of all, if I use the residuals of a simple model of ln(CASH/NA) explained by ln(NA), the results are still the same.

It is possible that firms trade off financing from the IPO against financing from follow-on offerings because the benefits and costs may be different. In practice, however, this tradeoff does not appear to be very important. Only 31% of my sample IPO firms issue primary equity in an SEO within five years after the IPO. Moreover, I measure offering proceeds as the ratio of net primary proceeds (net of the underwriting spread) to post-offering market capitalization, and I find that, on average, offering proceeds are 24.2% for IPOs but only 5.7% in total for all SEOs within five years after the IPO. Furthermore, for my full sample of IPO firms, the relationship between excess cash and SEO proceeds is negative but not statistically significant. However, for the 1,396 firms that do a follow-on offering within five years after the IPO, a one-standard deviation increase in excess cash is associated with a statistically significant 2.1 percentage point decrease in total SEO proceeds, which is economically significant relative to the mean total SEO proceeds of 5.7%. These salient summary statistics are similar for both big and small firms. In summary, while there is some evidence that firms trade off financing from the IPO and follow-on offerings, the IPO is by far the most important financing event for many years after the IPO.

3.2. Do firms that raise more excess financing have greater investor recognition?

As outlined in the introduction, each investor typically only knows about some subset of all available securities. Based on this premise, Merton (1987) argues that differences in investor recognition affect firm value. His argument has received extensive empirical support in the

literature. There is also direct evidence that firms take actions to increase investor recognition. For instance, Aggarwal, Krigman, and Womack (2002) and Cliff and Denis (2004) find that firms going public underprice their shares as a way to attract analyst coverage. In addition to underpricing, firms can also increase investor recognition by raising more financing than they need.

I therefore examine whether firms that raise more excess financing have greater investor recognition. Since the benefits and costs of increasing investor recognition may depend on firm characteristics, I also examine the relationship between financing and investor recognition by firm size. Merton (1987) suggests that small firms tend to have lower investor recognition than big firms. If the incremental benefit of investor recognition is greater for small firms, then they should be willing to raise more excess financing. Moreover, minimum scale constraints, such as underwriter deal size or institutional holding size, are more likely to bind for small firms than for big firms.

Excess financing has a decisive advantage in increasing investor recognition over excess underpricing. Only selling more shares can increase the firm's public float and improve liquidity and thereby make the firm investable to more investors. By contrast, underpricing may stimulate temporary demand for the stock but it is not obvious how underpricing makes the stock permanently more attractive to a broad range of investors. Nevertheless, the impact of excess financing and excess underpricing on investor recognition is ultimately an empirical matter.

A confounding force that may be at work in this analysis is firm quality. By "firm quality", I mean some general omitted factor that increases firm value, though it is helpful to think specifically of management competence, trustworthiness, etc. Suppose that better underwriters tend to service higher quality firms, liquidity tends to be greater for higher quality

firms, analysts tend to cover higher quality firms, and investors tend to invest in higher quality firms. Moreover, suppose that higher quality firms have lower costs of holding cash, e.g., lower agency costs, so they raise more financing. In this case, excess financing is actually a proxy for firm quality, which is exogenous, and may have nothing to do with firms buying investor recognition. To resolve this potential problem, I account for firm quality directly.

I now turn to the empirical analysis. I run regressions of each investor recognition proxy on excess financing broken out for big and small firms, excess underpricing, determinants of the investor recognition proxy, and controls for firm quality. I consider three sets of proxies for investor recognition, namely, underwriting services, liquidity, and investor interest. My proxies for underwriting services are underwriter reputation, the size of the underwriting team, and the distribution of the offering. For underwriter reputation, I use a dummy variable for whether the lead underwriter has a Carter and Manaster (1990) rank of at least eight (for firms with multiple lead underwriters, I use the average rank of the lead underwriters). This underwriter rank is a standard proxy for reputation in the IPO literature. For the size of the underwriting team, I use the number of lead and co-managing underwriters. More underwriters can provide better underwriting services because they have more extensive marketing capabilities, a wider distribution network, etc. For the distribution of the offering, I use a dummy variable for whether the firm sells shares outside of the U.S.

I use three proxies for liquidity. The first proxy is the natural logarithm of the ratio of trading volume during the month after the IPO to public float, where public float is the number of primary and secondary shares sold in the IPO. The second proxy is the natural logarithm of the mean monthly turnover (trading volume during the month divided by shares outstanding at the end of the month) during the year after the IPO. Due to missing volume data in CRSP for

NASDAQ firms, turnover can only be computed for NYSE and AMEX firms before December 1, 1983. The third proxy is the percent of zero volume trading days during the year after the IPO, which should be interpreted as a measure of illiquidity.

My proxies for investor interest are the number of analysts and the breadth of ownership. I measure analyst coverage one year after the IPO because analysts tend to take several months to start coverage after the IPO and I wish to use an equilibrium coverage value. I measure breadth of ownership in the quarter of the IPO as the number of institutions that own a given stock divided by the total number of institutions owing stocks in U.S. operating firms. Analyst coverage is a good rough proxy for investor interest. Breadth of ownership has the advantage of providing a lower bound on how many investors track the stock but it ignores the investors who track the stock but do not own it.

For my estimate of excess financing, I use the residuals of the second stage regression with firm fixed effects in Table 2, Xln(CASH/NA), throughout the rest of this paper. I measure excess financing at the first fiscal year end after the IPO because by that time the firm has rebalanced its capital structure and cash holdings should reflect how much cash the firm needs on an operating basis over the next few years. I break out Xln(CASH/NA) for big and small firms.

For my estimate of excess underpricing, I need a benchmark for initial returns. Hence I construct a model of normal initial returns and I use this model to estimate excess initial returns for my IPO firms. Excess underpricing rather than underpricing itself is the relevant factor because underpricing depends on firm characteristics, e.g., risk, that may warrant higher underpricing but are unrelated to investor recognition.

I follow Bradley and Jordan (2002) in constructing my model. I define initial returns as $\ln(P_{market}/P_{offer})$ and denote them as ln(1+IR). My explanatory variables are as follows. I control for the well-known partial adjustment phenomenon documented by Hanley (1993), namely, that offer prices are only partially adjusted to reflect information learned between the initial and final prospectuses, using P_{offer}/P_{filing}-1, which I winsorize at the 2.5th and 97.5th percentiles. I use the mean initial returns of IPOs in last three months to measure what other firms pay in underpricing costs. I also include ln(NA), CAPEX/NA, R&D/NA, ACQN/NA, EBITDA/NA, industry SD(EBITDA/NA), industry B/M, LTD/NA, and the pays dividends dummy variable all at the fiscal year end before the IPO. These variables should adequately account for size, investment opportunities, profitability, risk, leverage, and firm maturity.[4]

[Insert Table 3 about here]

Table 3 presents the results. Firms with greater price revisions and firms going public when initial returns are typically high have higher initial returns. Bigger firms, more profitable firms, and more levered firms have lower initial returns. Firms with greater investment opportunities and more risky firms have higher initial returns. For my estimate of excess initial returns, I use the residuals of this regression, Xln(1+IR), throughout the rest of this paper. The

[4] Unlike Bradley and Jordan (2002), however, I do not include overhang, a venture capital backed dummy variable, or a reputable underwriter dummy variable as explanatory variables. Overhang, defined as shares retained divided by public float, is a noisy measure of excess cash holdings so it would be aggressive to orthogonalize excess initial returns to excess cash. I use venture capital backing as a proxy for firm quality, so it captures any firm quality component of excess initial returns anyway. Since I examine how excess cash and excess initial returns are used to buy underwriting services, I cannot construct excess initial returns to be orthogonal to underwriter reputation.

specification of my model of normal initial returns is not critical because the results of this paper are the same if I use initial returns instead of excess initial returns.[5]

For the determinants of my investor recognition proxies, I follow the literature. For liquidity, analyst coverage, and breadth of ownership, I follow Chordia, Huh, and Subrahmanyam (2007), Chung and Jo (1996), and Grullon, Kanatas, and Weston (2004), respectively. The main factors used in these papers are size, investment opportunities, profitability, and risk. These factors would also seem to be the main determinants of underwriting services, although I am not aware of any comprehensive empirical paper in this area. To capture these factors, I use ln(NA), CAPEX/NA, R&D/NA, ACQN/NA, EBITDA/NA, industry SD(EBITDA/NA), and industry B/M at the fiscal year end before the IPO.

Also, I control for firm quality with three proxies, namely, venture capital backing, whether the firm is acquired within five years of the IPO, and whether the firm goes bankrupt within five years. The logic behind venture capital backing, an ex ante proxy, is straightforward. A key function of venture capitalists is to staff their portfolio firms with highly competent professional managers, which tends to result in well run venture capital backed firms (see Hellmann and Puri (2002)). Better run firms are certainly of higher quality. The logic behind acquisitions and bankruptcies, both ex post proxies, is that higher firm quality is observable to at least somebody outside of the firm when the firm goes public. For all three proxies, observable firm quality should be reflected in higher firm value.

[5] In principle, firms may use excess financing and excess underpricing as complements of substitutes. As an empirical matter, however, they are complements. A one percent change in initial returns (excess initial returns) is associated with a one (three) percent change in cash-to-net assets (excess cash-to-net assets).

I run probit regressions for dummy variables (reputable underwriter and global offering), negative binomial regressions for counting variables (number of underwriters and number of analysts), and ordinary least squares regressions for the remaining variables (volume to float, turnover, zero trading days, and breadth of ownership). I also compute the impact of excess cash and excess initial returns on each investor recognition proxy. For dummy variables, I compute the predicted probability of excess cash at its 25th and 75th percentiles for both big and small firms. I do likewise for excess initial returns. To facilitate the interpretation of probabilities conditional on excess cash and firm size, I use a small firm dummy variable instead of ln(NA) in regressions of dummy dependent variables. For volume to float and turnover, I compute the impact of a one-standard deviation change. For the remaining investor recognition proxies, I compute the impact of a one-standard deviation change relative to the mean of the investor recognition proxy. Additionally, Beatty and Welch (1996) find that in the 1980s initial returns were lower for more reputable underwriters but this negative relationship reversed after the 1980s. For this reason, in regressions of underwriting services, I break out excess initial returns for the 1980s and the post-1980s.

[Insert Table 4 about here]

[Insert Table 5 about here]

[Insert Table 6 about here]

Table 4 through Table 6 present the results for underwriting services, liquidity, and investor interest, respectively. The regression results indicate that both more excess cash and higher excess initial returns are associated with greater investor recognition. The economic magnitude of the impact of excess cash is also consistently greater for small firms than for big firms, typically twice as great. A change in excess cash from its 25th percentile to its 75th

percentile is associated with a change in the predicted probability of a reputable underwriter of 5.7 percentage points (from 80.8% to 86.5%) and 24.9 percentage points (from 25.3% to 50.2%) for big and small firms, respectively. For the probability of a global offering, the corresponding numbers are 6.1 percentage points (from 29.6% to 35.7%) and 6.4 percentage points (from 0.9% to 7.3%), respectively.[6] A one-standard deviation increase in excess cash is associated with a 3.4% increase in the number of underwriters for big firms and 6.2% for small firms. Clearly, the impact of excess cash is greater for small firms than for big firms. The impact of excess initial returns is roughly comparable to the impact of excess cash for big firms.

The results for liquidity and investor interest are similar to the results for underwriting services.[7] Additionally, the results for the determinants of my investor recognition proxies are as expected. Bigger firms and firms with greater investment opportunities have greater investor recognition. More risky firms also have greater investor recognition, although the relationship is

[6] It is not straightforward to interpret the sign and significance of the coefficient estimate on a continuous variable interacted with a dummy variable (see Ai and Norton (2003)). As a simple alternative, I sort firms into halves independently based on excess cash and real net assets at the fiscal year end before the IPO. Within each cell, I compute the proportion of firms with reputable underwriters. For big firms, 71.2% with low excess cash have reputable underwriters versus 84.4% with high excess cash. For small firms, the corresponding numbers are 21.5% and 62.1%, respectively. I perform the same computations for the proportion of firms with global offerings. For big firms, 24.0% with low excess cash have global offerings versus 33.1% with high excess cash. For small firms, the corresponding numbers are 1.7% and 13.9%, respectively. For both dummy variables, all tests of equality of means by excess cash halves and real net assets halves are statistically significant at the one percent level. These results are consistent with the results that I tabulate.

[7] Volume to float and turnover are affected by differences in how volume is reported for NASDAQ, a dealer market, and the NYSE and AMEX, both auction markets (see Atkins and Dyl (1997)). In untabulated results, I control for NASDAQ firms and the results are the same.

not always statistically significant. As for my proxies for firm quality, only venture capital backing is consistently associated with greater investor recognition. In summary, the results are consistent with excess financing buying investor recognition.

3.3. Do firms that raise more excess financing have higher firm value?

I now examine whether more excess cash increases firm value via greater investor recognition. Specifically, I first test whether investor recognition is associated with higher firm value as the literature predicts. I then test whether the component of investor recognition bought with excess financing increases firm value as my hypothesis predicts.

To measure firm value, I create relative valuation ratios as in Kim and Ritter (1999) and Purnanandam and Swaminathan (2004). Specifically, for each of years +1 through +5, I first compute the ratio of net market capitalization to net assets for each IPO firm and its matched firm, where net market capitalization is market capitalization net of cash. I then take the natural logarithm of the ratio of IPO firm's multiple to its matched firm's multiple, $\ln\left(\left(ME/NA\right)_{IPO}/\left(ME/NA\right)_{match}\right)$. Similarly, I compute three other valuation ratios using market capitalization in the numerator and total assets, sales, and EBITDA in the denominator. In the case of EBITDA, I only use observations where both the IPO firm and its matched firm have positive EBITDA.

I use the same three sets of investor recognition proxies as before, namely, underwriting services, liquidity, and investor interest. I am interested in the impact of my eight investor recognition proxies individually as well as collectively. However, my investor recognition proxies are highly correlated (pairwise correlations have an average magnitude of 0.328 and are all statistically significant at the one percent level). Hence I create a composite investor

recognition proxy as the first principal component of the eight individual investor recognition proxies (the component loadings all have the correct sign).

On a more basic level, relative valuations are a function of firm characteristics and firm quality. Bigger firms and more risky firms should have lower relative valuations while firms with greater investment opportunities and more profitable firms should have higher relative valuations. To control for these firm characteristics, I use ln(NA), CAPEX/NA, R&D/NA, ACQN/NA, EBITDA/NA, industry SD(EBITDA/NA), and industry B/M. To control for firm quality, I use the venture capital backing, acquisition, and bankruptcy dummy variables as before.

I run regressions of relative valuation ratios on each individual investor recognition proxy and the composite investor recognition proxy (nine regressions for each of five years). I also compute the impact of investor recognition on relative valuation ratios. For dummy variables (reputable underwriter and global offering), I compute the impact of a change from zero to one. For all other variables, I compute the impact of a one-standard deviation change in the variable.

[Insert Table 7 about here]

Table 7 presents the results for net market capitalization-to-net assets. Results for the other relative valuation ratios are similar and thus not tabulated. For expositional simplicity, only the coefficient estimate on the investor recognition proxy and its corresponding t-statistic are tabulated. Most investor recognition proxies are statistically and economically significant even in year +5. For instance, a reputable underwriter is associated with 65.2% higher valuations in year +1, which declines to +37.2% in year +5. A one-standard deviation increase in the ratio of volume to float is associated with 32.0% higher valuations in year +1, which declines to +7.9% in year +5. For the number of analysts and the breadth of ownership, the corresponding numbers are 61.4% and 62.6%, respectively, in year +1 and 15.4% and 13.1%, respectively, in year +5.

Greater investor recognition measured at the IPO is associated with higher firm value for many years after the IPO.

To test whether the component of investor recognition bought with excess financing increases firm value, I decompose each investor recognition proxy into two components, one correlated with excess cash and the other uncorrelated with excess cash. The decomposition is as follows. I first regress the investor recognition proxy on excess cash. I then replicate the regressions in Table 7 for years +1 through +5 using the fitted values and residuals from the first regression in place of the investor recognition proxy. I also compute the impact on relative valuation ratios of a one-standard deviation change for both components of investor recognition. To compare the impact of excess cash and excess initial returns on relative valuation ratios, I do likewise for excess initial returns.

[Insert Table 8 about here]

[Insert Table 9 about here]

Table 8 through Table 11 present the results for net market capitalization-to-net assets. Results for the other relative valuation ratios are similar and thus not tabulated. Table 8 presents the results for each individual investor recognition proxy decomposed by excess cash. Table 9 does likewise for excess initial returns. In Table 8 and Table 9, for expositional simplicity, only the coefficient estimate on the investor recognition proxy and its corresponding t-statistic are tabulated. Table 10 reports complete regression results for the composite investor recognition proxy decomposed by excess cash. Table 11 does likewise for excess initial returns.

[Insert Table 10 about here]

[Insert Table 11 about here]

From Panel As, we see that more excess cash is associated with higher valuations in years +1 through +5 whereas more excess initial returns are associated with higher valuations only until year +3 (compare Table 8 and Table 10 to Table 9 and Table 11). In terms of economic magnitude (Panel Bs), a one-standard deviation increase in excess cash is associated with roughly 40% higher valuations in year +1, +25% in year +2, and +20% in years +3 through +5. These numbers are similar for each individual investor recognition proxy (Table 8) and the composite investor recognition proxy (Table 10). By contrast, a one-standard deviation increase in excess initial returns is associated with roughly 30% higher valuations in year +1, +15% in year +2, and +10% in year +3. These numbers are similar for each individual investor recognition proxy (Table 9) and the composite investor recognition proxy (Table 11). The results are the same if I include simultaneously the component of investor recognition correlated with excess cash and the component of investor recognition correlated with excess initial returns but I omit the two uncorrelated components.

From Table 10 and Table 11, we see that the results for firm characteristics are as expected. Bigger firms and more risky firms have lower valuations. Firms with greater investment opportunities and more profitable firms have higher valuations. The results for firm quality are less straightforward. Venture capital backing is generally not statistically significant, acquisition is associated with lower valuations, but bankruptcy is associated with higher valuations, as expected.[8]

In summary, the results are consistent with my hypothesis that firms use excess financing to buy investor recognition and thereby increase firm value. The impact of excess financing on firm value is economically significant and persists for many years. Excess underpricing is also

[8] If I control for the year in which the firm goes public, the results are the same.

associated with higher firm value but its impact is economically less significant than the impact of excess financing and dissipates more quickly.

4. Robustness Tests

I perform some tests to assess the robustness of the preceding results. First, my sample period of 1980-2004 spans different regimes in the world of IPOs, at least as far as initial returns are concerned. In the 1980s, initial returns were documented to be lower for more reputable underwriters, but this negative relationship reversed after the 1980s (see Beatty and Welch (1996)). During 1999 and 2000, both the number of technology companies going public and initial returns soared. Ljungqvist and Wilhelm (2003) argue that lower CEO ownership, fewer secondary share sales, and increased allocations of shares sold in the IPO to friends and family provided an incentive to underprice. Loughran and Ritter (2004) argue that firms placed much greater emphasis on research coverage starting in the 1990s ("analyst lust") and were willing to pay for it with much higher underpricing. They also argue that starting in the 1990s, underwriters allocated underpriced shares in IPOs to venture capitalists and executives to influence their choice of underwriter when they took their firms public ("spinning"), which also supported a generalized increase in underpricing. With the change in the regulatory environment after the boom, many of the incentives for high underpricing have been muted. Following Loughran and Ritter (2004), I consider as sub-periods 1980-1989, 1990-1998, 1999-2000, and 2001-2004.

[Insert Table 12 about here]

I am mainly interested in the economic significance of the results by sub-periods, so I focus on Panel Bs from the previous tables. I replicate Table 4 through Table 6 with the exception that I do not break out excess cash for big and small firms. Similarly, I replicate Table 10 and Table 11 with the exception that I only consider event year +1 and not years +2 through

+5. Table 12 presents the results of the impact of excess financing and excess underpricing on investor recognition (Panel A) and firm value (Panel B) along with the statistical significance of the corresponding coefficient estimates. A cursory glance at the results for each sub-period are generally the same as the results for the sample as a whole.

Second, I test an alternative explanation for excess financing, namely, that firms going public "time the market". This can mean that firms issue equity when the cost of capital is "abnormally low" and/or that equity issuance is clustered when "windows of opportunity" are open (see Ritter (1991)). In either case, firms would raise too much financing. The predictions of these two interpretations are that firms overvalued at the IPO should subsequently underperform and that firms should raise too much financing when equity issuance activity is high, respectively.

To test the first prediction, I run four-factor regressions for low and high excess cash portfolios separately as well as excess returns regressions on excess cash. Specifically, I split my sample of IPO firms into top and bottom half groups by excess cash. Then, for both the low and high excess cash groups, I form calendar month portfolios, both equally weighted and value weighted, that contain all sample firms in a given group that have gone public in the last five years. I then regress the portfolio returns on the market, size, book-to-market, and momentum factors. I also run event time regressions of buy-and-hold abnormal returns on excess cash. Returns are calculated for each firm for up to five years from the IPO date using both the CRSP equally weighted and value weighted indices as the market index. To test the second prediction, I run regressions of excess cash on a hot issues market dummy variable. I define hot issues markets as months during which the three-month centered moving average of the total number of IPOs from Jay Ritter's website is above its median for the 1980-2004 period.

[Insert Table 13 about here]

Table 13 presents the results. From the factor regressions in Panel A, we see that two of the four intercepts are not statistically significant, and, of the other two, one is positive and the other is negative. From the buy-and-hold abnormal returns regressions in Panel B, we see that excess cash is not statistically significant using the CRSP equally weighted index but is significant (and positive, indicating outperformance) using the CRSP value weighted index. From Panel C, we see that excess cash is not statistically significantly higher in hot issues markets. In summary, this evidence does not support the market timing explanation of excess cash.

5. Conclusion

It has been observed that newly listed firms hold more cash than comparable seasoned firms. There is also extensive empirical evidence supporting the theory that greater investor recognition increases firm value. For instance, some authors find that firms attract attention by underpricing their shares. I hypothesize that firms going public raise too much financing to buy investor recognition and thereby increase firm value.

I first show that firms do raise too much financing. I then show that firms use excess financing to buy better underwriting services, greater liquidity, and greater investor interest, especially firms that normally have low investor recognition. Finally, I show that the impact of investor recognition bought with excess financing on firm value is economically significant and persists for many years. These results are incremental to the effect of excess underpricing, firm characteristics, and firm quality on investor recognition and firm value. Overall, the evidence supports my hypothesis and provides an explanation for why firms going public raise too much financing.

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Table 1
Cash Holdings of IPO Firms and Matched Firms

This table compares the cash holdings of IPO firms and matched firms. The sample comprises 4,420 firms that go public between 1980 and 2004. Year 0 is the IPO date. Year 0 cash-to-net assets are year -1 cash-to-net assets adjusted for the net primary proceeds of the IPO (net of the underwriting spread). Big and small are defined based on my sample IPO firms as above and below median real net assets at the fiscal year end before the IPO, respectively. Seasoned firms are matched to IPO firms by industry and net assets.

Panel A: $CASH/NA_{IPO}$ and $CASH/NA_{MATCH}$ as a percent for all firms

Year	N	Mean		Median	
		IPO firms	Matched firms	IPO firms	Matched firms
-1	4,371	22.8	28.5	5.2	9.6
0	4,368	162.0	28.5	88.4	9.6
+1	4,373	66.7	26.3	23.1	9.0
+2	4,061	45.9	24.7	13.5	8.6
+3	3,575	39.5	25.4	10.5	8.2
+4	3,138	36.3	25.9	9.4	8.0
+5	2,788	39.9	25.6	9.5	8.2

Panel B: $CASH/NA_{IPO}$ and $CASH/NA_{MATCH}$ as a percent for big firms only

Year	N	Mean		Median	
		IPO firms	Matched firms	IPO firms	Matched firms
-1	2,185	11.4	19.7	3.2	6.6
0	2,184	74.5	19.7	47.8	6.6
+1	2,185	25.6	19.0	7.1	7.1
+2	2,026	21.3	18.8	5.4	6.6
+3	1,765	19.3	18.0	4.8	5.5
+4	1,544	19.1	18.5	4.5	5.8
+5	1,360	19.6	18.8	4.0	5.7

Panel C: $CASH/NA_{IPO}$ and $CASH/NA_{MATCH}$ as a percent for small firms only

Year	N	Mean		Median	
		IPO firms	Matched firms	IPO firms	Matched firms
-1	2,186	34.1	37.3	10.4	14.5
0	2,184	249.6	37.3	160.6	14.5
+1	2,186	107.6	33.6	60.2	12.0
+2	2,033	70.6	30.5	32.8	10.8
+3	1,808	59.3	32.7	26.0	12.3
+4	1,592	52.9	33.0	21.0	11.1
+5	1,426	59.3	32.1	21.7	11.5

Table 2
Model of Normal Cash Holdings

This table presents a model of normal cash holdings. The sample comprises a panel of 87,015 firm-years consisting of 8,229 seasoned firms and 4,420 IPO firms between 1980 and 2005. In the second stage of two-stage regressions, I use instrumented book-to-market from the first stage. NA = real net assets. A matched firm is a seasoned firm that is the most similar firm to the corresponding IPO firm in terms of industry, size, investment, and cash flows. CAPEX = capital expenditures. R&D = R&D expenditures. ACQN = acquisitions expenditures. Industry SD(EBITDA/NA) is the industry (based on two-digit SIC codes) median standard deviation of EBITDA/NA. NWC = current assets minus current liabilities minus cash. Industry B/M is the industry (based on two-digit SIC codes) median B/M. LTD = long-term debt due in more than a year plus long-term debt-due within a year. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Below each coefficient estimate is its corresponding robust t-statistic in parentheses.

	Without firm fixed effects		With firm fixed effects	
	First stage	Second stage	First stage	Second stage
	B/M	ln(CASH/NA)	B/M	ln(CASH/NA)
ln(NA)	-0.015***	-0.155***	0.085***	-0.418***
	(5.43)	(20.75)	(24.40)	(54.33)
CAPEX/NA	-0.466***	0.690***	-0.670***	0.721***
	(10.33)	(5.18)	(21.34)	(10.33)
R&D/NA	-0.908***	4.473***	-0.241***	2.113***
	(27.91)	(39.42)	(6.65)	(29.07)
ACQN/NA	-0.288***	-0.707***	-0.296***	-0.269***
	(8.47)	(7.22)	(9.53)	(4.27)
EBITDA/NA	-0.559***	1.087***	-0.614***	1.074***
	(26.49)	(15.67)	(45.53)	(28.69)
Industry SD(EBITDA/NA)	0.391***	3.950***	0.587***	1.511***
	(3.24)	(12.55)	(6.58)	(8.56)
NWC/NA	0.326***	-0.608***	0.545***	-0.257***
	(15.49)	(10.94)	(40.73)	(7.46)
Industry B/M	0.824***		0.730***	
	(32.05)		(48.46)	
Instrumented B/M		-0.502***		-0.121***
		(7.48)		(2.96)
LTD/NA	-0.297***	-1.309***	-0.392***	-0.227***
	(12.21)	(23.31)	(30.75)	(7.66)
Pays dividends dummy	-0.036***	0.040	-0.024***	0.110***
	(3.68)	(1.52)	(3.70)	(8.54)
Listed [0,1] years ago	-0.210***	0.399***	-0.202***	0.271***
	(24.62)	(12.33)	(19.00)	(11.77)
Listed (1,2] years ago	-0.100***	0.148***	-0.119***	0.025
	(10.27)	(5.14)	(11.53)	(1.18)
Listed (2,3] years ago	-0.051***	0.085***	-0.078***	-0.045**
	(4.45)	(2.95)	(7.55)	(2.18)
Listed (3,4] years ago	-0.025**	0.029	-0.053***	-0.074***
	(1.98)	(1.02)	(5.06)	(3.57)
Listed (4,5] years ago	-0.001	0.024	-0.030***	-0.081***
	(0.07)	(0.82)	(2.83)	(3.80)
Constant	0.651***	-1.631***	0.150***	-0.847***
	(18.87)	(14.64)	(5.96)	(15.80)
Year dummy variables?	Yes	Yes	Yes	Yes
Number of firm-years	85,855	86,178	85,855	86,178
Number of firms	10,177	10,185	10,177	10,185
Adjusted R^2	0.202	0.311		
Within firms R^2			0.162	0.130
Between firms R^2			0.174	0.221
Overall R^2			0.138	0.181

Table 3
Model of Normal Initial Returns

This table presents a model of normal initial returns. The sample comprises 4,420 firms that go public between 1980 and 2004. ln(1+initial return) = ln(P_{market}/P_{offer}). Offer price revision = P_{offer}/P_{filing}-1. NA = real net assets. CAPEX = capital expenditures. R&D = R&D expenditures. ACQN = acquisitions expenditures. Industry SD(EBITDA/NA) is the industry (based on two-digit SIC codes) median standard deviation of EBITDA/NA. NWC = current assets minus current liabilities minus cash. Industry B/M is the industry (based on two-digit SIC codes) median B/M. LTD = long-term debt due in more than a year plus long-term debt-due within a year. ln(NA), CAPEX/NA, R&D/NA, ACQN/NA, EBITDA/NA, industry SD(EBITDA/NA), industry B/M, LTD/NA, and the pays dividends dummy variable are from the fiscal year end before the IPO. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Below each coefficient estimate is its corresponding robust t-statistic in parentheses.

	ln(1+initial return)
Offer price revision	0.379***
	(23.59)
Mean initial returns of IPOs in last three months	0.182***
	(9.72)
ln(NA)	-0.011***
	(6.87)
CAPEX/NA	0.038**
	(2.11)
R&D/NA	0.003
	(0.23)
ACQN/NA	0.013
	(0.74)
EBITDA/NA	-0.029***
	(3.38)
Industry SD(EBITDA/NA)	0.257***
	(3.27)
Industry B/M	-0.079***
	(5.58)
LTD/NA	-0.019**
	(2.43)
Pays dividends dummy	-0.003
	(0.66)
Constant	0.147***
	(10.65)
Observations	4,313
Adjusted R^2	0.382

Table 4
Excess Cash versus Underwriting Services

This table presents regressions of measures of underwriting services on excess cash. The sample comprises 4,420 firms that go public between 1980 and 2004. Probit regressions are run for the reputable underwriter and global offering dummy variables. A negative binomial regression is run for the number of underwriters, which is the number of lead and co-managing underwriters. The reputable underwriter dummy is a dummy variable for whether the lead underwriter has a Carter and Manaster (1990) rank of at least eight. The global offering dummy is a dummy variable for whether the firm sells shares outside of the U.S. Xln(CASH/NA) and Xln(1+IR) are excess cash and excess initial returns, respectively. Small firms are defined based on my sample IPO firms as below median real net assets at the fiscal year end before the IPO. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Below each coefficient estimate is its corresponding robust t-statistic in parentheses.

Panel A: Regressions of measures of underwriting services on excess cash and excess initial returns

	Reputable underwriter dummy	Number of underwriters	Global offering dummy
Xln(CASH/NA)	0.111***	0.049***	0.082***
	(5.83)	(7.90)	(4.23)
Xln(CASH/NA) × small firm dummy	0.212***	0.041***	0.365***
	(5.88)	(4.68)	(4.25)
Xln(1+IR)	0.261	0.485***	2.056***
	(0.86)	(6.05)	(6.84)
Xln(1+IR) × post-1980s dummy	0.346	-0.309***	-1.273***
	(0.98)	(3.16)	(3.50)
Controls:			
Small firm dummy	-1.304***		-1.448***
	(25.26)		(12.16)
ln(NA)		0.213***	
		(27.55)	
CAPEX/NA	0.429**	0.165***	0.229
	(2.48)	(2.72)	(1.23)
R&D/NA	1.103***	0.242***	0.379***
	(7.88)	(6.33)	(2.88)
ACQN/NA	0.396*	0.175***	0.366*
	(1.95)	(2.99)	(1.82)
EBITDA/NA	0.161**	-0.041	-0.302***
	(2.32)	(1.50)	(3.33)
Industry SD(EBITDA/NA)	1.133	1.475***	0.259
	(1.44)	(5.14)	(0.31)
Industry B/M	-0.599***	-0.515***	-0.811***
	(4.58)	(10.53)	(4.97)
Firm quality:			
Venture capital backed dummy	0.353***	0.089***	-0.177***
	(7.06)	(6.25)	(3.17)
Acquired within five years dummy	0.060	-0.009	0.051
	(1.12)	(0.54)	(0.88)
Bankrupt within five years dummy	-0.274***	0.013	-0.064
	(4.02)	(0.64)	(0.80)
Constant	0.786***	0.026	-0.141
	(6.78)	(0.45)	(1.05)
Observations	4,313	4,313	4,313
Pseudo R^2	0.211	0.085	0.168

Panel B: Impact of excess cash and excess initial returns on measures of underwriting services

	Estimated probability for the ind. var. at the …		Change in the number of underwriters, relative to its mean, from a one-s.d. change in the ind. var.	Estimated probability for the ind. var. at the …	
	… 25th percentile	… 75th percentile		… 25th percentile	… 75th percentile
Xln(CASH/NA), big firms	80.8%	86.5%	3.4%	29.6%	35.7%
Xln(CASH/NA), small firms	25.3%	50.2%	6.2%	0.9%	7.3%
Xln(1+IR), during 1980s	61.9%	63.3%	3.0%	8.9%	14.5%
Xln(1+IR), after 1980s	60.8%	64.0%	1.1%	10.9%	13.1%

Table 5
Excess Cash versus Liquidity

This table presents regressions of measures of liquidity on excess cash. The sample comprises 4,420 firms that go public between 1980 and 2004. Ordinary least squares regressions are run for all three dependent variables. volume/float is the ratio of trading volume to public float. Turnover is trading volume during the month divided by shares outstanding at the end of the month. Xln(CASH/NA) and Xln(1+IR) are excess cash and excess initial returns, respectively. Small firms are defined based on my sample IPO firms as below median real net assets at the fiscal year end before the IPO. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Below each coefficient estimate is its corresponding robust t-statistic in parentheses.

Panel A: Regressions of measures of liquidity on excess cash and excess initial returns

	ln(volume/float) during the month after the IPO	ln(turnover during the year after the IPO)	Percent of zero volume trading days during the year after the IPO
Xln(CASH/NA)	0.071***	0.062***	-0.397***
	(8.46)	(6.01)	(5.34)
Xln(CASH/NA) × small firm dummy	0.067***	0.030**	-0.748***
	(4.46)	(1.96)	(4.98)
Xln(1+IR)	1.550***	1.175***	-6.326***
	(16.53)	(13.63)	(9.10)
Controls:			
ln(NA)	0.024**	-0.024**	-1.274***
	(2.37)	(2.55)	(15.14)
CAPEX/NA	0.154*	-0.336***	-1.933***
	(1.85)	(3.87)	(2.64)
R&D/NA	0.151**	0.118*	-2.095***
	(2.53)	(1.87)	(5.06)
ACQN/NA	-0.206	-0.145	0.386
	(1.42)	(1.42)	(0.38)
EBITDA/NA	0.025	-0.018	-1.153***
	(0.75)	(0.51)	(4.66)
Industry SD(EBITDA/NA)	1.937***	1.932***	-8.143***
	(5.07)	(4.72)	(2.70)
Industry B/M	-0.656***	-0.432***	3.238***
	(9.69)	(6.06)	(4.57)
Firm quality:			
Venture capital backed dummy	0.159***	0.209***	-0.700***
	(6.53)	(8.56)	(3.27)
Acquired within five years dummy	0.006	0.028	-0.182
	(0.26)	(1.06)	(1.00)
Bankrupt within five years dummy	0.076*	0.149***	0.228
	(1.88)	(3.92)	(0.56)
Constant	0.114	-2.294***	7.668***
	(1.56)	(30.83)	(12.08)
Observations	4,157	4,214	4,153
Adjusted R^2	0.239	0.173	0.138

Panel B: Impact of excess cash and excess initial returns on measures of liquidity

	Change in the dependent var. from a one-standard deviation change in the independent var.		
	ln(volume/float)	ln(turnover)	Zero volume trading days, relative to its mean
Xln(CASH/NA), big firms	11.3%	9.9%	-23.1%
Xln(CASH/NA), small firms	22.0%	14.7%	-66.7%
Xln(1+IR)	21.9%	16.6%	-32.6%

Table 6
Excess Cash versus Investor Interest

This table presents regressions of investor interest on excess cash. The sample comprises 4,420 firms that go public between 1980 and 2004. A negative binomial regression is run for the number of analysts and an ordinary least squares regression is run for breadth of ownership. Breadth of ownership is the number of institutions that own a given stock divided by the total number of institutions owning stocks in U.S. operating firms. Xln(CASH/NA) and Xln(1+IR) are excess cash and excess initial returns, respectively. Small firms are defined based on my sample IPO firms as below median real net assets at the fiscal year end before the IPO. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Below each coefficient estimate is its corresponding robust t-statistic in parentheses.

Panel A: Regressions of measures of investor interest on excess cash and excess initial returns

	Number of analysts one year after the IPO	Percent breadth of ownership one quarter after the IPO
Xln(CASH/NA)	0.090***	0.220***
	(8.71)	(10.08)
Xln(CASH/NA) × small firm dummy	0.171***	0.062**
	(8.06)	(2.43)
Xln(1+IR)	1.026***	1.515***
	(11.42)	(13.00)
Controls:		
ln(NA)	0.361***	0.619***
	(38.23)	(29.15)
CAPEX/NA	0.566***	0.482***
	(6.08)	(3.85)
R&D/NA	0.483***	0.959***
	(7.96)	(10.21)
ACQN/NA	-0.047	-0.395***
	(0.45)	(2.62)
EBITDA/NA	0.145***	0.327***
	(3.82)	(5.93)
Industry SD(EBITDA/NA)	2.759***	0.253
	(6.56)	(0.37)
Industry B/M	-0.338***	-0.323**
	(4.16)	(2.54)
Firm quality:		
Venture capital backed dummy	0.286***	0.281***
	(10.91)	(7.10)
Acquired within five years dummy	-0.016	-0.069
	(0.58)	(1.53)
Bankrupt within five years dummy	-0.093**	-0.148***
	(2.17)	(3.19)
Constant	-0.630***	-0.796***
	(7.67)	(6.47)
Observations	4,263	4,313
Pseudo R^2	0.102	
Adjusted R^2		0.385

Panel B: Impact of excess cash and excess initial returns on measures of investor interest

	Change in the dep. var., relative to its mean, from a one-s.d. change in the ind. var.	
	Number of analysts	Breadth of ownership
Xln(CASH/NA), big firms	4.2%	21.3%
Xln(CASH/NA), small firms	12.3%	27.3%
Xln(1+IR)	4.3%	13.0%

Table 7
Individual and Composite Investor Recognition Proxies versus Firm Value

This table presents regressions of relative valuation ratios on investor recognition proxies. The sample comprises 4,420 firms that go public between 1980 and 2004. Seasoned firms are matched to IPO firms by industry and net assets. The individual investor recognition proxies are from Table 4 through Table 6. A composite investor recognition proxy is created as the first principal component of the eight individual investor recognition proxies. Each year relative to the IPO date, $\ln\left((ME/NA)_{IPO}/(ME/NA)_{match}\right)$ is regressed on each investor recognition proxy. All regressions include ln(NA), CAPEX/NA, R&D/NA, ACQN/NA, EBITDA/NA, industry SD(EBITDA/NA), industry B/M, and the venture capital backing, acquisition, and bankruptcy dummy variables as explanatory variables. For expositional simplicity, only the coefficient estimates on the investor recognition proxies are tabulated. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Below each coefficient estimate is its corresponding robust t-statistic in parentheses.

Panel A: Regressions of relative valuation ratios on investor recognition proxies

Investor recognition proxy	$\ln\left((ME/NA)_{IPO}/(ME/NA)_{match}\right)$ Year relative to the IPO date				
	+1	+2	+3	+4	+5
Reputable underwriter dummy	0.502***	0.432***	0.186***	0.150**	0.316***
	(9.58)	(7.86)	(3.05)	(2.24)	(4.31)
Number of underwriters	0.179***	0.079***	0.090***	0.042	0.048
	(7.38)	(3.68)	(3.67)	(1.56)	(1.50)
Global offering dummy	0.594***	0.380***	0.163**	0.238***	0.304***
	(8.27)	(5.05)	(2.00)	(2.82)	(3.29)
ln(volume/float)	0.409***	0.267***	0.188***	0.098**	0.102**
	(10.46)	(6.40)	(5.38)	(2.36)	(2.30)
ln(turnover)	0.320***	0.196***	0.041	-0.010	-0.023
	(10.31)	(6.05)	(1.14)	(0.27)	(0.52)
Zero volume trading days	-0.041***	-0.031***	-0.026***	-0.015***	-0.011
	(9.60)	(6.51)	(6.66)	(3.34)	(1.57)
Number of analysts	0.146***	0.102***	0.076***	0.045***	0.045***
	(15.86)	(11.63)	(7.60)	(4.34)	(4.29)
Breadth of ownership	0.325***	0.196***	0.161***	0.125***	0.079***
	(17.46)	(10.71)	(8.23)	(6.05)	(3.62)
Composite investor recognition proxy	0.347***	0.235***	0.160***	0.099***	0.100***
	(20.12)	(12.69)	(8.19)	(4.86)	(4.33)

Panel B: Impact of investor recognition proxies on relative valuation ratios

Investor recognition proxy	Change in valuation ratio from a one-standard deviation change in the ind. var. or from zero to one change for dummy ind. var.s Year relative to the IPO date				
	+1	+2	+3	+4	+5
Reputable underwriter dummy	65.2%	54.0%	20.4%	16.2%	37.2%
Number of underwriters	27.5%	11.2%	11.2%	5.0%	5.4%
Global offering dummy	81.1%	46.2%	17.7%	26.9%	35.5%
ln(volume/float)	32.0%	20.4%	14.5%	7.6%	7.9%
ln(turnover)	25.4%	15.5%	3.2%	-0.8%	-1.8%
Zero volume trading days	-23.6%	-18.1%	-15.9%	-9.5%	-7.0%
Number of analysts	61.4%	39.4%	27.0%	15.2%	15.4%
Breadth of ownership	62.6%	34.0%	27.4%	21.0%	13.1%
Composite investor recognition proxy	88.3%	52.8%	33.1%	19.4%	19.5%

Table 8
Each Individual Investor Recognition Proxy Decomposed By Excess Cash versus Firm Value

This table presents the results of Table 7 regressions except that each individual investor recognition proxy is first regressed on Xln(CASH/NA) and both the fitted values and residuals of this first regression are used in place of the investor recognition proxy in the Table 7 regressions. For expositional simplicity, only the coefficient estimates on the investor recognition proxies are tabulated. Below each coefficient estimate is its corresponding robust t-statistic in parentheses.

Panel A: Regressions of relative valuation ratios on each individual investor recognition proxy decomposed by excess cash

$$\ln\left((ME/NA)_{IPO}/(ME/NA)_{match}\right)$$

Investor recognition proxy	Component of investor recognition proxy correlated with Xln(CASH/NA)					Component of investor recognition proxy uncorrelated with Xln(CASH/NA)				
	Year relative to the IPO date					Year relative to the IPO date				
	+1	+2	+3	+4	+5	+1	+2	+3	+4	+5
Reputable underwriter dummy	3.261***	2.342***	2.027***	1.517***	1.940***	0.380***	0.352***	0.108*	0.092	0.245***
	(13.29)	(9.08)	(7.17)	(4.91)	(5.50)	(7.29)	(6.37)	(1.79)	(1.37)	(3.34)
Number of underwriters	1.279***	0.869***	0.759***	0.578***	0.718***	0.126***	0.043*	0.053**	0.012	0.005
	(14.08)	(8.91)	(7.25)	(5.08)	(5.59)	(6.04)	(1.95)	(2.04)	(0.46)	(0.15)
Global offering dummy	7.429***	5.016***	4.395***	3.393***	4.200***	0.445***	0.287***	0.082	0.180**	0.236**
	(14.16)	(8.80)	(7.21)	(5.14)	(5.63)	(6.26)	(3.83)	(1.00)	(2.13)	(2.56)
ln(volume/float)	1.361***	0.985***	0.855***	0.613***	0.760***	0.333***	0.217***	0.144***	0.066	0.055
	(13.84)	(9.38)	(7.48)	(4.88)	(5.37)	(9.00)	(5.35)	(4.05)	(1.57)	(1.24)
ln(turnover)	1.648***	1.173***	0.979***	0.700***	0.898***	0.260***	0.160***	0.007	-0.034	-0.058
	(13.70)	(9.24)	(7.04)	(4.62)	(5.24)	(8.39)	(4.92)	(0.18)	(0.96)	(1.34)
Zero volume trading days	-0.256***	-0.186***	-0.163***	-0.120***	-0.151***	-0.033***	-0.026***	-0.022***	-0.012***	-0.006
	(12.89)	(8.86)	(7.15)	(4.76)	(5.30)	(8.03)	(5.58)	(5.68)	(2.58)	(0.84)
Number of analysts	0.461***	0.304***	0.271***	0.215***	0.262***	0.122***	0.088***	0.062***	0.033***	0.029***
	(13.63)	(8.17)	(6.87)	(4.98)	(5.43)	(13.14)	(9.78)	(5.98)	(3.07)	(2.66)
Breadth of ownership	0.903***	0.640***	0.563***	0.421***	0.556***	0.279***	0.162***	0.129***	0.102***	0.042*
	(12.64)	(8.32)	(6.76)	(4.61)	(5.33)	(14.72)	(8.52)	(6.49)	(4.72)	(1.85)

Panel B: Impact of each individual investor recognition proxy on relative valuation ratios

Change in valuation ratio from a one-standard deviation change in investor recognition proxy

Investor recognition proxy	Component of investor recognition proxy correlated with Xln(CASH/NA)					Component of investor recognition proxy uncorrelated with Xln(CASH/NA)				
	Year relative to the IPO date					Year relative to the IPO date				
	+1	+2	+3	+4	+5	+1	+2	+3	+4	+5
Reputable underwriter dummy	38.0%	25.6%	21.8%	15.8%	20.5%	19.9%	18.3%	5.3%	4.5%	12.4%
Number of underwriters	42.5%	26.8%	23.0%	16.9%	21.2%	18.2%	5.8%	6.3%	1.4%	0.5%
Global offering dummy	42.7%	26.8%	23.0%	17.1%	21.4%	18.6%	11.5%	3.2%	7.0%	9.3%
ln(volume/float)	41.5%	28.1%	23.9%	16.5%	20.7%	27.9%	17.0%	11.1%	5.0%	4.2%
ln(turnover)	41.2%	27.4%	22.3%	15.4%	20.0%	22.0%	13.0%	0.5%	-2.6%	-4.4%
Zero volume trading days	-27.6%	-20.6%	-18.3%	-13.7%	-16.9%	-19.2%	-15.2%	-13.4%	-7.6%	-3.8%
Number of analysts	41.3%	25.2%	22.1%	16.9%	20.8%	46.9%	31.7%	20.7%	10.6%	9.3%
Breadth of ownership	35.6%	23.7%	20.6%	14.9%	20.0%	50.1%	26.6%	20.8%	16.4%	6.6%

Table 9
Each Individual Investor Recognition Proxy Decomposed By Excess Initial Returns versus Firm Value

This table presents the results of Table 7 regressions except that each individual investor recognition proxy is first regressed on Xln(1+IR) and both the fitted values and residuals of this first regression are used in place of the investor recognition proxy in the Table 7 regressions. For expositional simplicity, only the coefficient estimates on the investor recognition proxies are tabulated. Below each coefficient estimate is its corresponding robust t-statistic in parentheses.

Panel A: Regressions of relative valuation ratios on each individual investor recognition proxy decomposed by excess initial returns

$\ln\left((ME/NA)_{IPO}/(ME/NA)_{match}\right)$

Investor recognition proxy	Component of investor recognition proxy correlated with Xln(1+IR)					Component of investor recognition proxy uncorrelated with Xln(1+IR)				
	Year relative to the IPO date					Year relative to the IPO date				
	+1	+2	+3	+4	+5	+1	+2	+3	+4	+5
Reputable underwriter dummy	9.621***	4.986***	3.608***	1.580	0.881	0.465***	0.415***	0.171***	0.145**	0.311***
	(9.59)	(4.86)	(3.41)	(1.33)	(0.72)	(8.95)	(7.58)	(2.81)	(2.16)	(4.24)
Number of underwriters	2.331***	1.212***	0.833***	0.358	0.194	0.160***	0.068***	0.080***	0.038	0.048
	(9.54)	(4.88)	(3.25)	(1.21)	(0.65)	(6.99)	(3.14)	(3.12)	(1.37)	(1.44)
Global offering dummy	6.606***	3.566***	2.281***	0.967	0.460	0.515***	0.346***	0.139*	0.233***	0.303***
	(9.38)	(5.05)	(3.10)	(1.12)	(0.54)	(7.32)	(4.60)	(1.70)	(2.73)	(3.25)
ln(volume/float)	1.188***	0.665***	0.434***	0.122	0.025	0.326***	0.227***	0.164***	0.095**	0.109**
	(9.99)	(5.45)	(3.37)	(0.83)	(0.17)	(8.70)	(5.34)	(4.50)	(2.25)	(2.34)
ln(turnover)	1.528***	0.832***	0.596***	0.216	0.057	0.254***	0.161***	0.012	-0.020	-0.028
	(9.80)	(5.23)	(3.60)	(1.14)	(0.30)	(8.17)	(4.84)	(0.31)	(0.57)	(0.63)
Zero volume trading days	-0.282***	-0.157***	-0.099***	-0.030	-0.008	-0.035***	-0.028***	-0.025***	-0.015***	-0.011
	(10.05)	(5.50)	(3.30)	(0.86)	(0.23)	(8.49)	(5.87)	(6.22)	(3.22)	(1.54)
Number of analysts	0.393***	0.226***	0.137***	0.048	0.012	0.134***	0.096***	0.074***	0.045***	0.046***
	(9.95)	(5.85)	(3.32)	(0.95)	(0.25)	(14.51)	(10.87)	(7.19)	(4.25)	(4.28)
Breadth of ownership	0.973***	0.511***	0.360***	0.158	0.078	0.299***	0.185***	0.153***	0.124***	0.078***
	(9.94)	(4.98)	(3.42)	(1.31)	(0.63)	(16.33)	(9.97)	(7.69)	(5.91)	(3.54)

Panel B: Impact of each individual investor recognition proxy on relative valuation ratios

Change in valuation ratio from a one-standard deviation change in investor recognition proxy

Investor recognition proxy	Component of investor recognition proxy correlated with Xln(1+IR)					Component of investor recognition proxy uncorrelated with Xln(1+IR)				
	Year relative to the IPO date					Year relative to the IPO date				
	+1	+2	+3	+4	+5	+1	+2	+3	+4	+5
Reputable underwriter dummy	27.2%	13.0%	9.2%	3.9%	2.2%	25.4%	22.4%	8.7%	7.3%	16.3%
Number of underwriters	27.3%	13.1%	8.8%	3.7%	2.0%	24.0%	9.5%	9.7%	4.4%	5.3%
Global offering dummy	27.4%	13.6%	8.4%	3.5%	1.6%	21.9%	14.1%	5.4%	9.2%	12.1%
ln(volume/float)	30.8%	15.8%	10.0%	2.7%	0.5%	27.7%	18.0%	12.8%	7.3%	8.4%
ln(turnover)	30.1%	15.0%	10.5%	3.7%	1.0%	21.7%	13.2%	0.9%	-1.5%	-2.1%
Zero volume trading days	-23.9%	-13.8%	-8.9%	-2.8%	-0.7%	-20.4%	-16.4%	-15.3%	-9.5%	-7.0%
Number of analysts	29.7%	15.7%	9.2%	3.1%	0.8%	54.4%	36.2%	25.9%	15.0%	15.6%
Breadth of ownership	27.4%	13.2%	9.1%	3.9%	1.9%	55.4%	31.3%	25.4%	20.5%	12.7%

Table 10
Composite Investor Recognition Proxy Decomposed By Excess Cash versus Firm Value

This table presents the results of Table 7 regressions except that the composite investor recognition proxy is first regressed on Xln(1+IR) and both the fitted values and residuals of this first regression are used in place of the investor recognition proxy in the Table 7 regressions. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Below each coefficient estimate is its corresponding robust t-statistic in parentheses.

Panel A: Regressions of relative valuation ratios on composite inv. rec. proxy decomposed by excess cash

$\ln\left((ME/NA)_{IPO}/(ME/NA)_{match}\right)$

	Year relative to the IPO date				
	+1	+2	+3	+4	+5
Component of investor recognition proxy correlated with Xln(CASH/NA)	0.537***	0.394***	0.345***	0.253***	0.312***
	(13.96)	(9.28)	(7.44)	(4.94)	(5.39)
Component of investor recognition proxy uncorrelated with Xln(CASH/NA)	0.314***	0.209***	0.130***	0.075***	0.064***
	(17.27)	(10.75)	(6.32)	(3.46)	(2.62)
Controls:					
ln(NA)	-0.428***	-0.268***	-0.170***	-0.140***	-0.118***
	(20.58)	(12.37)	(6.66)	(5.21)	(3.81)
CAPEX/NA	0.372**	0.476**	0.265	0.207	0.273
	(2.26)	(2.37)	(1.30)	(0.93)	(1.07)
R&D/NA	0.673***	0.712***	0.664***	0.810***	1.185***
	(4.65)	(4.64)	(3.69)	(4.32)	(6.47)
ACQN/NA	0.316	-0.310	-0.249	-0.273	-0.666**
	(1.48)	(1.43)	(0.90)	(1.13)	(2.06)
EBITDA/NA	0.409***	0.535***	0.392***	0.256**	0.293***
	(5.31)	(5.93)	(3.93)	(2.46)	(2.90)
Industry SD(EBITDA/NA)	-2.662***	-3.522***	-1.728*	-1.294	-3.734***
	(3.29)	(4.10)	(1.71)	(1.13)	(3.07)
Industry B/M	1.022***	0.460***	0.775***	0.558***	0.557***
	(7.27)	(3.20)	(4.76)	(3.27)	(2.83)
Firm quality:					
Venture capital backed dummy	-0.040	0.070	0.085	0.178***	0.046
	(0.79)	(1.32)	(1.44)	(2.76)	(0.64)
Acquired within five years dummy	-0.135**	-0.191***	-0.220***	-0.281***	-0.012
	(2.51)	(3.31)	(3.09)	(2.84)	(0.06)
Bankrupt within five years dummy	-0.380***	-0.794***	-1.091***	-1.032***	-1.886***
	(5.00)	(8.46)	(10.44)	(6.99)	(5.33)
Constant	2.149***	1.436***	0.580***	0.398**	0.422*
	(14.78)	(9.28)	(3.28)	(2.13)	(1.85)
Observations	3,954	3,656	3,176	2,764	2,447
Adjusted R^2	0.221	0.149	0.112	0.083	0.084

Panel B: Impact of composite investor recognition proxy on relative valuation ratios

Component of investor recognition proxy …	Change in valuation ratio from a one-s.d. change in investor recognition proxy Year relative to the IPO date				
	+1	+2	+3	+4	+5
… correlated with Xln(CASH/NA)	39.6%	27.3%	23.5%	16.6%	20.7%
… uncorrelated with Xln(CASH/NA)	71.3%	42.6%	24.4%	13.5%	11.4%

Table 11
Composite Investor Recognition Proxy Decomposed By Excess Initial Returns versus Firm Value

This table presents the results of Table 7 regressions except that the composite investor recognition proxy is first regressed on Xln(1+IR) and both the fitted values and residuals of this first regression are used in place of the investor recognition proxy in the Table 7 regressions. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Below each coefficient estimate is its corresponding robust t-statistic in parentheses.

Panel A: Regressions of relative valuation ratios on composite inv. rec. proxy decomposed by excess initial returns

$\ln\left((ME/NA)_{IPO}/(ME/NA)_{match}\right)$

	Year relative to the IPO date				
	+1	+2	+3	+4	+5
Component of investor recognition proxy correlated with Xln(1+IR)	0.627***	0.350***	0.230***	0.067	0.012
	(10.17)	(5.42)	(3.33)	(0.85)	(0.15)
Component of investor recognition proxy uncorrelated with Xln(1+IR)	0.322***	0.225***	0.153***	0.103***	0.108***
	(18.24)	(11.65)	(7.46)	(4.80)	(4.42)
Controls:					
ln(NA)	-0.440***	-0.286***	-0.195***	-0.166***	-0.159***
	(21.85)	(13.41)	(7.74)	(6.33)	(5.28)
CAPEX/NA	0.414**	0.496**	0.293	0.222	0.290
	(2.51)	(2.48)	(1.43)	(1.00)	(1.13)
R&D/NA	0.704***	0.731***	0.686***	0.823***	1.184***
	(4.87)	(4.73)	(3.79)	(4.38)	(6.40)
ACQN/NA	0.275	-0.355	-0.283	-0.303	-0.682**
	(1.27)	(1.62)	(1.02)	(1.25)	(2.11)
EBITDA/NA	0.361***	0.500***	0.355***	0.230**	0.258**
	(4.68)	(5.50)	(3.53)	(2.20)	(2.56)
Industry SD(EBITDA/NA)	-2.397***	-3.392***	-1.541	-1.196	-3.605***
	(2.94)	(3.93)	(1.51)	(1.04)	(2.95)
Industry B/M	0.874***	0.364**	0.702***	0.527***	0.502**
	(6.19)	(2.53)	(4.30)	(3.07)	(2.58)
Firm quality:					
Venture capital backed dummy	-0.014	0.082	0.100*	0.183***	0.055
	(0.27)	(1.55)	(1.69)	(2.82)	(0.76)
Acquired within five years dummy	-0.150***	-0.197***	-0.222***	-0.289***	-0.038
	(2.78)	(3.42)	(3.10)	(2.91)	(0.17)
Bankrupt within five years dummy	-0.405***	-0.811***	-1.105***	-1.045***	-1.914***
	(5.28)	(8.67)	(10.57)	(7.10)	(5.38)
Constant	2.236***	1.539***	0.688***	0.503***	0.589***
	(15.65)	(9.97)	(3.87)	(2.71)	(2.62)
Observations	3,950	3,653	3,173	2,761	2,445
Adjusted R^2	0.221	0.146	0.107	0.080	0.078

Panel B: Impact of composite investor recognition proxy on relative valuation ratios

Component of investor recognition proxy …	Change in valuation ratio from a one-s.d. change in investor recognition proxy Year relative to the IPO date				
	+1	+2	+3	+4	+5
… correlated with Xln(1+IR)	30.1%	15.5%	9.9%	2.8%	0.5%
… uncorrelated with Xln(1+IR)	77.3%	48.5%	30.4%	19.5%	20.5%

Table 12
Summary of Selected Results by Sub-Periods

This table presents regressions from previous tables on excess cash by sub-periods based on the IPO Date. The sample comprises 4,420 firms that go public between 1980 and 2004. Panel A replicates Panel Bs of Table 4 through Table 6 with the exception that excess cash is not broken out for big and small firms. Panel B replicates Panel Bs of Table 10 and Table 11 but only for year +1. ***, **, and * indicate statistical significance of the corresponding coefficient estimates at the 1%, 5%, and 10% levels, respectively.

Panel A: Impact of excess cash and excess initial returns on investor recognition proxies

Dependent variable first with independent variables underneath	1980-1989 (N=1,298)		1990-1998 (N=2,427)		1999-2000 (N=415)		2001-2004 (N=233)	
Reputable underwriter dummy	Estimated probability for the independent variable at the indicated percentile							
Xln(CASH/NA), 25th percentile	43.0%	***	62.3%	***	67.4%	***	84.4%	
Xln(CASH/NA), 75th percentile	54.8%	***	78.7%	***	91.2%	***	89.7%	
Xln(1+IR), 25th percentile	46.2%		68.2%	***	91.9%	*	90.3%	
Xln(1+IR), 75th percentile	46.0%		71.3%	***	93.3%	*	86.1%	
Number of underwriters	Change in dependent var., relative to its mean, from a one-s.d. change in independent var.							
Xln(CASH/NA)	4.2%	***	3.1%	***	1.3%	*	0.9%	
Xln(1+IR)	1.0%		0.6%	**	-0.2%		-0.1%	
Global offering dummy	Estimated probability for the independent variable at the indicated percentile							
Xln(CASH/NA), 25th percentile	0.6%	*	10.1%	***	37.3%	***	14.5%	
Xln(CASH/NA), 75th percentile	1.0%	*	15.5%	***	55.7%	***	13.5%	
Xln(1+IR), 25th percentile	0.5%	**	10.7%	***	58.2%		10.9%	
Xln(1+IR), 75th percentile	1.0%	**	13.4%	***	58.5%		15.2%	
ln(volume/float)	Change in dependent variable from a one-s.d. change in independent variable							
Xln(CASH/NA)	8.2%	***	9.5%	***	12.8%	***	10.5%	***
Xln(1+IR)	19.9%	***	15.8%	***	25.1%	***	9.7%	**
ln(turnover)	Change in dependent variable from a one-s.d. change in independent variable							
Xln(CASH/NA)	7.0%	***	8.0%	***	7.0%		13.5%	***
Xln(1+IR)	11.0%	***	12.1%	***	19.3%	***	8.7%	*
Zero volume trading days	Change in dependent var., relative to its mean, from a one-s.d. change in independent var.							
Xln(CASH/NA)	-26.7%	***	-40.7%	***	-28.7%		-16.4%	
Xln(1+IR)	-32.4%	***	-35.9%	***	-70.0%	**	-34.9%	
Number of analysts	Change in dependent var., relative to its mean, from a one-s.d. change in independent var.							
Xln(CASH/NA)	12.4%	***	4.6%	***	3.7%	***	1.9%	***
Xln(1+IR)	10.3%	***	3.1%	***	2.5%	***	1.2%	**
Breadth of ownership	Change in dependent var., relative to its mean, from a one-s.d. change in independent var.							
Xln(CASH/NA)	25.9%	***	19.7%	***	21.8%	***	11.0%	***
Xln(1+IR)	9.0%	***	10.8%	***	18.4%	***	9.8%	**

Panel B: Impact of composite investor recognition proxy on relative valuation ratios

Investor recognition proxy	Change in $\ln\left((ME/NA)_{IPO}/(ME/NA)_{match}\right)$ at year +1 from a one-standard deviation change in composite investor recognition proxy							
	1980-1989 (N=1,441)		1990-1998 (N=2,676)		1999-2000 (N=586)		2001-2004 (N=245)	
Decomposed by Xln(CASH/NA)								
Component correlated with Xln(CASH/NA)	36.9%	***	35.6%	***	52.9%	***	34.7%	***
Component uncorrelated with Xln(CASH/NA)	47.8%	***	65.1%	***	57.9%	***	79.2%	***
Decomposed by Xln(1+IR)								
Component correlated with Xln(1+IR)	14.0%	***	29.7%	***	44.5%	***	37.7%	***
Component uncorrelated with Xln(1+IR)	57.4%	***	64.0%	***	65.5%	***	73.4%	***

Table 13
Excess Cash and Market Timing

This table examines the relationship between excess cash and market timing. The sample comprises 4,420 firms that go public between 1980 and 2004. Panel A presents calendar-month four-factor regressions for low and high excess cash portfolios, which contain all sample firms that have gone public in the last five years. Low and high are defined as below and above median excess cash. Panel B presents regressions of buy-and-hold abnormal returns on excess cash. Panel C presents a regression of excess cash on a hot issues market dummy variable. Hot issues markets are defined as months during which the three-month centered moving average of the total number of IPOs from Jay Ritter's website is above its median for the 1980-2004 period. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Below each coefficient estimate is its corresponding robust t-statistic in parentheses.

Panel A: Four-factor regressions for low and high excess cash portfolios

	R_p-R_f			
	Low excess cash		High excess cash	
	Equally weighted portfolios	Value weighted portfolios	Equally weighted portfolios	Value weighted portfolios
R_m-R_f	1.0945***	1.1376***	1.2605***	1.2973***
	(20.53)	(23.83)	(25.02)	(22.16)
SMB	0.9209***	0.6262***	1.1517***	0.6803***
	(8.96)	(7.25)	(13.58)	(9.10)
HML	0.1718*	0.0591	-0.6253***	-0.7835***
	(1.88)	(0.77)	(7.41)	(8.11)
UMD	-0.2044**	-0.0002	-0.3649***	-0.0800
	(2.52)	(0.00)	(4.87)	(1.10)
Constant	-0.0024	-0.0037**	0.0054**	0.0001
	(1.23)	(2.27)	(2.55)	(0.04)
Observations	322	322	321	321
Adjusted R^2	0.806	0.807	0.877	0.844

Panel B: Regressions of buy-and-hold abnormal returns for up to five years after the IPO on excess cash

	R_i-R_m	
	CRSP equally weighted index	CRSP value weighted index
Xln(CASH/NA)	-0.0033	0.0520**
	(0.15)	(2.35)
Constant	-0.2451***	-0.3492***
	(5.55)	(7.93)
Observations	4,373	4,373
Adjusted R^2	0.000	0.001

Panel C: Regression of excess cash on hot issues markets

	Xln(CASH/NA)
Hot issues market dummy	0.0123
	(0.22)
Constant	0.0797*
	(1.70)
Observations	4,373
Adjusted R^2	0.000