The relation between corporate financing activities, analysts' forecasts and stock returns☆

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Abstract

We develop a comprehensive and parsimonious measure of corporate financing activities and document a negative relation between this measure and both future stock returns and future profitability. The economic and statistical significance of our results is stronger than in previous research focusing on individual categories of corporate financing activities. To discriminate between risk versus misvaluation as explanations for this relation, we analyze the association between our measure of external financing and sell-side analysts' forecasts. Consistent with the misvaluation explanation, our measure of external financing is positively related to overoptimism in analysts' forecasts.

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1. Introduction

A large body of evidence documents a negative relation between external financing activities and future stock returns. Future stock returns are unusually low in the years following initial public offerings (Ritter, 1991), seasoned equity offerings (Loughran and Ritter, 1997), debt offerings (Spiess and Affleck-Graves, 1999) and bank borrowings (Billett, Flannery and Garfinkel, 2001). Conversely, future stock returns are unusually high following stock repurchases (Ikenberry and Vermaelen, 1995). Ritter (2003), in a recent review of this literature, notes that this relation holds across a broad range of corporate financing activities. He concludes that despite the large expenditure of resources on analyst coverage, there is little academic work emphasizing the importance of analysts' role in marketing corporate financing activities. In this paper, we provide a comprehensive analysis of the relation between corporate financing activities, stock returns and analysts' forecasts.

A key innovation of our research design is the use of statement of cash flows data to construct a comprehensive and parsimonious measure of the net amount of cash generated by corporate financing activities. In contrast to previous research that has focused on individual categories of corporate financing transactions, this feature of our research design allows us to simultaneously investigate the relation between a firm's entire portfolio of corporate financing activities and stock returns. A second innovation in our research design is that we analyze the properties of a comprehensive set of analyst forecasting variables, including short-term earnings per share (EPS) forecasts, long-term EPS growth forecasts, buy/sell recommendations and target prices. This feature of our research design enables us to develop and test hypotheses concerning how the properties of analysts' forecasts vary by type of corporate financing activity.

Our results can be summarized as follows. First, we document a strong negative relation between our comprehensive measure of net external financing and future stock returns. For example, a long-short investment strategy based on net external financing generates a 15.5% average annual return over the 30 years covered by our study. The returns to this strategy dominate the returns to strategies based on individual categories of external financing activities. Second, we show that there is a negative relation between net external financing and future profitability. This relation is present for both equity and debt financing, though it is stronger for equity financing. Third, we show that there is a strong positive relation between net external financing and overoptimism in analysts' forecasts. This relation holds for short-term earnings per share (EPS) forecasts, long-term EPS growth forecasts, buy/sell recommendations and target prices. For example, firms in the top financing decile have one-year (two-year) ahead earnings forecast errors that are 1.7 (2.2) times as optimistic as those for the bottom financing decile. We also find that the degree of overoptimism in specific forecasting variables is systematically related to the type of corporate financing activity. For debt transactions, overoptimism is concentrated in short-term EPS forecasts. For equity transactions, overoptimism extends to long-term EPS growth forecasts, buy/sell recommendations and target prices. Finally, we show that external financing activity dominates investment banking affiliation as a determinant of analyst optimism.

Our findings have several implications. First, our analysis of analyst forecast errors helps discriminate between risk and misvaluation as explanations for the predictable stock returns following corporate financing activities. Consistent with the misvaluation hypothesis, the predictable stock returns are directly related to predictable errors in analysts' earnings forecasts. Additionally, we find that analysts set significantly higher target prices for firms raising new financing. If the lower future stock returns for firms raising new financing represent a lower risk premium, then we would expect analysts to set lower target prices for these firms. Overall, the results are consistent with the hypothesis that firms time their corporate financing activities to exploit the temporary misvaluation of their securities in capital markets.

Second, our results suggest that the negative stock returns following new security issuances are primarily attributable to firm misvaluation (Loughran and Ritter, 2000) rather than wealth transfers between stockholders and bondholders (Eberhart and Siddique, 2002). The misvaluation hypothesis posits that firms issue new securities when they are overvalued. Thus, both debt and equity issuances are predicted to be negatively related to future stock returns. The wealth transfer hypothesis discussed in Eberhart and Siddique (2002) posits that financing transactions reducing (increasing) leverage reduce (increase) the probability of financial distress and so transfer wealth from (to) stockholders to (from) bondholders. They also assume that the market value of equity responds to these changes with a lag, so transactions that increase (decrease) leverage are assumed to be positively (negatively) related to future stock returns. Thus, holding other financing activities constant, the wealth transfer hypothesis predicts that changes in debt should be positively related to future stock returns. We show that changes in debt are negatively related to future stock returns. This evidence is consistent with the firm misvaluation hypothesis, but inconsistent with the wealth transfer hypothesis.

Third, the strong relation that we document between analysts' overoptimism and net external financing supports allegations that sell-side analysts routinely generate overly optimistic stock research for firms that are issuing new securities. Moreover, we find that the nature of the overoptimism is tailored to the type of security being issued. There are three non-mutually exclusive explanations for these findings. First, analysts could self-select into covering the particular issuing firms that they naively forecast to have the best future prospects. Second, management could self-select into issuing securities during periods in which their inside information indicates that analysts' forecasts are most optimistic. Third, conflicts stemming from incentives to generate investment banking and/or brokerage business could lead analysts to intentionally bias their forecasts. Note that irrespective of the explanation, analysts' forecasts can still be characterized as biased from a rational expectations viewpoint, because we find that the overoptimism remains even after the analysts learn of the new security issuances.

Finally, our tests for investment banking conflicts complement and extend previous research examining whether affiliated analysts issue more favorable research reports than unaffiliated analysts (see, e.g., Dugar and Nathan, 1995; Lin and McNichols, 1998; Dechow, Hutton and Sloan, 2000; Michaely and Womack, 1999; Lin, McNichols, and O'Brien, 2003; Agrawal and Chen, 2003). Affiliated analysts are defined as analysts working for firms having investment banking ties to the corporations that they cover. Collectively, these studies find mixed and inconclusive evidence as to whether affiliated analysts issue more optimistic research than unaffiliated analysts. Our research shows that external financing activity is more important than analyst affiliation in explaining analyst optimism. In other words, analysts are overoptimistic about the future performance of firms that are raising new financing regardless of whether or not the analysts have explicit investment banking affiliations with these firms. These results suggest that overoptimism is primarily attributable to some combination of indirect investment banking pressures, incentives to generate brokerage business and analyst naiveté, rather than to direct investment banking conflicts.

The remainder of the paper is organized as follows. The next section develops our motivation and research design. Section 3 describes our data and sections 4 and 5 present our empirical analyses. Section 6 concludes.

2. Motivation and research design

Ritter (2003) surveys research investigating the relation between corporate financing activities and future stock returns and shows that this relation is consistent across different types of corporate financing activities. Specifically, he notes that activities raising (distributing) cash are associated with lower (higher) future stock returns. Ritter hypothesizes that this relation arises because firms issue new securities when they are temporarily overvalued by the capital markets. We refer to this hypothesis as the misvaluation hypothesis.[1] To develop a powerful test of Ritter's hypothesis, we develop a comprehensive measure of the net amount of external financing raised through corporate financing activities. We then use decompositions of this measure to simultaneously examine the relation between a firm's entire portfolio of financing activities and future stock returns. We employ data from the financing section of the statement of cash flows to compute this measure for a large sample of firms.

Following Ritter (2003), we predict that our comprehensive measure of net external financing will be negatively related to future stock returns. This prediction is consistent with Ritter's hypothesis that managers time security offerings to exploit the temporary overvaluation of their firm in capital markets. Note that our measure of net external financing nets out offsetting issuance and repurchase transactions within financing categories and across financing

[1] A popular alternative hypothesis is that issuing firms are viewed as less risky by investors, and so are priced to yield lower expected return (see Eckbo, Masulis, and Norli (2000) and Eckbo and Norli (2005) for reviews). Our analyst tests, discussed later in this section, help discriminate between these two competing hypotheses.

categories. Fama and French (2004) provide evidence that such transactions occur with a surprisingly high frequency. As such, our measure offers an improvement over previous research focusing on individual corporate financing events.

Our measure of net external financing also provides the opportunity to assess the relative contributions of Ritter's misvaluation hypothesis and Eberhart and Siddique's (2002) wealth transfer hypothesis toward explaining the predictable stock returns following financing activities. Given our ability to simultaneously control for net changes in both debt and equity, we can examine the incremental effect of changes in equity and debt financing on future stock returns. The wealth transfer hypothesis predicts that security offerings leading to an increase (reduction) in leverage increase (reduce) default risk, thus transferring wealth to (from) stockholders from (to) debtholders. It further assumes that investors react to these wealth transfers with a lag. Consequently, holding other sources of financing constant, this hypothesis predicts that changes in debt (equity) financing will be positively (negatively) related to future stock returns. Thus, while both hypotheses predict that marginal increases in equity lead to negative future stock returns, they offer different predictions with respect to marginal increases in debt. The misvaluation hypothesis predicts that marginal increases in debt lead to negative future stock returns, while the wealth transfer hypothesis predicts that marginal increases in debt lead to positive future stock returns (because increases in leverage cause wealth transfers from debtholders to stockholders). While these two hypotheses are not mutually exclusive, evidence of a negative (positive) relation between marginal changes in debt financing and future stock returns would support the misvaluation (wealth transfer) hypothesis. Note that our tests differ from previous research, because we simultaneously examine changes in both equity and debt financing, allowing us to make direct inferences regarding the marginal impact of a change in one financing category.

Following from the misvaluation hypothesis, our first three predictions are:

P1: There is a negative relation between net external financing and future stock returns.

P2: There is a negative relation between marginal changes in equity financing and future stock returns.

P3: There is a negative relation between marginal changes in debt financing and future stock returns.

We next turn our attention to analyst forecast errors. The misvaluation hypothesis posits that overvaluation is positively related to net external financing. This overvaluation presumably stems from overoptimistic expectations of future earnings. Using analysts' expectations to proxy for investors' expectations, we can directly test for evidence of overoptimistic earnings expectations. Thus, our fourth prediction is:

P4: There is a positive relation between net external financing and analyst overoptimism.

Rajan and Servaes (1997) provide evidence consistent with this prediction. They find that analysts' EPS forecasts are overly optimistic for a sample of IPOs. We extend the Rajan and Servaes (1997) analysis to a broader measure of external financing and a broader range of analyst forecasting variables.

For our final set of predictions, we examine whether analyst overoptimism is related to the type of securities that are issued. Option pricing theory provides a framework for understanding the different drivers of the value of debt and equity securities (see Black and Scholes, 1973). In essence, the stockholders have sold the firm to the debtholders for the proceeds of the debt issue, and the stockholders have the option to buy back the firm for an exercise price equal to face value of debt. In line with standard option pricing theory, the stockholders primarily benefit from increases in firm value above the face value of debt. The value of the stockholders' option is increasing in the volatility of firm value, as the greater the volatility, the greater the probability that the future value of the firm will be significantly greater than the face value of the debt. Conversely, the value of debt is decreasing in the volatility of firm value, as the greater the volatility, the greater the probability that the future value of the firm will be significantly less than the face value of the debt. Analysts issue forecasts of both short-term earnings performance and long-run growth potential. We argue that forecasts of long-run growth are positively related to the variability of future firm value and hence the value of the stockholders' option. Thus, we predict that while both debt and equity issuances will occur in periods when analysts are relatively overoptimistic about the issuers' short-term earnings prospects, equity issuances will predominate in periods when analysts are overoptimistic regarding long-term growth prospects. Analysts also issue buy/sell recommendations and target prices for equity securities. Because these forecasts relate exclusively to equity securities, we predict that equity issuances will also predominate when overoptimism in these forecasts is high. Our final two predictions are summarized as follows:

> *P5: Analyst overoptimism for short-term earnings forecasts is positively related to both debt and equity financing.*

> *P6: Analyst overoptimism for long-term growth forecasts, buy/sell recommendations and target prices is positively related to equity financing.*

3. Data

We obtain data from the COMPUSTAT annual files, the CRSP monthly returns files, the I/B/E/S summary files, and the First Call detail files. We present tests of predictions *P1* through *P3* for the 'full sample,' which includes firm-year observations with available external financing and pricing data from COMPUSTAT and CRSP. Data for the full sample span 1971-2000, with 1971 representing the first year that relevant cash flow data are widely available on COMPUSTAT.[2] We present tests of predictions *P4* through *P6* for the 'analyst sample,' which includes the subset of the full sample with data available for at least one of the analyst variables. We extract earnings forecast data from the I/B/E/S summary files and target price forecasts and stock recommendations from the First Call detail estimates files. The range of analyst data availability constrains the sample to the period from 1975 to 2000, with varying availability for individual forecasting variables.

We measure the net amount of cash flow received from external financing activities (ΔXFIN) as:

$$\Delta XFIN = \Delta EQUITY + \Delta DEBT.$$

ΔEQUITY represents net cash received from the sale (and/or purchase) of common and preferred stock less cash dividends paid (COMPUSTAT annual data item 108 less COMPUSTAT annual data item 115 less COMPUSTAT annual data item 127). ΔDEBT represents net cash received from the issuance (and/or reduction) of debt (COMPUSTAT annual data item 111 less COMPUSTAT annual data item 114 plus COMPUSTAT annual data item 301).[3] We require the

[2] Tests of *P1* through *P3* also hold for the subsample of firms with analyst data available. We use the full sample to provide the most complete evidence possible with respect to these predictions.

[3] For years prior to 1988 (when the statement of cash flows was first required), COMPUSTAT obtains equity and debt issuance and purchase data from the working capital statement, cash statement by sources and uses of funds, or cash statement by activity. We also replicated all of our empirical tests using measures of external financing

availability of COMPUSTAT data for each of the above variables, with the exception of COMPUSTAT annual data item 301 (Change in Current Debt), which is set to 0 if it is missing.[4] There are 99,329 firm-year observations from 1971 to 2000 for which we have the requisite financial statement and returns data. COMPUSTAT typically backfills data for newly public companies, so ΔEQUITY primarily reflects both initial public offerings (IPO) and seasoned equity offerings (SEO).[5] ΔDEBT includes convertible debt, subordinated debt, notes payable, debentures, and capitalized lease obligations.

We scale ΔXFIN, ΔEQUITY, and ΔDEBT by average total assets (data item 6) so as to measure the amount of new financing activity relative to the existing asset base. As in previous research using financial ratios, we find that the distributions of our scaled financial variables are characterized by a small number of extreme outliers. We therefore follow the standard procedure of winsorizing observations with an absolute value greater than 1. This winsorization procedure makes sense on *a priori* grounds, because situations where individual financing components change by more than 100% of average total assets are clearly unusual cases that we do not want to weight excessively in our analysis. For most of our variables, less than 1% of the

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extracted from balance sheet computations using changes in the relevant equity and debt accounts, providing inferences that are qualitatively similar to those obtained using the cash flow statement data.

[4] While other variables were available for all of the 99,329 firm-years, this variable was only available for 38,740 firm-years. Further investigation revealed that this variable is not generally available on COMPUSTAT prior to 1983 and that subsequent to 1983 it is only available for those firms that break this amount out separately in their statement of cash flows. So as to avoid losing 60% of our sample, we simply set COMPUSTAT item 301 to zero in cases where it is missing and all other requisite data items are available. We also ran our entire analysis on the subset of firms for which COMPUSAT item 301 is available. Results are qualitatively similar to those reported in the paper and are available from the authors on request.

[5] To verify that equity financing primarily captures stock issuances related to IPOs and SEOs, we randomly selected 100 observations without replacement from the highest decile of ΔEQUITY. For each observation, we obtained the relevant Form 10-K and identified the source of ΔEQUITY, grouped into the following five categories: (i) common share issuances, (ii) preferred share issuances, (iii) stock option exercises, (iv) warrant exercises, or (v) contributions of common shares to an ESOP plan. Almost all of the 100 sampled observations issued common shares (n=94). Additionally, 36 had stock option exercises, 31 had preferred share issuances, 12 had warrant exercises, and 6 contributed common shares to an ESOP plan. As a fraction of total dollar value of ΔEQUITY sampled, 97.3% reflected common share and preferred share issuances (85.3% and 12.0%, respectively).

observations are winsorized and the proportion of winsorizations never exceeds 3%. Our results are qualitatively similar if we delete the winsorized observations, or if we leave them in the analysis (though in the latter case, the standard errors are larger, the coefficients are more volatile, and tests of statistical significance are slightly weaker).[6]

We use data from the CRSP monthly files for our stock return tests. Stock returns are measured using compounded buy-hold returns, inclusive of dividends and other distributions. Results reported in the tables use size-adjusted returns. We calculate size-adjusted returns by deducting the corresponding value-weighted return for all available firms in the same size-matched decile, where size is measured using market capitalization as of the beginning of the most recent calendar year. Returns are calculated for a twelve-month period beginning four months after the end of the fiscal year. For firms that delist during our future return window, we calculate the remaining return by first using the delisting return from CRSP and then reinvesting any remaining proceeds in the appropriate size-matched portfolio.[7] This mitigates any hindsight bias that may be caused by requiring firms to survive into future periods.

The analyst variables represent monthly consensus amounts taken from either the I/B/E/S Summary Statistics files or computed using the First Call detail estimate files. We obtain forecasts of one-year-ahead annual EPS, two-year-ahead annual EPS, and long-term earnings growth from I/B/E/S. From First Call, we obtain one-year-ahead target price forecasts and stock

[6] Inclusion of the outliers results in highly leptokurtic distributions that violate the Gaussian assumptions underlying our statistical tests. For example, the kurtosis of the unwinsorized ΔXFIN variable is 48.5. Winsorization reduces the kurtosis to 7.1. A normal random variable has a kurtosis of 3. Most of the extreme observations arise from situations where new financing is raised but is invested in activities that are not allowed to be capitalized as assets for accounting purposes (e.g., R&D costs, marketing costs, start-up costs). As such, these outliers reflect accounting distortions rather than the underlying economics of the situation. A full set of results using the unwinsorized ratios is available from the authors on request.

[7] Firms that were delisted due to poor performance (delisting codes 500 and 520-584) frequently have missing delisting returns (Shumway 1997). We correct for this bias, by using delisting returns of –100% for firms with these delisting codes.

recommendations. We refer to the final month of the fiscal year in which external financing is measured as event month 0, and we track analyst data for each month from event months –35 through +40.[8] I/B/E/S provides the mean and median consensus computed as of the third Thursday of the month, and we obtain the mean consensus. Our First Call data include individual analyst estimates, and we compute the mean consensus based on all analyst estimates issued during the month (i.e., we do not include outstanding estimates released in prior months to avoid problems of stale data). Our analyst tests are based on the following variables:

F1error One-year-ahead forecast error, computed as the realized annual earnings per share for the upcoming year minus the corresponding monthly consensus forecast of this amount, all scaled by stock price as of the end of the forecast month, winsorized at +/- 1.

F2error Two-year-ahead forecast error, computed as the realized annual earnings per share for the year after the upcoming year minus the corresponding monthly consensus forecast of this amount, all scaled by stock price as of the end of the forecast month, winsorized at +/- 1.

LTGerror Long-term earnings growth forecast error, computed as the realized long-term earnings growth rate minus the forecast long-term earnings growth rate. Realized earnings growth is computed from the slope coefficient of an ordinary least squares regression of the natural logarithm of annual earnings per share on a time trend. The regressions require the availability of at least three realized annual earnings per share numbers (maximum of six).[9]

TPerror Twelve-month target price forecast error, computed as one plus the raw return over the target price forecast horizon, minus the target price scaled by the closing stock price as of the date of the target price forecast

[8] This range spans 36 months prior to the end of the financing year through 36 months after the release of annual results for the financing year (i.e., typically within 4 months subsequent to fiscal year end).

[9] This methodology is also used by I/B/E/S (1999) and Dechow and Sloan (1997). We considered four alternative calculations of realized growth in calculating LTGerror. First, we computed a simple geometric average using current earnings per share and realized earnings per share at the five-year horizon. Second, we computed an arithmetic mean of realized annual earnings growth rates over the five-year horizon. Third, within our financing portfolios, we computed an aggregate portfolio-level simple geometric average using the aggregate of current earnings and the aggregate of earnings at the five-year horizon. Fourth, within our financing portfolios, we computed an aggregate portfolio-level arithmetic mean of realized annual earnings growth rates over the five-year horizon. Our results are robust across these alternative calculations of LTGerror.

REC The stock recommendation, coded on a 1 to 5 point scale. We invert the standard coding of stock recommendations so that 1=strong sell, 2=sell, 3=hold, 4=buy, and 5=strong buy.

I/B/E/S data are available starting in 1975, but only for a subset of variables. First Call stock recommendation and target price data are available starting in 1993, but only for a subset of variables. Table 1 shows the data availability across the different analyst variables. The sample size increases throughout the sample period, from 449 firms in 1975 to 2,732 firms in 1999. This increase is primarily the result of increasing sell-side coverage of firms over our sample period and increasing firm coverage by I/B/E/S and First Call. There is a drop-off in the number of observations in the last years of our sample period because of our requirement that one-year-ahead returns (with a four-month lag) and future earnings realizations for forecast error computations be available. For individual analyst variables, we have the most extensive coverage for F1error (n=43,247), followed by F2error (n=29,847) and LTGerror (n=12,384). We have limited coverage for TPerror (n=4,845) and REC (n=6,916), reflecting the limited time that First Call has been tracking these data.

[insert Table 1 about here]

4. External financing and stock returns

We present our results in two sections. This section examines the relation between our external financing variables and future stock returns and provides tests of predictions *P1* through *P3*. Section 5 examines whether analysts' forecast errors are systematically related to the external financing variables, providing tests of predictions *P4* through *P6*.

4.1 *Descriptive statistics*

Table 2 presents univariate statistics and correlations for the full sample of observations available for investigating predictions *P1* through *P3*. Panel A reports positive mean values for ΔXFIN, ΔEQUITY, and ΔDEBT of 0.063, 0.045, and 0.019, respectively, indicating an overall tendency toward raising additional external financing. The medians, however, are all close to zero, suggesting that the right tail of the distribution drives the positive means. The standard deviations of ΔEQUITY and ΔDEBT are 0.202 and 0.133 respectively, indicating that variation is greatest in the equity component of financing. In unreported tests, we determined that equity financing predominates in smaller firms while debt financing predominates in larger firms. Thus, while variation in debt financing is relatively smaller when deflated by assets, it is relatively greater when measured in undeflated dollars.

[insert Table 2 about here]

Panel B reports Pearson and Spearman correlations between the external financing variables. Several of the correlations are noteworthy. First, there is a negative correlation between ΔEQUITY and ΔDEBT (Pearson=-0.094, Spearman=-0.062). This correlation is indicative of refinancing activity, whereby the proceeds of equity financing are used to repurchase debt and/or vice-versa. This negative correlation indicates that our measure of net external financing provides a cleaner measure of the net amount of new financing than focusing on changes in debt and equity in isolation. Second, there is a strong negative correlation between ΔEQUITY and Income (Pearson=-0.388, Spearman=-0.272). This correlation indicates that firms raising equity tend to have relatively low current profitability. In contrast, the correlation between ΔDEBT and Income is close to zero (Pearson=-0.033, Spearman=-0.003). The relatively low contemporaneous profitability of equity issuers has implications for our prediction

P6, as it suggests that equity investors will be particularly interested in long-term earnings growth prospects. Consistent with previous research, the correlations between each of the external financing variables and future stock returns are all negative. Note, however, that the potential existence of refinancing activities between the debt and equity categories confounds the interpretation of these simple pairwise correlations. We therefore defer inferences regarding external financing activities and future stock returns to the next subsection, which employs multiple regression analysis to control for refinancing activities.

4.2 Stock return tests

Table 3 reports mean future size-adjusted returns for portfolios of firms formed on the external financing variables ΔEQUITY, ΔDEBT and ΔXFIN respectively. We perform an independent ranking for each of the variables in each calendar year and observations are assigned in equal numbers to ten portfolios based on these ranks.[10] We calculate mean annual size-adjusted buy-and-hold returns for each portfolio. Table 3 presents the pooled means of the size-adjusted returns for each decile. To highlight the difference between the extreme deciles, we report hedge returns for long positions in the lowest decile (i.e., net repurchasers) and short positions in the highest decile (i.e., net issuers). We report t-tests for the significance of the hedge returns for each variable, based on the time-series of annual hedge returns using the Fama and Macbeth (1973) procedure.

[insert Table 3 about here]

The portfolio results confirm the previously documented results from research focusing on individual categories of corporate financing activities. The highest decile of ΔEQUITY has a

[10] There were very few instances where 'ties' were of concern in forming portfolios (i.e., ΔDEBT=0). Thus, portfolios contain approximately equal numbers of observations, with some exceptions among portfolios 4, 5, and 6.

mean size-adjusted future annual return of -9.6%. In comparison, Ritter (2003) reports mean size-adjusted returns of -4.6% and -9.3% in the first and second years following a comprehensive sample of seasoned equity offerings. The lowest decile of ΔEQUITY has a mean size-adjusted return of 1.6%. In comparison, Ikenberry et al. (1995) report annualized long-run abnormal returns of 1.9% following a sample of open market stock repurchases. The highest decile of ΔDEBT has a mean size-adjusted return of -8.1%. In comparison, Billet et al. (2001) report annualized long-run abnormal returns of -7.9% for bank loans, while Spiess and Affleck-Graves (1999) report annualized long-run abnormal returns of -6.3% following convertible bond offerings and -1.9% following straight bond offerings. The lowest decile of ΔDEBT has a mean size-adjusted return of 0.0%. No previous research of which we are aware has examined stock returns following debt repurchases. The 0% return is inconsistent with the previous pattern of positive stock returns following equity repurchases. In unreported tests, we identify the likely reason for this result. Firms retiring debt tend to be simultaneously issuing equity. The negative returns following equity issuances cancel out the positive returns following debt retirements. If we focus on the subset of debt retirements that do not have contemporaneous net issuances of equity, we find significantly positive returns. We revisit this issue in our multiple regression analysis, which examines the marginal impact of debt and equity financing and future stock returns.

The final column reports the results for ΔXFIN, our combined measure of the net amount of external financing generated from both debt and equity transactions. The hedge portfolio returns obtained using ΔXFIN (15.5%) exceed the hedge portfolio returns obtained using the ΔEQUITY and ΔDEBT components in isolation (11.2% and 8.1% respectively). Thus, consistent with prediction *P1*, our combined measure of external financing is the strongest predictor of future stock returns. The improved predictive ability of ΔXFIN arises from both greater negative stock returns for the highest portfolio and greater positive returns for the lowest portfolio. For example, the stock returns for the lowest portfolio are 4.1% for ΔXFIN, 1.6% for ΔEQUITY and 0.0% for ΔDEBT. This result highlights the importance of controlling for refinancing transactions. As mentioned above, many firms that issue equity use some of the proceeds to repurchase debt. These firms will tend to fall in the lower ΔDEBT portfolios, but not in the lower ΔXFIN portfolios, thus improving the ability of ΔXFIN to forecast stock returns.

Figure 1 illustrates the long-run return performance of the lowest and highest ΔXFIN portfolios. This figure plots the cumulative size-adjusted returns to each of these portfolios over the 11-year window surrounding the year in which ΔXFIN is measured. The shaded area represents the ΔXFIN measurement year. Immediately following that year, we see the increasing returns for the lowest ΔXFIN decile and the decreasing returns for the highest ΔXFIN decile that correspond to the results in table 3. This pattern in returns continues for up to three years following the ΔXFIN measurement year, though the magnitude of the returns is attenuated in later years. The other notable feature of figure 1 relates to the years leading up to the external financing measurement year. The highest ΔXFIN firms have experienced a dramatic 90% cumulative stock return over the five years ending in the ΔXFIN measurement year. Conversely, the lowest ΔXFIN firms experience a small negative cumulative stock return over the five years ending in the ΔXFIN measurement year. Thus, the ΔXFIN measurement year marks a turnaround year in the performance of each set of firms. These results suggest that managers have, on average, been able to time their external financing activities in the year of greatest misvaluation.

[insert Figure 1 about here]

Table 4 investigates the robustness of the stock return results for ΔXFIN in table 3 to the inclusion of potential controls for risk. It is possible that firms in the extreme financing deciles have systematically different risk characteristics. To control for this possibility, we conduct regressions of the annual returns for each of our ΔXFIN portfolios on potential risk factors. Panel A of table 4 present results for the one-factor market model. The capital asset pricing model implies that investors should receive a risk premium for exposure to market risk. The results for these regressions indicate that the highest ΔXFIN portfolio has the greatest sensitivity to equity market returns (β_{MKT}=1.269). Ironically, while this portfolio realizes the lowest future stock returns, it also has the highest exposure to equity market risk. As a result, the risk-adjusted alpha for this portfolio grows to -13.5% and the hedge portfolio return climbs to 17.8%.

[insert Table 4 about here]

Panel B of table 4 presents results for the full Fama and French (1993) three-factor model. This model includes a market factor, a size factor and a book-to-market factor. Note that while the inclusion of the equity market factor is theoretically motivated, inclusion of the size and book-to-market factors is empirically motivated. Consequently, we caution readers against blindly interpreting these factors as rationally priced risk factors. Consistent with Loughran and Ritter (2000), the hedge portfolio returns are considerably weaker, but are still significant in the three factor specification. Perusal of the β coefficients reveals the reason for the weaker results. The high (low) external financing portfolios tend to have low (high) sensitivities to the HML factor. In other words, the stock returns of firms raising new financing covary with the stock returns of low book-to-market stocks (i.e., glamour stocks), and after adjusting for the known book-to-market effect in stock returns, the incremental predictability of external financing with respect to future stock returns is attenuated. These results indicate that the external financing effect is related to the book-to-market effect, but they are silent as to why either effect exists. It is possible that low book-to-market stocks are less risky, but it is also possible that low book-to-market stocks are overvalued. This latter possibility is consistent with the misvaluation hypothesis that we use to motivate our external financing tests.

Table 5 provides regressions of future stock returns on our external financing variables, ΔXFIN, ΔEQUITY and ΔDEBT. The regression analysis offers two advantages over our portfolio tests. First, the regression coefficients provide a direct measure of the predictable stock return associated with a standardized change in external financing. Second, multiple regression analysis enables us to include ΔEQUITY and ΔDEBT as joint explanatory variables, thus controlling for refinancing transactions that represent potentially important correlated omitted variables in our univariate portfolio analysis. The regression results presented in table 5 are means of the time series coefficients from annual regressions following the Fama and Macbeth (1973) procedure.

[insert Table 5 about here]

Panel A of table 5 presents the results for simple regressions of future annual size-adjusted returns on ΔXFIN. Consistent with the portfolio results and prediction *P1*, the coefficient on ΔXFIN is negative and highly statistically significant. The coefficient magnitude of -0.200 indicates that an increase in external financing equal to 10% of average assets results in a –2% abnormal stock return over the subsequent year. Panel B presents results for regressions of future annual size-adjusted returns on ΔEQUITY and ΔDEBT. In the first two simple regressions, both ΔEQUITY and ΔDEBT are significantly negatively related to future stock returns. In the final multiple regression, the magnitude and statistical significance of the coefficients on both ΔEQUITY and ΔDEBT increase relative to their counterparts in the simple regressions. This result highlights the importance of considering both sources of financing simultaneously. Refinancing transactions cause a negative correlation between the two sources, leading to downwardly biased coefficients and t-statistics in the simple regressions. Consistent with predictions *P2* and *P3*, both ΔEQUITY and ΔDEBT have significantly negative coefficients in the multiple regression analysis. Thus, a marginal change in either source of financing is negatively associated with future stock returns. These results are consistent with the misvaluation hypothesis. The negative coefficient on debt is also inconsistent with the wealth transfer hypothesis, because a marginal increase in debt should result in positive equity returns under this hypothesis.

Table 6 supplements the analysis in table 5 by providing a regression analysis of the relation between external financing activities and subsequent earnings performance. Previous research shows that earnings performance deteriorates following equity offerings (see Ritter, 2003). This evidence suggests that the predictable negative stock returns following equity offerings arise because investors do not anticipate the predictable deterioration in earnings. In table 6, we examine the relation between financing activities and future earnings performance using our comprehensive measure of net external financing. We measure earnings performance as operating income after depreciation (COMPUSTAT annual data item 178) deflated by average total assets. We employ both 'short-term' and 'long-term' measures of future earnings performance. The 'short-term' measure reflects earnings performance in the year immediately following the external financing year. The 'long-term' measure reflects average earnings performance over the four year period starting one year after the external financing year and ending five years after the external financing year. By looking at both short-term and long-term future earnings performance, we can triangulate these results with the short-term and long-term analyst forecast results that are presented in the next section.

[insert Table 6 about here]

We regress each measure of future earnings performance on the external financing variables, including current earnings performance to control for the current level of profitability. The regression results presented in table 6 are means of the time series coefficients from annual regressions following the Fama and Macbeth (1973) procedure, and t-statistics are based on the standard error of the annual coefficient estimates adjusted for autocorrelation using the adjustment factor in Abarbanell and Bernard (2000). Panel A documents evidence of a statistically significant negative relation between ΔXFIN and short-term future earnings performance. Panel B confirms that this relation is attributable to both the ΔEQUITY and ΔDEBT components of ΔXFIN, though the relation is strongest for ΔEQUITY. Panel C repeats the analysis in panel A using long-term earnings performance and again documents a significantly negative relation. Finally, panel D shows that this negative relation is driven almost entirely by ΔEQUITY. The results in table 6 support Ritter's conjecture that the negative relation between external financing activities and future stock returns arises because investors do not anticipate the negative relation between external financing activities and future profitability. It is particularly noteworthy that the negative relation between external financing activities and long-term future profitability is almost entirely attributable to equity financing. This result corroborates our discussion in section 2 pertaining to *P6* that the overvaluation of equity is particularly sensitive to the overestimation of long-term profitability. We next turn to our analyst forecast results to provide a more detailed investigation of the relation between external financing activities and optimism in earnings expectations.

5. External financing and analyst forecast errors

The results in the previous section confirm that our measures of external financing are negatively related to future stock returns and future earnings performance. We conjecture that the negative stock return relation arises because investors do not anticipate the negative earnings performance relation. This section directly tests this conjecture by testing for a negative relation between analyst forecast errors and external financing.

5.1 Descriptive statistics

Descriptive statistics for our external financing and analyst variables are presented in panel A of table 7. Recall that these statistics are computed using the limited sample of observations for which analyst forecast data are available. The descriptive statistics for the external financing variables are very similar to those reported in table 2 for the full sample. We compute forecast errors for all analyst variables from months –35 through +40 relative to the last month of the fiscal year in which external financing is measured ('month 0'). We present the complete time-series of the forecast errors from months -35 through +40 in figure 2. In table 7 and all of our other formal statistical tests, we select month +4 as the point at which to measure the analyst forecast errors. This point corresponds to the month in which we can be confident that the analysts would have access to the financial statement information used to construct our measures of external financing.[11] It also corresponds to the month in which we begin cumulating future annual stock returns for our stock return tests. Thus, F1error, the one-year-ahead forecast

[11] Of course, it is likely that analysts initially learn about a firm's external financing activities from other more timely sources, such as meetings with management, prospectuses, press releases and Form 10-Qs.

error, represents the forecast error for the fiscal year immediately following the measurement of the external financing variables, computed four months into that following year.

[insert Table 7 about here]

The means and medians of all of the forecast error variables are negative, indicating that analysts tend to issue optimistic forecasts during our sample period. For example, the mean forecast error for one-year ahead annual earnings (F1error) is –0.028, and the mean forecast error for two-year ahead annual earnings (F2error) is –0.036. Medians for F1error and F2error are also negative at –0.005 and –0.014, respectively. Consistent with Dechow and Sloan (1997), there is substantial optimism in long-term growth forecasts, with the mean (median) LTGerror of -5.8%, (–4.7%). Analysts also exhibit overall optimism in their target price forecasts, as evidenced by TPerror being significantly negative, with a mean (median) of –0.327 (–0.310). This indicates that the typical analyst price target is over 30% too high, so analysts are extremely optimistic about the price appreciation potential of the stocks that they cover (consistent with Bradshaw and Brown, 2005). The average stock recommendation, REC, is 3.946, approximating a 'buy' recommendation.

Panel B of table 7 presents a correlation matrix for the external financing and analyst variables. Results are similar across both Pearson and Spearman correlations, so our discussion focuses on the Pearson correlations. Consistent with the full sample results in table 2, the correlation between ΔEQUITY and ΔDEBT is –0.15, indicative of refinancing transactions between these two categories. Correlations between ΔXFIN and the analyst variables are all consistent with greater optimism for issuers relative to repurchasers. For example, the correlations between ΔXFIN and F1error (–0.03), F2error (–0.07), LTGerror (–0.09) and TPerror (–0.16) respectively are all significantly negative, indicating that firms raising more external financing are more likely to have overoptimistic forecasts. Similarly, correlations with REC (0.13) are significantly positive, indicating that firms raising more external financing are more likely to receive higher stock recommendations. The corresponding correlations for the ΔEQUITY component of ΔXFIN generally mirror these correlations, while the correlations for ΔDEBT are mixed. We provide a more formal analysis of these relations and their correspondence with our predictions in the next subsection.

Figure 2 provides a graphical illustration of the behavior of analyst forecast errors for extreme external financing firms surrounding the year in which external financing is measured. The figure spans months –35 through +40, where month 0 is the final month of the fiscal year in which ΔXFIN is measured. We plot the means of the analyst variables for the top and bottom deciles of ΔXFIN respectively, with the top decile consisting of firms issuing the most new financing ('issuers') and the bottom decile consists of firms repurchasing the most existing financing ('repurchasers'). As visual aids, we shade the area in months –11 through 0 (representing the period during which ΔXFIN is measured) and we plot a vertical line at month +4 (representing the time at which all financial statement information relating to the period should be available to investors).

[insert Figure 2 about here]

Panel A of figure 2 plots the one-year-ahead forecast error (F1error). The plot reveals a distinct 'whipsaw' effect that repeats over twelve-month cycles. This effect is due to the gradual reduction in analyst overoptimism in response to interim earnings information between end-of-year earnings announcements, which typically occur 2 to 3 months after the fiscal year end (see Lys and Soo, 1995). Thus, months –9 through +2 generally correspond to forecasts of annual earnings for the year in which we measure ΔXFIN. The systematic negative forecast errors for both issuers and repurchasers are consistent with the average optimism documented in prior research (see, e.g., Barefield and Comiskey, 1975). Contrasting issuers with repurchasers, the plot shows that in the period leading up to the external financing year, analysts are about as optimistic for issuers as for repurchasers. However, immediately following the external financing year, analysts become systematically more overoptimistic for the issuers than for repurchasers. In other words, analysts' earnings expectations are inflated relative to realizations for the periods immediately following the securities issuance year. This leads to a string of large negative forecast errors in the years following the issuance year. The economic significance of these optimistic biases is striking. For example, at month +4, overoptimism is 4% of price for the issuers versus 2% for the repurchasers. The corresponding standard errors of the forecast errors are generally less than ½% of price, so these differences are also highly statistically significant (we present formal statistical tests in the next subsection).

A similar phenomenon is evident in panel B for the two-year-ahead forecast error (F2error). In the year leading up to the external financing year, forecasts for issuers are similar to forecasts for repurchasers. But beginning in the external financing year, forecasts are systematically more overoptimistic for the issuers. Note that the relative overoptimism for issuers is accelerated by a year for two-year-ahead forecasts, because it takes one more year for the forecast errors to be realized. In other words, the overoptimism that is apparent in F2error for issuers during the external financing year relates to forecasts made during the external financing year for the earnings of the following fiscal year.

Panel C plots the error in long-term growth forecasts (LTGerror). In unreported analysis, plots of long-term growth levels reveal the unsurprising fact that issuers are characterized by much higher levels of expected growth than repurchasers (see e.g., Rajan and Servaes, 1997).

Long-term growth forecasts for issuers peak at just over 30% at the end of the external financing year, while they are relatively steady at approximately 15% for repurchasers. Consistent with Dechow and Sloan (1997), panel C documents pervasive optimism in analysts' long-term growth forecasts (i.e., consistently negative LTGerror for both issuers and repurchasers). But more importantly for our purposes, optimism is greater for issuers than for repurchasers. Overoptimism for repurchasers is relatively flat at 4%, while overoptimism for issuers gradually rises to a peak of 14% at the end of the issuance year and then drops back down again. In short, the run-up in growth forecasts around the external financing year is never actually realized. Instead, this run-up reflects overoptimism in sell-side forecasts that coincides exactly with the year in which these firms obtain external financing.

Panel D plots target price forecast errors. In the year leading up to the external financing year, target price errors are less optimistic for issuers than for purchasers, and even enter pessimistic territory for months -21 through -14. This should come as no surprise, since figure 1 shows that these stocks generate very strong returns in the period leading up to the external financing year. During the external financing year, however, there is an abrupt shift to relatively overoptimistic forecasts for the issuers relative to the repurchasers. The increased overoptimism for issuers relative to repurchasers peaks at the end of the external financing year and continues for the next two years. In untabulated analysis, we also find that the expected return implicit in the price targets peaks for issuers at the end of the external financing year. Thus, analysts forecast that issuing firms are about to generate relatively high stock returns right at the point in time when they are about to deliver relatively low stock returns.

Finally, panel E of figure 2 plots analyst stock recommendations for issuers relative to repurchasers. Recommendations for repurchasers are constant at around 3.8. In contrast, recommendations for issuers climb in the period leading up to the external financing year, peak at around 4.3 during the external financing year, and then drop back down after the external financing year. The results are again consistent with analysts being overly optimistic about the prospects of issuing stocks during the external financing year.

5.2 Analyst forecast error tests

The plots in figure 2 reveal economically significant differences in the degree of overoptimism in analysts' forecasts for issuers versus repurchasers. Table 8 provides tests that speak to the statistical significance of these results. This table reports the means and medians of each of the analyst variables across decile portfolios formed on the ranks of the external financing variables. Also reported are the difference in the means and medians between the lowest portfolio (the repurchasers) and the highest portfolio (the issuers). Statistical tests are conducted using a t-statistic for the null hypothesis that a difference in means is equal to zero, and using a Z-statistic for the null hypothesis that the distribution around the median is similar across groups.[12]

[insert Table 8 about here]

Panel A reports results for the total external financing variable, ΔXFIN. All of the regularities discussed in the plots are statistically significant. In particular, the forecast errors F1error, F2error, LTGerror, and TPerror are all significantly more negative and the

[12] Abarbanell and Lehavy (2003) document a strong left tail in forecast error distributions. To assess the robustness of our mean and median analyses to concerns about a left-tail influence we conduct several non-parametric tests. First, we look at the fraction of optimistic observations for F1error, F2error, LTGerror and TPerror across each external financing decile. Similar to reported results we find a strong pattern of an increasing frequency in optimistic observations in the higher ΔXFIN deciles, consistent with our results not being driven by a small fraction of firms in the left tail of the error distributions. For example, for the lowest (highest) decile of ΔXFIN we find 54 (66) percent of the F1errors are negative. Further, consistent with the results in table 4 there is a near monotonic increase in the fraction of optimistic observations across ΔXFIN deciles. Second, we re-estimate our regression analyses using rank regressions (Iman and Conover, 1979). Our inferences are unchanged.

recommendations (REC) are all significantly more positive for the highest external financing portfolio relative to the lowest external financing portfolio. Comparing portfolio 9 to portfolio 2 and portfolio 8 to portfolio 3 reveals a similar pattern of differences, indicating that these relations extend beyond the most extreme deciles. Thus, consistent with *P4*, the degree of overoptimism in analysts' forecasts is negatively related to the amount of external financing.

Panel B reports results for the equity component of external financing. The results closely mirror those in panel A and confirm the statistical significance of the relations observed in the plots. Consistent with predictions *P5* and *P6*, there is particularly strong evidence of overoptimism in LTGerror, TPerror, and REC for equity financing. Finally, panel C reports results for the debt component of external financing. These results are generally weaker than the results in panels A and B for total financing and equity financing. However, consistent with prediction *P5*, there is still statistically significant evidence of greater overoptimism for the issuers in the short-term earnings forecasts, F1error and F2error. The primary characteristic of firm performance determining the price at which debt is issued is the perceived credit risk of the issue. Overoptimistic expectations of short-term earnings are consistent with analysts and investors expecting the issuer to have a strong earnings stream that can be used to make the promised payments on the debt. Moreover, consistent with prediction *P6*, there is no evidence that long-term earnings growth forecast errors (LTGerror) and stock recommendations (REC) are more optimistic for issuers of debt. These two forecasts are of less relevance to the pricing of debt. In fact, since long-term growth can drain operating cash flow and increase firm risk, it could even have negative implications for the pricing of debt. There is, however, some weak evidence that target prices are more optimistic for debt issuers.

Table 9 supplements the portfolio tests in table 8 with tests based on regression analysis. We estimate the following regression:

Analyst Variable = α + βExternal Financing Variable + ε.

Each of our five analyst variables (F1error, F2error, LTGerror, TPerror, and REC) is used as the dependent variable, while our external financing variable, ΔXFIN, is used as the independent variable. Additionally, we split ΔXFIN into its component parts, ΔEQUITY and ΔDEBT, and allow the coefficients on each component to vary. Thus, we report results for a total of ten regression analyses. To make interpretation of the coefficients more intuitive, we transform the independent variables to ranks based on decile allocations taking on values between 0 and 1 (i.e., {decile rank –1}/9). As in tables 5 and 6, regressions are estimated annually, and we report mean coefficients and R^2s, with t-statistics based on the standard error of the annual coefficient estimates adjusted for autocorrelation (Fama and Macbeth, 1973; Abarbanell and Bernard, 2000). Because there is varying availability of the analyst variables across years, we also report the total number of annual regressions (i.e., maximum of 26) and the number of annual coefficient estimates that are significant at the 0.01 level.

[insert Table 9 about here]

The regression analysis helps to demonstrate the robustness of our results in two ways. First, by computing test statistics based on the entire sample rather than just the extreme portfolios, the regressions provide more efficient estimates. Second, by using the Fama-Macbeth and Abarbanell-Bernard techniques, we mitigate concerns that our statistical tests are overstated due to cross-sectional or temporal dependencies in the data (temporal dependencies are particularly important for LTGerror, which spans overlapping five-year forecast horizons).

The first set of columns in table 9 present the results of regressions using the total net external financing variable, ΔXFIN. Results are consistent with those in table 8 for all analyst variables. For one-year and two-year-ahead forecast errors, the coefficients on ΔXFIN are statistically significant in 23/26 and 21/25 years, respectively. LTGerror is significantly negatively related to ΔXFIN in 9/15 years. Finally, TPerror and REC are significant in every year (5/5 and 8/8 years, respectively). These results are uniformly consistent with the prediction of *P4*.

The second set of columns in table 9 present regressions with ΔXFIN split into ΔEQUITY and ΔDEBT. The results for coefficients on ΔEQUITY generally mirror those for ΔXFIN. In fact, the coefficients on ΔEQUITY are all larger than the coefficients for ΔXFIN. Moreover, the coefficients are significant in a comparable number of years for each analyst variable. In contrast, results for ΔDEBT are statistically significant for F1error, F2error and statistically insignificant for LTGerror, TPerror, and REC. These results are uniformly consistent with predictions *P5* and *P6*. In short, the degree of overoptimism is increasing in ΔDEBT for short–term earnings forecasts, but not for long-term earnings growth forecasts, target prices, or stock recommendations.[13]

5.3 Analyst affiliation tests

As noted earlier, prior research on the relation between analyst research and corporate financing activities has concentrated on the role of analyst affiliation. In contrast, our results document a direct relation between analyst forecast errors and external financing without regard to analyst affiliation. The relation that we document between analysts' forecast errors and

[13] In unreported tests we also examine temporal variation in the slope coefficients from the table 9 regressions. There is no indication that the relation between external financing and bias in sell-side analyst research is different across time periods or reveals any obvious trends.

external financing is much stronger than the relation previous research documents between analyst forecast errors and analyst affiliation (e.g., Lin and McNichols, 1998). To more directly benchmark the optimism associated with external financing relative to that associated with analyst affiliation, we extend the above analysis to examine the relative levels of analyst optimism between affiliated and unaffiliated analysts.

For our sample firms, we identify the lead and co-lead underwriters on all external financing transactions during the sample period using debt and equity issuance data from Securities Data Corporation. We then partition analysts in our sample based on whether their employers are affiliated with specific financing transactions. We adopt the simple classification rule that the presence of a financing transaction in which the analysts' employer acts as a lead or co-lead underwriter for a particular firm in a particular fiscal year classifies the analyst as being 'affiliated' for all forecasts made during that firm-year. In the absence of such a financing transaction, the analyst is classified as 'unaffiliated.' We can only perform this analysis for the target price and stock recommendation variables, because analysts' employer brokerages are only identified for our First Call data.

Figure 3 and table 10 provide the results of our supplemental analysis. In figure 3, we plot the mean target price forecast errors (panel A) and stock recommendations (panel B) for the top quintile of our external financing variable, ΔXFIN. We choose the top quintile because our earlier portfolio tests (see table 8) document extensive analyst overoptimism for the top two deciles of ΔXFIN. The plots indicate that an analyst's status as affiliated results in slightly more optimism in some of the event-months surrounding the offering. However, the spread between the affiliated and unaffiliated partition is clearly minor compared with the spread between the largest net issuers and repurchasers shown in figure 2.

[insert Figure 3 about here]

To measure the statistical significance of the difference in analyst optimism between affiliated and unaffiliated analysts' target prices and recommendations, we replicate the regression results in table 9, but use individual analyst data rather than consensus data and include an indicator variable for whether the recommendation or target price is from an affiliated analyst and an interaction term for this indicator variable with ΔXFIN. The results appear in table 10. The coefficients on ΔXFIN in both target price error and recommendation regressions are statistically significant and similar to the results in table 9. However, the coefficients on the affiliation indicator variables and the interaction terms are all insignificant. These results support the notion that the amount of external financing activity dominates affiliation status as the more important determinant of analyst overoptimism. Our results are consistent with the general tenor of earlier research that documents mixed or inconclusive evidence regarding the importance of analyst affiliation in determining levels of overoptimism. Moreover, these findings are also consistent with concurrent research that finds no evidence of greater optimism for affiliated analysts (e.g., Agrawal and Chen 2003; Jacob, Rock and Weber, 2003) or for analysts at bulge-bracket brokerage houses sanctioned by the SEC (Cowen, Groysberg and Healy, 2003).

[insert Table 10 about here]

6. Discussion and conclusion

This paper provides a comprehensive examination of the negative relation between external financing activities and future stock returns. Previous research in this area has been restricted to samples focusing on specific categories of corporate financing activities (e.g., equity issuances, equity repurchases, debt issuances). We show that exploiting aggregated information from the financial statements relating to such events results in more comprehensive measures and more powerful tests. The magnitude of the security mispricing related to external financing is substantial: a decile sort on our comprehensive measure of net external financing yields annual hedge portfolio returns of 15.5%. We also document a systematic negative relation between external financing and future earnings performance and a systematic positive relation between external financing and overoptimism in analysts' forecasts. Finally, our evidence indicates that overoptimism is systematically related to the type of security being issued. Overoptimism for debt issuances is restricted to short-term earnings forecasts, while overoptimism for equity securities extends to long-term earnings growth forecasts, stock price targets and stock recommendations. This evidence indicates that analysts play a central role in the overpricing of security issuances.

Our paper also raises a number of issues that are worthy of additional investigation. Perhaps the most important unanswered question is the explanation for the overvaluation of firms raising external financing. We provide evidence that external financing is negatively related to future earnings performance. There are, however, several competing explanations for this negative relation. First, management could opportunistically raise new financing when they realize that the profitability of their current investments is about to deteriorate. This explanation is most consistent with the views expressed in the finance literature (see Ritter, 2003). Second, management could invest the proceeds from their external financing activities less profitably. This explanation is consistent with the anecdotes concerning investor and manager hubris during 'hot issue' markets. Third, management could opportunistically manage earnings upwards during periods in which they are raising external financing. Rangan (1998), Teoh, Welch and Wong (1998), and Richardson, Sloan, Soliman and Tuna (2005) provide evidence consistent with this explanation. We note that these three explanations are not mutually exclusive. A related question concerns the motives of analysts in issuing overoptimistic forecasts. Are analysts naively fooled into issuing overoptimistic forecasts for firms raising external financing, or are they acting opportunistically to generate investment banking and/or brokerage fees?

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FIGURE 1
Cumulative Size-Adjusted Stock Returns for Extreme External Financing Deciles over the 11-Year Window Centered on the External Financing Measurement Year

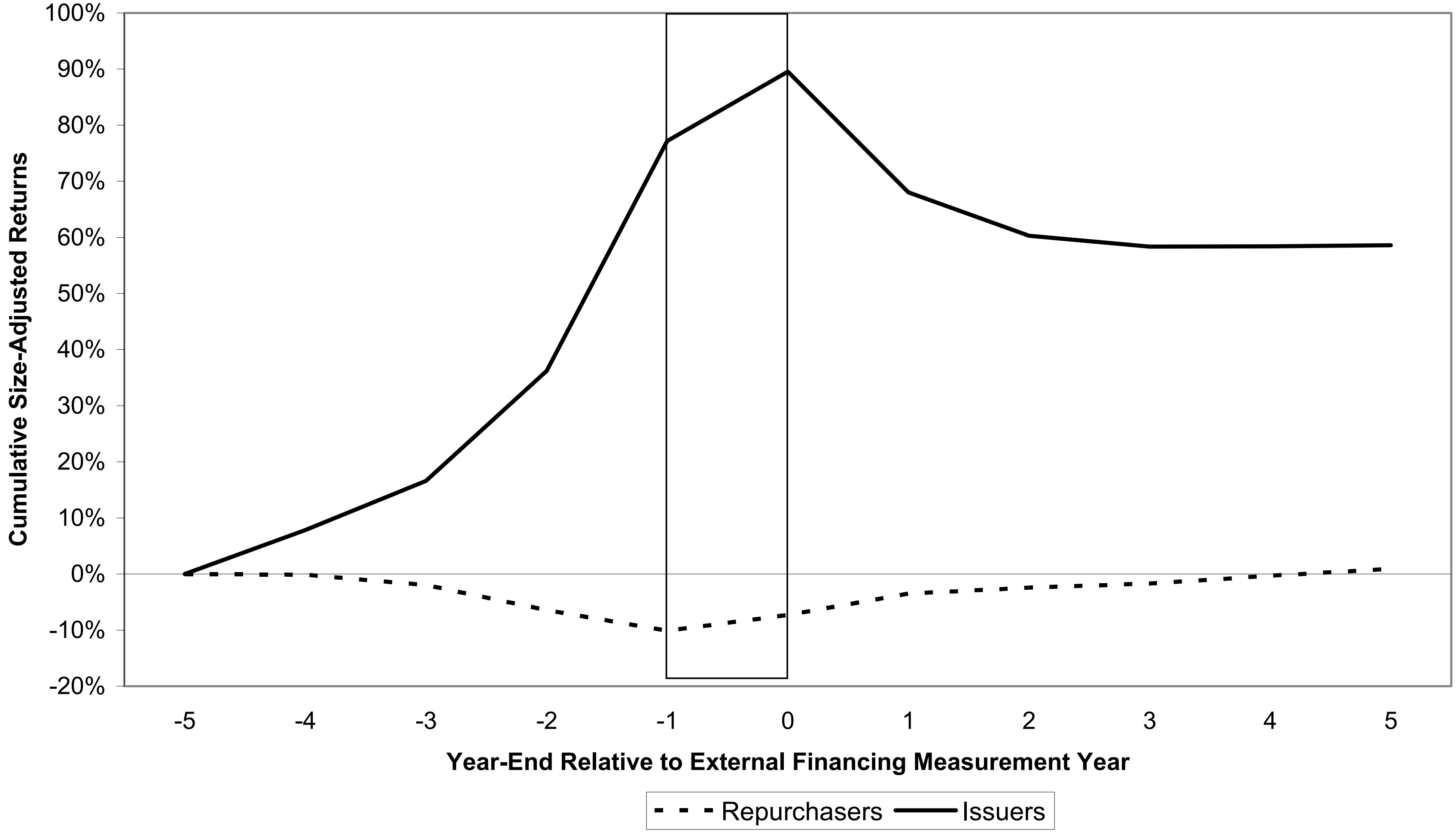
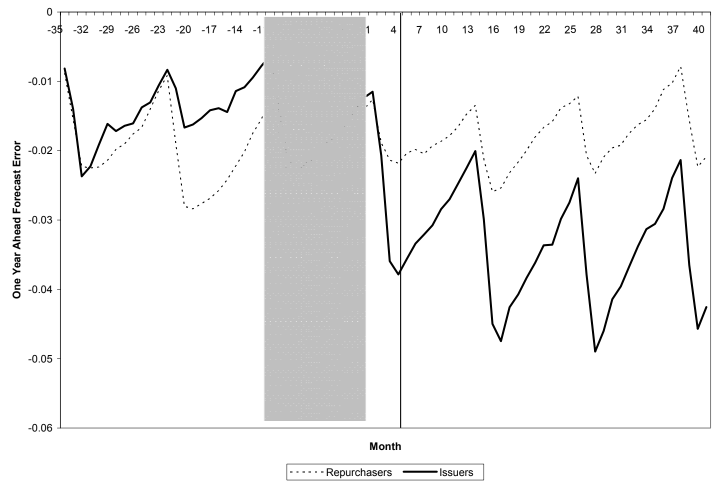
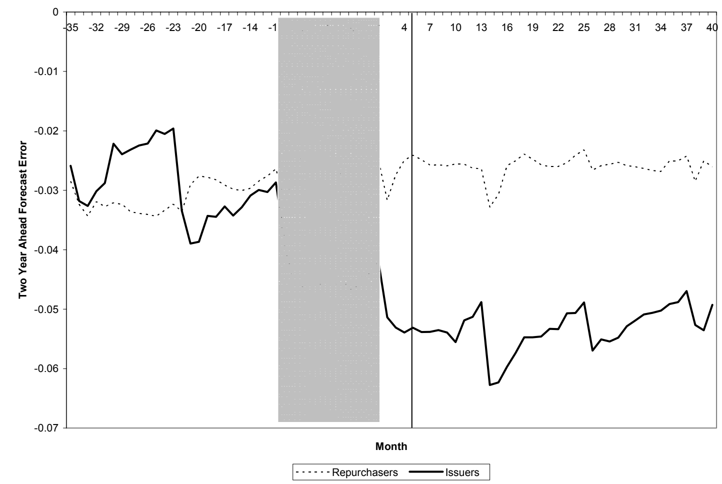


FIGURE 2
Sell-side analyst forecast errors and stock recommendations for extreme net external financing deciles

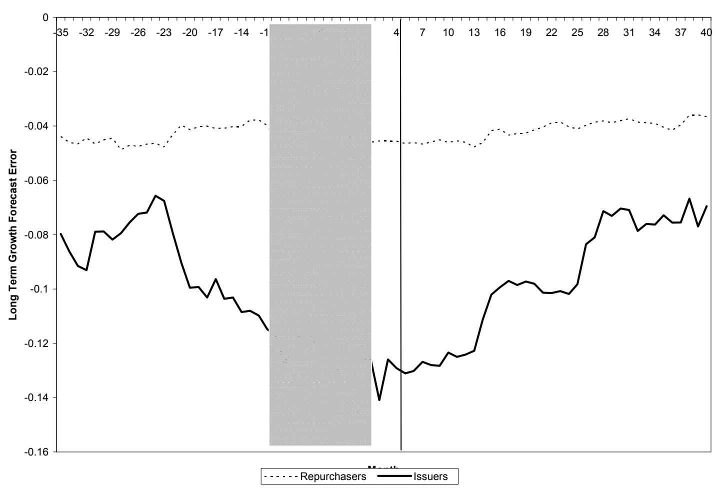
Panel A: One-year ahead forecast error (F1error)



Panel B: Two-year ahead forecast error (F2error)



Panel C: Long term growth forecast error (LTGerror)



Panel D: Target price forecast error (TPerror)

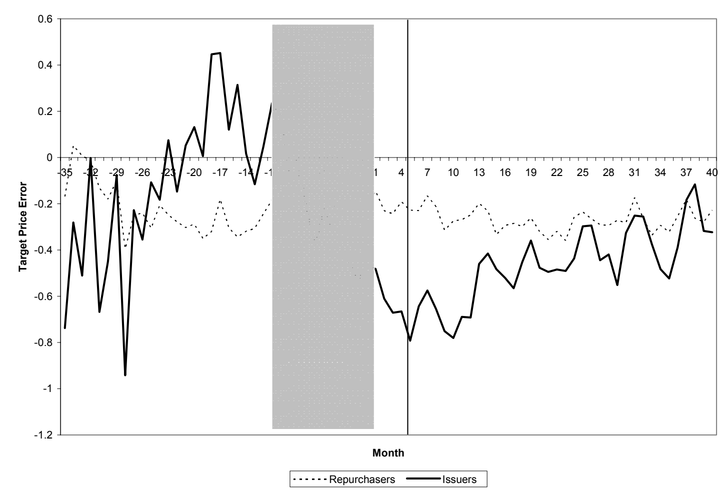


FIGURE 2 (cont.)
Sell-side analyst forecast errors and stock recommendations for extreme net external financing deciles

Panel E: Year Stock recommendation (REC)

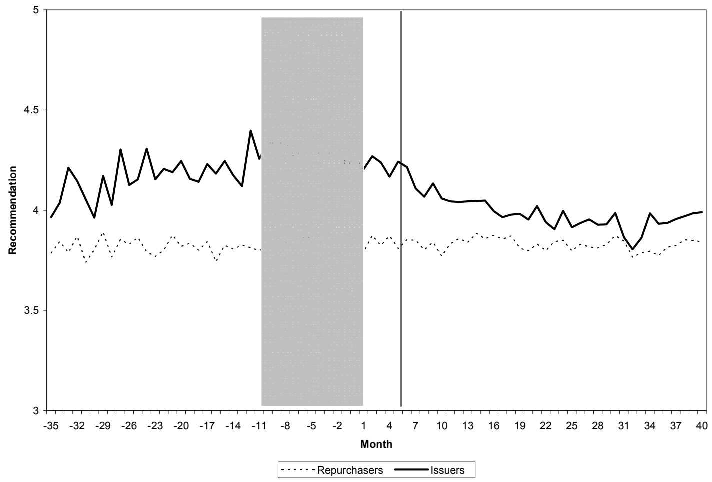
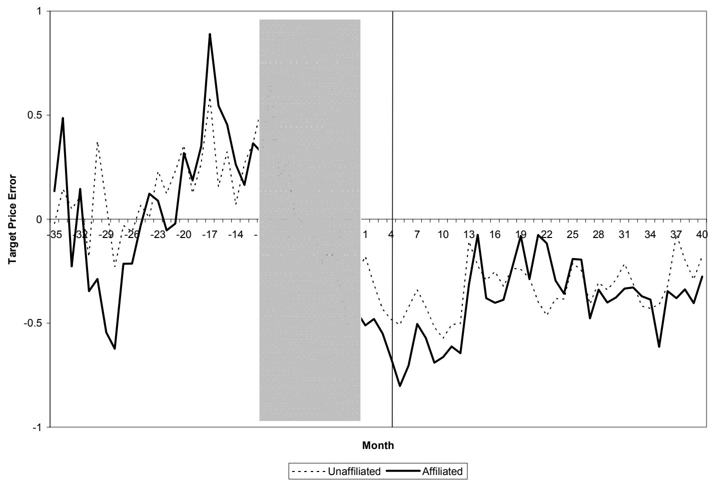


FIGURE 3
Affiliated vs. unaffiliated sell-side analyst target price forecast errors and stock recommendations for the highest net external financing quintiles

Panel A: Target Price Error (TPerror)



Panel B: Stock Recommendations (REC)

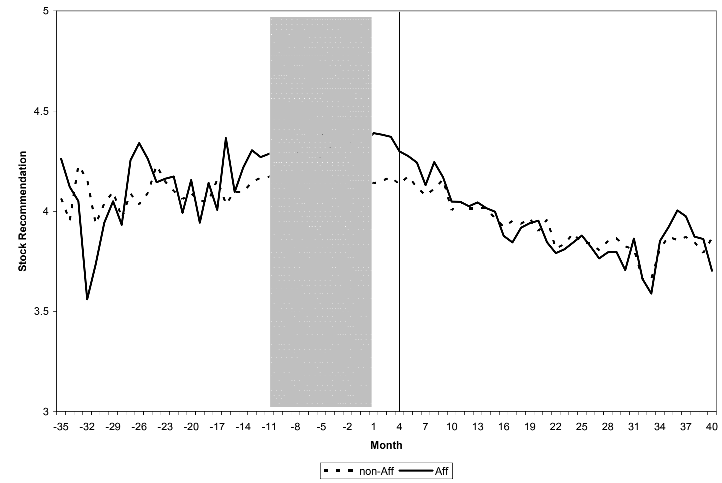


TABLE 1
Data availability for sell-side analyst variables

Year	Sell-side analyst variable F1error	F2error	LTGerror	TPerror	REC	Total
1975	446	114	–	–	–	449
1976	626	204	–	–	–	628
1977	780	383	–	–	–	783
1978	1,111	439	–	–	–	1,113
1979	1,132	551	–	–	–	1,142
1980	1,145	645	–	–	–	1,153
1981	1,145	667	459	–	–	1,149
1982	1,201	708	595	–	–	1,223
1983	1,455	955	693	–	–	1,484
1984	1,549	944	688	–	–	1,592
1985	1,466	929	655	–	–	1,517
1986	1,483	1,001	730	–	–	1,586
1987	1,538	1,015	782	–	–	1,584
1988	1,663	1,165	890	–	–	1,723
1989	1,750	1,243	931	–	–	1,818
1990	1,773	1,336	941	–	–	1,818
1991	1,914	1,476	961	–	–	1,952
1992	2,184	1,688	1,007	–	–	2,252
1993	2,429	1,931	1,044	–	632	2,513
1994	2,637	2,087	1,034	–	633	2,745
1995	2,785	2,158	974	–	785	2,921
1996	2,871	2,233	–	668	1,063	3,036
1997	2,864	2,182	–	1,365	1,168	3,050
1998	2,646	1,979	–	1,333	1,278	2,867
1999	2,458	1,814	–	1,367	1,235	2,732
2000	196	–	–	112	122	224
	43,247	29,847	12,384	4,845	6,916	45,054

This table presents annual sample sizes for each analyst variable. F1error is the one-year ahead forecast error, computed as the realized annual earnings per share for the coming year minus the corresponding monthly consensus forecast of this amount, all scaled by stock price as of the end of the forecast month, winsorized at +/- 1. F2error is the two-year ahead forecast error, computed as the realized annual earnings per share for next year minus the corresponding monthly consensus forecast of this amount, all scaled by stock price as of the end of the forecast month, winsorized at +/- 1. LTGerror is the long-term growth forecast error, computed as the realized long-term earnings growth rate minus the forecasted long-term growth rate. Realized earnings growth is computed from the slope coefficient of an ordinary least squares regression of the natural logarithm of annual earnings per share on a time trend. The regressions require the availability of at least three realized annual earnings per share numbers (maximum of six). TPerror is target price forecast error, computed as one plus the raw return over the target price forecast horizon, minus the one-year ahead target price forecast relative to closing stock price as of the end of the target price forecast month. REC is the stock recommendation, coded on a 1 to 5 point scale. We invert the standard coding of stock recommendations so that 1=strong sell, 2=sell, 3=hold, 4=buy, and 5=strong buy.

TABLE 2
Univariate statistics and pair-wise correlations for external financing, income, and returns variables (N= 99,329 firm-years from 1971-2000)

Panel A: Univariate statistics

	Mean	Std. Dev.	25%	Median	75%
$\Delta XFIN_t$	0.063	0.228	-0.037	0.000	0.081
$\Delta EQUITY_t$	0.045	0.202	-0.020	-0.001	0.006
$\Delta DEBT_t$	0.019	0.133	-0.021	0.000	0.044
$Income_t$	0.065	0.184	0.026	0.087	0.147
$Income_{t+1}$	0.058	0.184	0.021	0.084	0.142
$SRET_{t+1}$	-0.002	0.688	-0.345	-0.084	0.194

Panel B: Pair-wise correlations - Pearson (above diagonal) and Spearman (below diagonal)

	$\Delta XFIN_t$	$\Delta EQUITY_t$	$\Delta DEBT_t$	$Income_t$	$Income_{t+1}$	$SRET_{t+1}$
$\Delta XFIN_t$	–	0.831	0.460	-0.361	-0.357	-0.063
$\Delta EQUITY_t$	0.570	–	-0.094	-0.388	-0.382	-0.048
$\Delta DEBT_t$	0.635	-0.062	–	-0.033	-0.033	-0.038
$Income_t$	-0.164	-0.272	-0.003	–	0.797	0.012
$Income_{t+1}$	-0.213	-0.293	-0.029	0.772	–	0.145
$SRET_{t+1}$	-0.125	-0.134	-0.042	0.087	0.297	–

All correlations greater than 0.008 in absolute magnitude are significant at the 0.01 level. ΔXFIN is net external financing, calculated as the sum of ΔEQUITY and ΔDEBT. ΔEQUITY is net equity financing measured as the proceeds from the sale of common and preferred stock (COMPUSTAT item #108) less cash payments for the purchase of common and preferred stock (COMPUSTAT item #115) less cash payments for dividends (COMPUSTAT item #127). ΔDEBT is net debt financing measured as the cash proceeds from the issuance of long-term debt (COMPUSTAT item #111) less cash payments for long-term debt reductions (COMPUSTAT item #114) less the net changes in current debt (COMPUSTAT item #301). Income is operating income after depreciation (COMPUSTAT item #178). All external financing and income variables are deflated by average total assets. SRET is the annual size adjusted stock return. It is measured using compounded buy-hold returns, inclusive of dividends and other distributions. The size adjustment is made by deducting the corresponding value-weighted return for all available firms in the same size-matched decile, where size is measured using market capitalization as of the beginning of the year. Returns are calculated for a twelve-month period beginning four months after the end of the fiscal year. For firms that delist during our future return window, we calculate the remaining return by first use the de-listing return from CRSP and then reinvest any remaining proceeds in the value-weighted market portfolio.

TABLE 3
Annual mean future size-adjusted stock returns for portfolios formed on net external financing and its components (N=99,329 firm-years from 1971-2000)

Portfolio:	ΔEQUITY	ΔDEBT	ΔXFIN
Lowest	0.016	0.000	0.041
2	0.006	0.023	0.031
3	0.014	0.029	0.020
4	0.014	0.024	0.030
5	0.016	0.018	0.043
6	0.020	0.031	0.022
7	0.014	-0.012	-0.012
8	0.000	-0.012	-0.027
9	-0.045	-0.027	-0.054
Highest	-0.096	-0.081	-0.114
Mean annual hedge	0.112	0.081	0.155
t-statistic	3.82	6.91	5.70
Number years positive/ Number years available	23/30	27/30	27/30

Firm-year observations are ranked annually on the respective variable and assigned in equal numbers to deciles. Stock returns are measured using compounded buy-hold returns, inclusive of dividends and other distributions. Size-adjusted returns are calculated by deducting the corresponding value-weighted return for all available firms in the same size-matched decile, where size is measured using market capitalization as of the beginning of the year. Returns are calculated for a twelve-month period beginning four months after the end of the fiscal year. For firms that delist during the future return window, we calculate the remaining return by first use the de-listing return from CRSP and then reinvest any remaining proceeds in the value-weighted market portfolio. Hedge represents the net return generated by taking a long position in the 'Low' portfolio and an equal sized short position in the 'High' portfolio. We report the mean hedge return across the 30 years in the sample and the t-statistic tests whether the mean hedge return is statistically different from zero and is calculated using the time series variation in the hedge returns over the 30 year period. ΔXFIN is net external financing, calculated as the sum of ΔEQUITY and ΔDEBT. ΔEQUITY is net equity financing measured as the proceeds from the sale of common and preferred stock (COMPUSTAT item #108) less cash payments for the purchase of common and preferred stock (COMPUSTAT item #115) less cash payments for dividends (COMPUSTAT item #127). ΔDEBT is net debt financing measured as the cash proceeds from the issuance of long-term debt (COMPUSTAT item #111) less cash payments for long-term debt reductions (COMPUSTAT item #114) less the net changes in current debt (COMPUSTAT item #301). Income is operating income after depreciation (COMPUSTAT item #178). All external financing and income variables are deflated by average total assets.

TABLE 4
Annual mean future alphas and betas from one- and three-factor stock return models for portfolios formed on net external financing. The one-factor model incorporates a market factor (MKT) and the three-factor model incorporates a market factor, a size factor (SMB) and a book-to-market factor (HML)
(N=60,529 firm-years from 1971-2000)

Panel A: Results for one-factor model

$$RET_{P,t+1} = a + \beta_{MKT}\,(RET_{MKT,t+1} - RET_{F,t+1}) + e_{t+1}$$

Portfolio	α	β_{MKT}
Lowest	0.043	0.916
2	0.063	0.826
3	0.060	0.917
4	0.051	0.962
5	0.041	1.122
6	0.028	1.171
7	0.005	0.968
8	-0.009	0.987
9	-0.059	1.075
Highest	-0.135	1.269
Hedge	0.178**	–

Panel B: Results for three-factor model

$$RET_{P,t+1} = a + \beta_{MKT}\,(RET_{MKT,t+1} - RET_{F,t+1}) + \beta_{SMB}\,RET_{SMB,t+1} + \beta_{HML}\,RET_{HML,t+1} + e_{t+1}$$

Portfolio	α	β_{MKT}	β_{SMB}	β_{HML}
Lowest	0.007	0.944	0.923	0.410
2	0.049	0.781	0.763	0.211
3	0.038	0.894	0.846	0.284
4	0.037	0.909	0.842	0.224
5	0.050	0.949	1.043	0.073
6	0.046	0.956	1.086	0.010
7	-0.002	0.874	0.909	0.174
8	-0.031	0.948	0.981	0.306
9	-0.045	0.883	1.031	0.031
Highest	-0.049	0.776	1.116	-0.513
Hedge	0.056*	–	–	–

This table includes only December fiscal year end firms to facilitate the alignment of the portfolio returns with the factor returns in calendar time. Firm-year observations are ranked annually on the respective variable and assigned in equal numbers to deciles. $RET_{P,t+1}$ denotes the excess stock return on a portfolio in the year after portfolio formation. Stock returns are measured using compounded buy-hold returns, inclusive of dividends and other distributions. Returns are calculated for a twelve-month period beginning four months after the end of the fiscal year. For firms that delist during our future return window, we calculate the remaining return by first use the delisting return from CRSP and then reinvest any remaining proceeds in the value-weighted market portfolio. $RET_{F,t+1}$ is the risk-free rate. $RET_{MKT,t+1,}$ $RET_{SMB,t+1}$ and $RET_{HML,t+1}$ represent the Fama and French (1993) benchmark factors for market (MKT), size (SMB) and book-to-market (HML). Data for the risk-free rate and the factors are obtained from Ken French. The hedge return represents the net alpha generated by taking a long position in the 'Low' portfolio and an equal sized short position in the 'High' portfolio. The t-statistic tests whether the mean hedge return is statistically different from zero. ΔXFIN is net external financing, calculated as the sum of ΔEQUITY and ΔDEBT. ΔEQUITY is net equity financing measured as the proceeds from the sale of common and preferred stock (COMPUSTAT item #108) less cash payments for the purchase of common and preferred stock (COMPUSTAT item #115) less cash payments for dividends (COMPUSTAT item #127). ΔDEBT is net debt financing measured as the cash proceeds from the issuance of long-term debt (COMPUSTAT item #111) less cash payments for long-term debt reductions (COMPUSTAT item #114) less the net changes in current debt (COMPUSTAT item #301). Income is operating income after depreciation (COMPUSTAT item #178). All external financing and income variables are deflated by average total assets. ** (*) Indicates hedge return is significant at the 0.01 (0.05) level.

TABLE 5
Time-series means and t-statistics for coefficients from annual cross-sectional regressions of future size-adjusted stock returns on change in external financing (N=99,329 firm-years from 1971-2000)

Panel A: Net external financing

$$SRET_{t+1} = \gamma_0 + \gamma_1 \Delta XFIN_t + \upsilon_{t+1}$$

	γ_0	γ_1	Adj. R^2
Coefficient	0.011	-0.200	0.009
(t-statistic)	(1.6)	(-5.7)	

Panel B: Debt and equity components of net external financing

$$SRET_{t+1} = \gamma_0 + \gamma_1 \Delta EQUITY_t + \gamma_2\ \Delta DEBT_t + \upsilon_{t+1}$$

	γ_0	γ_1	γ_2	Adj. R^2
Coefficient	0.006	-0.150	–	0.008
(t-statistic)	(1.2)	(-3.0)		
Coefficient	0.003	–	-0.211	0.002
(t-statistic)	(0.6)		(-6.5)	
Coefficient	0.011	-0.161	-0.233	0.010
(t-statistic)	(1.9)	(-3.2)	(-8.4)	

Reported regression coefficients are mean coefficients from 30 annual regressions weighting each annual coefficient by the square root of sample size for each year. The t-statistics (reported in parentheses below coefficient estimates) are based on the standard error of the coefficient estimates across the annual regressions. SRET is the annual size adjusted stock return. It is measured using compounded buy-hold returns, inclusive of dividends and other distributions. The size adjustment is made by deducting the corresponding value-weighted return for all available firms in the same size-matched decile, where size is measured using market capitalization as of the beginning of the year. Returns are calculated for a twelve-month period beginning four months after the end of the fiscal year. For firms that delist during our future return window, we calculate the remaining return by first use the de-listing return from CRSP and then reinvest any remaining proceeds in the value-weighted market portfolio. ΔXFIN is net external financing, calculated as the sum of ΔEQUITY and ΔDEBT. ΔEQUITY is net equity financing measured as the proceeds from the sale of common and preferred stock (COMPUSTAT item #108) less cash payments for the purchase of common and preferred stock (COMPUSTAT item #115) less cash payments for dividends (COMPUSTAT item #127). ΔDEBT is net debt financing measured as the cash proceeds from the issuance of long-term debt (COMPUSTAT item #111) less cash payments for long-term debt reductions (COMPUSTAT item #114) less the net changes in current debt (COMPUSTAT item #301). All external financing and income variables are deflated by average total assets.

TABLE 6
Time-series means and t-statistics for coefficients from annual cross-sectional regressions of future income on current income and change in external financing (N= 99,329 firm-years from 1971-2000)

Panel A: Short-term income and net external financing
$Income_{t+1} = \gamma_0 + \gamma_1 Income_t + \gamma_2 \Delta XFIN_t + \upsilon_{t+1}$

	γ_0	γ_1	γ_2	Adj. R^2
Coefficient	0.013	0.756	-0.062	0.608
(t-statistic)	(2.3)	(53.3)	(-10.1)	

Panel B: Short-term income and debt and equity components of net external financing
$Income_{t+1} = \gamma_0 + \gamma_1 Income_t + \gamma_2 \Delta EQUITY_t + \gamma_3 \Delta DEBT_t + \upsilon_{t+1}$

	γ_0	γ_1	γ_2	γ_3	Adj. R^2
Coefficient	0.013	0.750	-0.089	–	0.608
(t-statistic)	(2.4)	(50.4)	(-8.4)		
Coefficient	0.009	0.778	–	-0.015	0.603
(t-statistic)	(1.3)	(44.2)		(-1.4)	
Coefficient	0.013	0.749	-0.089	-0.024	0.609
(t-statistic)	(2.4)	(50.8)	(-8.3)	(-2.8)	

Panel C: Long-term income and net external financing
$Income_{t+2,t+5} = \gamma_0 + \gamma_1 Income_t + \gamma_2 \Delta XFIN_t + \upsilon_{t+1}$

	γ_0	γ_1	γ_2	Adj. R^2
Coefficient	0.039	0.440	-0.074	0.330
(t-statistic)	(10.9)	(21.8)	(-6.3)	

Panel D: Long-term income and debt and equity components of net external financing
$Income_{t+2,t+5} = \gamma_0 + \gamma_1 Income_t + \gamma_2 \Delta EQUITY_t + \gamma_3 \Delta DEBT_t + \upsilon_{t+1}$

	γ_0	γ_1	γ_2	γ_3	Adj. R^2
Coefficient	0.039	0.433	-0.131	–	0.335
(t-statistic)	(10.9)	(20.3)	(-5.2)		
Coefficient	0.034	0.462	–	-0.005	0.317
(t-statistic)	(8.3)	(16.4)		(-0.5)	
Coefficient	0.039	0.432	-0.133	-0.020	0.336
(t-statistic)	(11.2)	(20.8)	(-5.3)	(-2.3)	

Reported regression coefficients are mean coefficients from 30 annual regressions weighting each annual coefficient by the square root of sample size for each year. The t-statistics (reported in parentheses below coefficient estimates) are based on the standard error of the coefficient estimates across the annual regressions, adjusted for autocorrelation in the annual coefficient estimates based on an assumed AR(1) autocorrelation structure. Standard errors are multiplied by an adjustment factor, $\sqrt{\frac{(1+\phi)}{(1-\phi)} - \frac{2\phi(1-\phi^{n})}{n(1-\phi)^{2}}}$, where n is the number of annual regressions and ϕ is the first-order autocorrelation of the annual coefficient estimates. Income is operating income after depreciation (COMPUSTAT item #178).). $Income_{t+2,t+5}$ is average income for the 4 year period starting one full year after the external financing period. ΔXFIN is net external financing, calculated as the sum of ΔEQUITY and ΔDEBT. ΔEQUITY is net equity financing measured as the proceeds from the sale of common and preferred stock (COMPUSTAT item #108) less cash payments for the purchase of common and preferred stock (COMPUSTAT item #115) less cash payments for dividends (COMPUSTAT item #127). ΔDEBT is net debt financing measured as the cash proceeds from the issuance of long-term debt (COMPUSTAT item #111) less cash payments for long-term debt reductions (COMPUSTAT item #114) less the net changes in current debt (COMPUSTAT item #301). All external financing and income variables are deflated by average total assets.

TABLE 7
Univariate statistics and pair-wise correlations for external financing and analyst forecast error variables

Panel A: Univariate statistics

Variable	N	Mean	Std. Dev.	25%	Median	75%
ΔXFIN	45,054	0.063	0.217	-0.037	0.001	0.079
ΔEQUITY	45,054	0.042	0.199	-0.025	-0.003	0.010
ΔDEBT	45,054	0.021	0.125	-0.018	0.000	0.046
F1error	43,247	-0.028	0.105	-0.032	-0.005	0.004
F2error	29,847	-0.036	0.105	-0.052	-0.014	0.004
LTGerror	12,384	-0.058	0.209	-0.159	-0.047	0.034
TPerror	4,845	-0.327	0.910	-0.752	-0.310	0.056
REC	6,916	3.946	0.803	3.000	4.000	5.000

Panel B: Pair-wise correlations - Pearson (above diagonal) and Spearman (below diagonal)

	ΔXFIN	ΔEQUITY	ΔDEBT	F1error	F2error	LTGerror	TPerror	REC
ΔXFIN	–	0.83	0.41	-0.03	-0.07	-0.09	-0.16	0.13
ΔEQUITY	0.61	–	-0.15	-0.02	-0.05	-0.11	-0.15	0.13
ΔDEBT	0.58	-0.09	–	-0.03	-0.04	0.00	-0.05	0.02
F1error	-0.10	-0.08	-0.06	–	0.49	-0.21	0.15	0.09
F2error	-0.13	-0.12	-0.05	0.61	–	-0.08	0.27	0.06
LTGerror	-0.08	-0.10	-0.01	-0.16	-0.01	–	n.a.	-0.10
TPerror	-0.21	-0.19	-0.04	0.32	0.48	n.a.	–	-0.05
REC	0.13	0.16	0.01	0.11	0.05	-0.10	-0.06	–

Panel A of this table presents descriptive statistics for the external financing and analyst variables for the reduced sample with available analyst data. Panel B presents univariate correlations among the variables. Correlations greater than 0.03 in absolute magnitude are significant at the 0.01 level. Correlations for which there is no data available are denoted n/a. ΔXFIN is net external financing, calculated as the sum of ΔEQUITY and ΔDEBT.

∆EQUITY is net equity financing measured as the proceeds from the sale of common and preferred stock (COMPUSTAT item #108) less cash payments for the purchase of common and preferred stock (COMPUSTAT item #115) less cash payments for dividends (COMPUSTAT item #127). ∆DEBT is net debt financing measured as the cash proceeds from the issuance of long-term debt (COMPUSTAT item #111) less cash payments for long-term debt reductions (COMPUSTAT item #114) less the net changes in current debt (COMPUSTAT item #301). All external financing and income variables are deflated by average total assets. F1error is the one-year ahead forecast error, computed as the realized annual earnings per share for the coming year minus the corresponding monthly consensus forecast of this amount, all scaled by stock price as of the end of the forecast month, winsorized at +/- 1. F2error is the two-year ahead forecast error, computed as the realized annual earnings per share for next year minus the corresponding monthly consensus forecast of this amount, all scaled by stock price as of the end of the forecast month, winsorized at +/- 1. LTGerror is the long-term growth forecast error, computed as the realized long-term earnings growth rate minus the forecasted long-term growth rate. Realized earnings growth is computed from the slope coefficient of an ordinary least squares regression of the natural logarithm of annual earnings per share on a time trend. The regressions require the availability of at least three realized annual earnings per share numbers (maximum of six). TPerror is target price forecast error, computed as one plus the raw return over the target price forecast horizon, minus the one-year ahead target price forecast relative to closing stock price as of the end of the target price forecast month. REC is the stock recommendation, coded on a 1 to 5 point scale. We invert the standard coding of stock recommendations so that 1=strong sell, 2=sell, 3=hold, 4=buy, and 5=strong buy.

TABLE 8
Properties of sell-side analyst forecasts and stock recommendations across external financing portfolios

Panel A: Total external financing (ΔXFIN)

	Means					Medians				
Portfolio	F1error	F2error	LTGerror	TPerror	REC	F1error	F2error	LTGerror	TPerror	REC
Lowest	-0.022	-0.025	-0.046	-0.192	3.872	-0.001	-0.007	-0.042	-0.153	4.000
2	-0.019	-0.025	-0.044	-0.220	3.828	-0.003	-0.008	-0.039	-0.204	4.000
3	-0.020	-0.025	-0.052	-0.224	3.829	-0.002	-0.009	-0.040	-0.224	4.000
4	-0.022	-0.030	-0.039	-0.231	3.831	-0.004	-0.010	-0.038	-0.258	4.000
5	-0.026	-0.033	-0.053	-0.273	3.934	-0.005	-0.013	-0.048	-0.259	4.000
6	-0.028	-0.035	-0.065	-0.202	3.936	-0.005	-0.015	-0.050	-0.277	4.000
7	-0.029	-0.036	-0.058	-0.381	3.971	-0.006	-0.016	-0.048	-0.384	4.000
8	-0.037	-0.043	-0.054	-0.400	3.991	-0.009	-0.020	-0.057	-0.355	4.000
9	-0.041	-0.052	-0.077	-0.514	4.160	-0.010	-0.025	-0.066	-0.500	4.000
Highest	-0.038	-0.054	-0.129	-0.666	4.167	-0.012	-0.031	-0.122	-0.622	4.000
Difference (Highest-Lowest)	-0.016	-0.029	-0.084	-0.474	0.296	-0.011	-0.024	-0.080	-0.469	0.000
t-statistic	-6.5	-10.0	-7.6	-6.8	6.7	–	–	–	–	–
Z-statistic	–	–	–	–	–	-14.2	-16.0	-7.4	-11.8	7.0

TABLE 8 (cont.)
Properties of sell-side analyst forecasts and stock recommendations across external financing portfolios

Panel B: Equity financing (ΔEQUITY)

	Means					Medians				
Portfolio	F1error	F2error	LTGerror	TPerror	REC	F1error	F2error	LTGerror	TPerror	REC
Lowest	-0.012	-0.018	-0.050	-0.201	3.847	-0.002	-0.007	-0.042	-0.175	4.000
2	-0.012	-0.019	-0.048	-0.219	3.779	-0.002	-0.007	-0.030	-0.163	4.000
3	-0.016	-0.024	-0.043	-0.209	3.766	-0.003	-0.010	-0.043	-0.192	4.000
4	-0.020	-0.032	-0.028	-0.269	3.871	-0.005	-0.014	-0.033	-0.245	4.000
5	-0.032	-0.039	-0.041	-0.363	3.929	-0.006	-0.014	-0.042	-0.366	4.000
6	-0.042	-0.043	-0.051	-0.436	3.981	-0.009	-0.019	-0.047	-0.377	4.000
7	-0.042	-0.047	-0.064	-0.371	4.047	-0.009	-0.017	-0.057	-0.396	4.000
8	-0.041	-0.048	-0.083	-0.305	4.010	-0.007	-0.021	-0.070	-0.400	4.000
9	-0.032	-0.046	-0.086	-0.367	4.143	-0.007	-0.021	-0.091	-0.443	4.000
Highest	-0.033	-0.049	-0.139	-0.644	4.210	-0.010	-0.028	-0.132	-0.603	4.000
Difference (Highest-Lowest)	-0.021	-0.032	-0.089	-0.443	0.362	-0.008	-0.021	-0.090	-0.428	0.000
t-statistic	-11.7	-13.8	-8.6	-6.5	8.7	–	–	–	–	–
Z-statistic	–	–	–	–	–	-12.3	-17.8	-9.4	-10.9	8.7

TABLE 8 (cont.)
Properties of sell-side analyst forecasts and stock recommendations across external financing portfolios

Panel C: Debt financing (ΔDEBT)

	Means					Medians				
Portfolio	F1error	F2error	LTGerror	TPerror	REC	F1error	F2error	LTGerror	TPerror	REC
Lowest	-0.034	-0.044	-0.073	-0.346	4.041	-0.005	-0.018	-0.062	-0.333	4.000
2	-0.027	-0.035	-0.054	-0.321	3.949	-0.005	-0.011	-0.044	-0.273	4.000
3	-0.024	-0.033	-0.045	-0.335	3.907	-0.004	-0.012	-0.043	-0.289	4.000
4	-0.021	-0.029	-0.053	-0.310	3.926	-0.004	-0.014	-0.042	-0.347	4.000
5	-0.021	-0.030	-0.072	-0.321	3.991	-0.004	-0.012	-0.052	-0.384	4.000
6	-0.022	-0.028	-0.070	-0.360	3.898	-0.004	-0.011	-0.059	-0.284	4.000
7	-0.024	-0.032	-0.051	-0.230	3.875	-0.005	-0.012	-0.039	-0.219	4.000
8	-0.027	-0.033	-0.049	-0.322	3.854	-0.005	-0.013	-0.038	-0.273	4.000
9	-0.038	-0.041	-0.055	-0.344	3.980	-0.008	-0.017	-0.052	-0.315	4.000
Highest	-0.044	-0.055	-0.058	-0.482	4.060	-0.012	-0.027	-0.053	-0.453	4.000
Difference (Highest-Lowest)	-0.010	-0.011	0.015	-0.136	0.019	-0.007	-0.009	0.009	-0.120	0.000
t-statistic	-4.2	-3.4	1.7	-2.3	0.1	–	–	–	–	–
Z-statistic	–	–	–	–	–	-8.7	-5.8	1.0	-2.2	-0.2

This table presents means of analyst variables across deciles formed based on the level of external financing measures. In each year, observations are allocated to deciles based on the level of the external financing variables, and the table presents the results of the pooled decile observations. Test statistics compare the means (medians, not tabulated) across low and high portfolios. ΔXFIN is net external financing, calculated as the sum of ΔEQUITY and ΔDEBT. ΔEQUITY is net equity financing measured as the proceeds from the sale of common and preferred stock (COMPUSTAT item #108) less cash payments for the purchase of common and preferred stock (COMPUSTAT item #115) less cash payments for dividends (COMPUSTAT item #127). ΔDEBT is net debt financing measured as the cash proceeds from the issuance of long-term debt (COMPUSTAT item #111) less cash payments for long-term debt reductions (COMPUSTAT item #114) less the net changes in current debt (COMPUSTAT item #301). All external financing and income variables are deflated by average total assets. F1error is the one-year ahead forecast error, computed as the realized annual earnings per share for the coming year minus the corresponding monthly consensus forecast of this amount, all scaled by stock price as of the end of the forecast month, winsorized at +/- 1. F2error is the two-year ahead forecast error, computed as the realized annual earnings per share for next year minus the corresponding monthly consensus forecast of this amount, all scaled by stock price as of the end of the forecast month, winsorized at +/- 1. LTGerror is the long-term growth forecast error, computed as the realized long-term earnings growth rate minus the forecasted long-term growth rate. Realized earnings growth is computed from the slope coefficient of an ordinary least squares regression of the natural logarithm of annual earnings per share on a time trend. The regressions require the availability of at least three realized annual earnings per share numbers (maximum of six). TPerror is target price forecast error, computed as one plus the raw return over the target price forecast horizon, minus the one-year ahead target price forecast relative to closing stock price as of the end of the target price forecast month. REC is the stock recommendation, coded on a 1 to 5 point scale. We invert the standard coding of stock recommendations so that 1=strong sell, 2=sell, 3=hold, 4=buy, and 5=strong buy. The analyst variables are all measured 4 months after the fiscal year end in which the external financing variable is measured.

TABLE 9
OLS regressions of sell-side analyst forecasts and stock recommendations on external financing activity.

$$\text{Analyst Variable} = \alpha + \beta_1\ \Delta XFIN + \varepsilon$$
$$\text{Analyst Variable} = \alpha + \beta_2\ \Delta EQUITY + \beta_3\ \Delta DEBT + \varepsilon$$

		External financing variable									
		ΔXFIN				ΔEQUITY and ΔDEBT					
Analyst Variable	Mean #Obs. Per Year	α	β_1	Adj.R^2	# Years β_1 Significant/ #Annual Regressions	α	β_2	β_3	Adj.R^2	# Years β_2 Significant / #Annual Regressions	# Years β_3 Significant/ #Annual Regressions
F1error	1,663	-0.018	-0.022	0.005	23/26	-0.006	-0.032	-0.015	0.011	22/26	19/26
		(-3.7)	(-5.1)			(-2.1)	(-6.9)	(-5.4)			
F2error	1,194	-0.021	-0.029	0.009	21/25	-0.014	-0.033	-0.011	0.015	17/25	14/25
		(-2.9)	(-11.4)			(-2.1)	(-3.9)	(-2.4)			
LTGerror	825	-0.037	-0.050	0.006	9/15	-0.032	-0.064	0.002	0.011	12/15	2/15
		(-2.6)	(-5.8)			(-1.9)	(-5.8)	(0.2)			
TPerror	969	-0.107	-0.468	0.042	5/5	-0.043	-0.471	-0.131	0.066	4/5	1/5
		(-1.4)	(-2.7)			(-0.6)	(-2.3)	(-1.6)			
REC	865	3.769	0.321	0.015	8/8	3.738	0.389	0.015	0.024	8/8	0/8
		(82.5)	(12.6)			(66.3)	(8.9)	(0.8)			

This table presents the results of Fama-Macbeth regressions of analyst variables on external financing measures. The right-hand side reflects decile rankings of each external financing measure, with decile ranks transformed to a 0-1 interval (i.e., [decile rank–1]/9). In each year, observations are allocated to deciles based on the level of the external financing variables. For each analyst variable, the table presents the number of annual regressions, the mean number of observations per year, the mean coefficient estimates and R^2, and the number of annual regressions in which the coefficient on the external financing variable is significant. The t-statistics (reported in parentheses below coefficient estimates) are based on the standard error of the coefficient estimates across the annual regressions, adjusted for autocorrelation in the annual coefficient estimates based on an assumed AR(1) autocorrelation structure. Standard errors are multiplied by an adjustment factor, $\sqrt{\frac{(1+\phi)}{(1-\phi)} - \frac{2\phi(1-\phi^{n})}{n(1-\phi)^{2}}}$, where n is the number of annual regressions and ϕ is the first-order autocorrelation of the annual coefficient estimates.

ΔXFIN is net external financing, calculated as the sum of ΔEQUITY and ΔDEBT. ΔEQUITY is net equity financing measured as the proceeds from the sale of common and preferred stock (COMPUSTAT item #108) less cash payments for the purchase of common and preferred stock (COMPUSTAT item #115) less cash payments for dividends (COMPUSTAT item #127). ΔDEBT is net debt financing measured as the cash proceeds from the issuance of long-term debt (COMPUSTAT item #111) less cash payments for long-term debt reductions (COMPUSTAT item #114) less the net changes in current debt (COMPUSTAT item #301). All external financing and income variables are deflated by average total assets. F1error is the one-year ahead forecast error, computed as the realized annual earnings per share for the coming year minus the corresponding monthly consensus forecast of this amount, all scaled by stock price as of the end of the forecast month, winsorized at +/- 1. F2error is the two-year ahead forecast error, computed as the realized annual earnings per share for next year minus the corresponding monthly consensus forecast of this amount, all scaled by stock price as of the end of the forecast month, winsorized at +/- 1. LTGerror is the long-term growth forecast error, computed as the realized long-term earnings growth rate minus the forecasted long-term growth rate. Realized earnings growth is computed from the slope coefficient of an ordinary least squares regression of the natural logarithm of annual earnings per share on a time trend. The regressions require the availability of at least three realized annual earnings per share numbers (maximum of six). TPerror is target price forecast error, computed as one plus the raw return over the target price forecast horizon, minus the one-year ahead target price forecast relative to closing stock price as of the end of the target price forecast month. REC is the stock recommendation, coded on a 1 to 5 point scale. We invert the standard coding of stock recommendations so that 1=strong sell, 2=sell, 3=hold, 4=buy, and 5=strong buy. The analyst variables are all measured 4 months after the fiscal year end in which the external financing variable is measured. t-statistics are reported in parentheses below coefficient estimates.

TABLE 10
OLS regressions of sell-side analysts' stock recommendations and target price errors on external financing activity and analyst affiliation

$$\text{Analyst Variable} = \gamma_0 + \gamma_1\text{Affiliated} + \gamma_2\Delta\text{XFIN} + \gamma_3\text{Affiliated}*\Delta\text{XFIN} + \varepsilon$$

Analyst Variable	Mean N per Year	γ_0	γ_1	γ_2	γ_3	Adj. R^2	# Years γ_2 Significant / #Annual Regressions	# Years γ_3 Significant / #Annual Regressions
TPerror	1,373	-0.067	0.089	-0.538	-0.208	0.074	4/5	1/5
		(-0.9)	(0.7)	(-2.5)	(-1.2)			
REC	1,121	3.752	0.230	0.365	-0.128	0.027	8/8	1/8
		(66.9)	(1.1)	(9.6)	(-0.9)			

This table presents the results of Fama-Macbeth regressions of analyst variables on the net external financing measure and an interaction term for whether the forecast was issued by an affiliated analyst. The right-hand side reflects quintile rankings of the net external financing measure, with quintile ranks transformed to a 0-1 interval (i.e., [quintile rank–1]/5). For all individual analyst data, we compute the firm-specific mean of all recommendations and target price forecast errors by year for all affiliated analysts and separately for all unaffiliated analysts. In each year, firms are allocated to quintiles based on the level of net external financing. The table presents the number of annual regressions, the mean number of observations per year, the mean coefficient estimates and R^2, and the number of annual regressions in which the coefficients on the external financing variable and the interaction of the external financing variable and analyst affiliation are significant. The t-statistics (reported in parentheses below coefficient estimates) are based on the standard error of the coefficient estimates across the annual regressions, adjusted for autocorrelation in the annual coefficient estimates based on an assumed AR(1) autocorrelation structure. Standard errors are multiplied by an adjustment factor, $\sqrt{\frac{(1+\phi)}{(1-\phi)} - \frac{2\phi(1-\phi^n)}{n(1-\phi)^2}}$, where n is the number of annual regressions and ϕ is the first-order autocorrelation of the annual coefficient estimates. ΔXFIN is net external financing, calculated as the sum of ΔEQUITY and ΔDEBT. ΔEQUITY is net equity financing measured as the proceeds from the sale of common and preferred stock (COMPUSTAT item #108) less cash payments for the purchase of common and preferred stock (COMPUSTAT item #115) less cash payments for dividends (COMPUSTAT item #127). ΔDEBT is net debt financing measured as the cash proceeds from the issuance of long-term debt (COMPUSTAT item #111) less cash payments for long-term debt reductions (COMPUSTAT item #114) less the net changes in current debt (COMPUSTAT item #301). ΔXFIN is deflated by average total assets. TPerror is target price forecast error, computed as one plus the raw return over the target price forecast horizon, minus the one-year ahead target price forecast relative to closing stock price as of the end of the target price forecast month. REC is the stock recommendation, coded on a 1 to 5 point scale. We invert the standard coding of stock recommendations so that 1=strong sell, 2=sell, 3=hold, 4=buy, and 5=strong buy. The analyst variables are all measured 4 months after the fiscal year end in which the external financing variable is measured. t-statistics are reported in parentheses below coefficient estimates.