Two Essays on Momentum and Reversals in Stock Returns

Ajay Bhootra

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Approved by:

Michael T. Cliff, Chair
Huseyin Gulen
Gregory B. Kadlec
Raman Kumar

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ABSTRACT

This dissertation consists of two essays. In the first essay, I examine the source of momentum in stock returns. The reversal of momentum returns has been interpreted as evidence that momentum results from delayed overreaction to information. I examine momentum and reversals conditional on firms' share issuance (net of repurchases) during the momentum holding period and show that (1) among losers, the momentum returns are statistically significant, but the reversals are non-existent, for both issuers and non-issuers; (2) among winners, momentum and reversals are restricted to issuers, but are non-existent among non-issuers. After further conditioning on firm size, I find that winner reversals are restricted to small, equity issuing firms. After excluding these small issuers from the sample, the remaining firms have strong momentum profits with no accompanying reversals. The evidence suggests that the return reversals are a manifestation of the poor performance of equity issuing firms. Further, while investor overreaction potentially contributes to the momentum among winners, a large fraction of firms do not earn any significant abnormal returns following initial price continuation, suggesting that underreaction, and not delayed overreaction to information, is the dominant source of momentum in stock returns.

In the second essay, I examine alternative explanations of reversals in stock returns. George and Hwang (2007) find that long-term reversals in stock returns are driven by investors' incentive to defer payment of taxes on locked-in capital gains rather than by overreaction to information. I show that return reversals are instead attributable to the negative relationship between firms' composite share issuance and future stock returns documented in Daniel and Titman (2006). The ability of locked-in capital gains measures to forecast stock returns is largely subsumed by the composite share issuance measure. My results do not support the hypothesis that capital gains taxes drive long-term return reversals.

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Chapter 1

Momentum: Underreaction or Overreaction?

1. Introduction

Following the seminal work of Jegadeesh and Titman (1993) documenting momentum in stock returns, there has been an extensive debate in the literature on whether risk or behavioral biases are the primary source of momentum profits. Those in the rational camp believe that momentum profits are a compensation for systematic risk.[1] On the other hand, the proponents of behavioral-based explanations argue that return predictability results from investors' failure to accurately incorporate value-relevant information into prices due to their behavioral or cognitive biases.

In addition to the momentum over intermediate horizons, there is also evidence of return reversals at longer horizons (Debondt and Thaler (1985)). Behavioral models of Barberis, Shleifer, and Vishny (1998), Daniel, Hirshleifer, and Subrahmanyam (1998), and Hong and Stein (1999) provide unifying accounts of medium-term momentum and long-term reversals. Each of these behavioral theories postulate that delayed overreaction to information contributes to momentum in stock returns which leads to overpricing among winners and underpricing among losers, and the correction of this mispricing results in reversals as stock prices converge to their fundamental values.[2]

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[1] Conrad and Kaul (1998), for example, argue that the source of momentum profits is the cross-sectional dispersion in expected returns of individual securities, and not the predictable time-series return variation.

[2] In Barberis *et al.*, a conservatism bias leads investors to initially underreact to information, but their tendency to apply representative heuristics and extrapolate current earnings growth too far into the future leads to delayed overreaction. In Daniel *et al.*, overconfident investors overreact to their private information and a self-attribution bias leads to increased overconfidence with the arrival of confirming news, resulting in further overreaction. In Hong and Stein, investors are boundedly rational: "newswatchers" base their trades solely on private information, while "momentum traders" chase past returns. The gradual diffusion of private information among newswatchers leads to initial underreaction, but the return chasing behavior of momentum traders leads to delayed overreaction.

Jegadeesh and Titman (2001) examine the long-horizon returns of momentum portfolios to distinguish between underreaction, overreaction, and risk-based explanations of momentum. Figure 2 in their paper succinctly summarizes the empirical implications of each of these alternative explanations for long horizon momentum returns. Jegadeesh and Titman argue that under the Conrad and Kaul (1998) risk hypothesis, we would expect the momentum strategy to earn positive abnormal returns in *any* post-ranking period. On the other hand, if momentum is driven by investors' underreaction to information, then the momentum portfolio should have *zero* abnormal return once the prices are at their fundamental values at the end of initial holding period. Finally, if delayed overreaction contributes to momentum as behavioral theories predict, then we expect the momentum portfolio to earn *negative* abnormal returns in the post-holding period (i.e., we should observe return reversals).[3] Consistent with the implications of behavioral models, Lee and Swaminathan (2000) and Jegadeesh and Titman (2001) document that the momentum profits reverse in the long run.

In this paper, I provide new evidence on the role of delayed overreaction in stock return momentum. Similar to the evidence in prior studies, I find that momentum returns reverse in the post-holding period. However, separate analysis for winners and losers suggests that the documented reversals are entirely due to reversal of winner returns; the loser firms do not have statistically significant abnormal returns in the post-holding period.[4] While this asymmetry

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[3] It is also possible that time-variation in expected returns drives the observed momentum and reversal return patterns. Grundy and Martin (2001) examine the momentum portfolio returns in first month of holding period after subtracting its predicted return obtained using estimated factor loadings from a two-factor and the three-factor Fama-French model over the 6-month holding period. They find that this dynamic risk adjustment does not explain the profitability of momentum strategies. Chordia and Shivakumar (2002) find that momentum payoffs can be explained by a set of macroeconomic variables, suggesting a role for time varying risk in momentum profitability. Cooper, Gutierrez, and Hameed (2004), however, find that results in Chordia and Shivkumar do not hold after accounting for microstructure-related biases.

[4] Even when winners and losers are identified based on cumulative returns over longer horizon of three to five years as in Debondt and Thaler (1985), the positive loser returns in post-formation period are concentrated in January (see

between reversals of winner and loser returns has been noted in Jegadeesh and Titman (2001) and George and Hwang (2004), its implications for the behavioral models of momentum have not been analyzed in the literature. The absence of reversals among losers suggests that delayed overreaction does not contribute to return continuation among losers. This finding is surprising given that a greater fraction of momentum profits is attributable to losers, as opposed to winners (Hong, Lim, and Stein (2000)).[5]

Given the absence of reversals among losers, the major focus of my analysis is on understanding the role of delayed overreaction in explaining winner returns. The novelty of my approach is that in contrast to the unconditional analysis in Jegadeesh and Titman (2001), I examine momentum and reversals conditional on the firms' equity issuance (net of repurchases) following the momentum portfolio formation period. It is well-known that firms issue equity following stock price run-ups and exhibit poor benchmark-adjusted performance over three to five years following equity issuance (for example, see Loughran and Ritter (1995)). This evidence suggests the possibility that the reversals of winner returns are a manifestation of the poor performance of equity issuers. I hypothesize that the reversals are apparent only among those winner firms that issue equity following their superior stock market performance. Recent evidence in Daniel and Titman (2006) and Pontiff and Woodgate (2007) suggests that the ability

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Debondt and Thaler (1987)). Based on this strong seasonality in loser returns, Conrad and Kaul (1993) and George and Hwang (2007) argue that investor overreaction does not seem to cause their reversals.

[5]An implication of Hong and Stein (1999) model is that delayed overreaction should be stronger for firms with greater initial underreaction. Figure 3 in their paper shows that overreaction and subsequent reversals are stronger for higher values of the information diffusion parameter (i.e., when rate of information diffusion is lower). Given that the rate of information flow is likely to be lower for losers as compared to winners as argued in Hong, Lim, and Stein (2000), we should expect stronger, not weaker, overreaction and subsequent reversals among losers as compared with winners.

of share issuance to forecast stock returns is stronger than that of other well known return predictors.[6,7]

If reversals are restricted to equity issuing winners and if momentum and reversals are linked as suggested by behavioral models, then we should observe stronger momentum profits among issuing winners. Note that the prevailing explanation of the equity issuance following stock price run-ups is that managers time their equity issues to take advantage of the market's overvaluation of the stock (Baker and Wurgler (2002)). Thus, an examination of momentum and reversals conditional on the equity issuance can provide new insights into the role of delayed overreaction in the momentum phenomenon.[8]

A further extension of the above hypothesis stems from the evidence in Brav, Geczy, and Gompers (2000) that the underperformance of equity issuers is concentrated in small firms. Moreover, Chang, Dasgupta, and Hilary (2006) report that the firms that face greater information asymmetry make larger equity issuances following stock price run-ups. Given that the higher adverse selection costs serve as a potential deterrent for these firms in issuing equity, a stock price run-up provides them with a valuable window of opportunity to issue equity.[9] The evidence in Chang, Dasgupta, and Hilary implies that firms facing a wedge between the cost of

[6] The potential link between the poor performance of equity issuers and the reversals in stock returns is recognized in Loughran and Ritter (1995) as well. In their seminal paper documenting the underperformance of equity issuers, Loughran and Ritter examine if the underperformance of issuing firms is a manifestation of the long-term reversals, and find that winners that issue equity significantly underperform the winners that do not. They conclude that "what matters for future returns is not the previous year's return, but whether or not the firm has issued stock".

[7] Daniel and Titman (2006) document that only the intangible component of returns reverses in the long run. Daniel and Titman define intangible return as the component of total return that is unrelated to the firm's accounting measures of performance. As Daniel and Titman argue, if the managers possess information that is not reflected in the firms' accounting measures of performance, then their issuance (repurchase) decisions may reflect realization of favorable (unfavorable) intangible information

[8]Under the market timing hypothesis, we would expect the managers to time their repurchases as well to take advantage of equity undervaluation. Recent evidence in Dittmar and Dittmar (2007), however, suggests that repurchases are driven by business cycles rather than by past valuations.

[9] Under the market timing hypothesis, this window of opportunity arises because overvaluation is more likely for firms that face greater degree of information asymmetry. However, if adverse selection costs are lower at elevated stock prices, this finding is also consistent with a model of financing choices under dynamic adverse selection costs.

external and internal funds (i.e., the financially constrained firms) should have greater incentive to issue equity following superior stock market performance.[10] The findings in Brav, Geczy, and Gompers and Chang, Dasgupta, and Hilary suggest that conditioning on firm size might be useful, given that firm size is commonly employed to capture the extent of financing constraints. In addition to firm size, I also condition on other financial constraints criteria proposed in the literature including dividend payout ratio, credit ratings, and the Kaplan-Zingales (KZ) index.

For the empirical analysis, I compute the firms' composite share issuance (Daniel and Titman (2006)) over the 12-month period that follows the momentum portfolio formation month and immediately precedes the start of the reversal period. I examine the momentum and reversal returns among the sample of firms divided into "non-issuers" and "issuers" based on median level of composite share issuance each month. I find that the reversals occur only among issuing firms and are almost entirely due to reversals in winner returns; there are no statistically significant reversals among non-issuing winners or losers. Further, I find no evidence of momentum among non-issuing winners. On the other hand, there is strong continuation of returns for issuing winners. The loser momentum is statistically significant among both issuing and non-issuing firms.

Taken together, the evidence of weak return continuation among non-issuing winners with no subsequent reversals, and strong return continuation and subsequent reversals among issuing winners seems to suggest that winner momentum can be attributed to investors' overreaction to information. Specifically, these findings appear to be consistent with an explanation that managers time their equity issuance to take advantage of overvaluation resulting

[10]The source of financing hierarchy in the pecking order model of Myers and Majluf (1984) is the information asymmetry between firm's managers and outsiders. In that model, information asymmetry leads to higher cost of external financing, thereby forcing the firms to use internally generated funds before accessing external capital markets for financing. In the model of Fazzari, Hubbard, and Petersen (1988), external financing constraints are generated as a result of information asymmetry between firms and outside investors.

from market overreaction. However, rational explanations have also been proposed in the literature to explain pre-issue run-up and subsequent underperformance of equity issuers.[11] I do not distinguish between the rational and behavioral explanations of observed price patterns around equity issues. However, my results do suggest that any explanation of these price patterns should also provide further insights into the overreaction theories of momentum.

I further examine the momentum and reversal returns among issuers and non-issuers after conditioning on firm size as measured by total assets in year prior to the portfolio formation month. I find that that the reversals are restricted to small, equity issuing winners. The return reversals of these small issuers are not explained by the Fama-French three-factor model. After excluding the small issuers, which constitute about 20% of all sample firms, the remaining firms exhibit strong momentum profits with no subsequent reversals. These results also hold when I condition on other financial constraints criteria. I obtain similar results when I classify the stocks as winners and losers based on firm-specific component of their returns after hedging out the exposure to Fama-French factors, and when I examine the momentum and reversal returns conditioned on the state of the market. In addition to the composite share issuance measure, I examine the robustness of my results using a net equity issuance measure obtained using Compustat quarterly balance sheet data and obtain similar inferences.[12]

Given that the losers and a large majority of winners do not earn significant abnormal returns in the post-holding period, I conclude that for a large fraction of firms, the momentum profits are likely due to investors' underreaction to information with no subsequent overreaction.

[11] In Carlson, Fisher, and Giammarino (2006), firms experience a price run-up as their growth options move in the money. Firms issue equity to invest in these growth options and subsequently exhibit "apparent" poor performance as riskier growth options are replaced with less risky assets. Li, Livdan, and Zhang (2007) also present an investment based model to explain SEO return dynamics using a Q-theoretic framework. Empirical evidence supporting these rational investment-based models is presented in Lyanders, Sun, and Zhang (2007).

[12] I relegate the results based on Compustat net equity issuance to an Appendix.

If there is any overreaction, it is limited to the very specific group of small, equity issuing winner firms which are responsible for the entire magnitude of documented reversals of momentum returns. Thus, delayed overreaction does not appear to play a dominant role in stock return momentum. These results suggest that the behavioral theories that integrate momentum and reversals as parts of the same phenomenon have limited ability in explaining the profitability of momentum strategies.

The rest of the paper is organized as follows. Section 1 describes the data and methodology. Section 2 examines the momentum and reversals unconditionally and after conditioning on composite share issuance. Section 3 examines the role of firm size and other financial constraints in momentum and reversals. Section 4 looks at the role of market states and firm-specific returns in momentum and reversals. I examine the robustness of results in Section 5 and conclude in Section 6.

2. Data and Methodology

2.1. Sample

The data for this study comes from CRSP monthly files and COMPUSTAT annual files. The sample period covers January 1972 to December 2004. I obtain monthly returns of all firms listed on NYSE, AMEX, and NASDAQ from the CRSP files, with the following exceptions. Following the equity issuance and financial constraints literature, I exclude financial firms from the sample (firms with four-digit SIC codes between 6000 and 6999). As in majority of momentum papers, I exclude firms with stock price below $5 or market capitalization less than the smallest NYSE size decile cutoff at the end of momentum portfolio formation period to mitigate microstructure-related biases. The final sample comprises of an average of 1789 firms per month during the sample period.[13]

2.2. Computation of Momentum and Reversal Returns

For most of the analysis, I focus on the most widely studied 6-month ranking period/6-month holding period momentum strategy. I follow the regression approach of George and Hwang (2004) to compute the momentum and reversal returns. Specifically, to compute momentum returns, I estimate 6 cross-sectional regressions (for k = 1,…,6) of the following form each month t:

$$R_{i,t+1} = \beta_{0kt} + \beta_{1kt} R_{i,t} + \beta_{2kt} ME_{i,t} + \beta_{3kt} P1_{i,t-k} + \beta_{4kt} P10_{i,t-k} + \varepsilon_{ikt} ,$$

where $R_{i,t}$ is the return on stock i in month t, $ME_{i,t}$ is the market capitalization (price × shares outstanding) of stock i at end of month t, $P10_{i,t-k}$ ($P1_{i,t-k}$) is a winner (loser) dummy variable that equals 1 if the stock i is ranked in top (bottom) decile of the stocks based on their cumulative return over six-month period ending in month t-k. The coefficient estimates are averaged over k = 1,…,6 to obtain raw portfolio returns. Thus, the returns on loser and winner portfolios in month t+1 are obtained as $\frac{1}{6}\sum_{k=1}^{6}\hat{\beta}_{3kt}$ and $\frac{1}{6}\sum_{k=1}^{6}\hat{\beta}_{4kt}$, respectively, and the momentum profit is the difference between the winner and loser portfolio returns. The time-series regressions of each of these averages on contemporaneous Fama-French factors are estimated to obtain Fama-French alphas. The returns to other momentum strategies with different ranking/holding period

[13] My analysis requires formation of portfolios after independently sorting the sample on various variables. The start of the sample period in 1972 is governed by the need to have a reasonable number of firms in the portfolios thus obtained. The inferences do not change when the sample period starts in 1963. I also repeat the analyses after including the financial firms in the sample which increases the sample size to an average of 2161 firms per month. The inferences remain unchanged.

combinations are computed similarly. In general, for a J-month ranking period/K-month holding period strategy (referred to as (J, K) momentum strategy henceforth), winners and losers are identified based on their cumulative returns over J-month period ending in month t-k, and K (for k = 1,…,K) cross-sectional regressions are estimated each month to compute momentum returns. Similar approach is used to compute reversal returns, except that 12 cross-sectional regressions are estimated each month (for k = 13,…,24, k = 25,…36, k = 37,…,48, k = 49,…60) to capture the average returns over months 13 to 24, 25 to 36, 37 to 48, and 49 to 60, respectively, following the ranking period. Note that there is a one-month gap between the ranking and holding period for momentum returns. Lagged firm size and return are included in the regressions to further mitigate the effect of bid-ask bounce. Since P1 and P10 are dummy variables, the coefficients on these variables represent the returns on loser and winner portfolios in excess of the intercept term after hedging out the effects of lagged returns and size. In addition to providing better control for the microstructure-related biases, this regression approach is a convenient way to examine the contribution of winners and losers to the overall momentum returns.[14] Further, this approach is also useful in examining the winner and loser firm returns after controlling for equity issuance and extent of financing constraints in a regression framework.[15]

[14] Note that the intercept term in the regression specification captures the average return on firms that are neither winners nor losers after accounting for lagged size and return. Therefore, when this regression is estimated separately for a subgroup of firms, such as issuers, the coefficients on winner and loser dummy variables represent returns to issuing winners and losers in excess of those earned by an average issuer. Thus, any common variation in returns on firms within a subgroup is automatically accounted for, resulting in more meaningful comparison of momentum and reversal returns across different subgroups.

[15] None of the inferences in this paper change when I use the traditional momentum portfolio formation approach originally proposed in Jegadeesh and Titman (1993).

2.3. Composite Share Issuance and Compustat Net Equity Issuance

Following Daniel and Titman (2006), the composite share issuance for firm i over a period t to t + τ is defined as:

$$\text{composite share issuance}_{i,(t,t+\tau)} = \log\left(\frac{ME_{i,t+\tau}}{ME_{i,t}}\right) - r_i(t, t+\tau),$$

where $ME_{i,t}$ ($ME_{i,t+\tau}$) is firm i's market capitalization at the end of month t (t + τ) and r_i (t, t + τ) is its log gross return over the period t to t + τ. The composite share issuance measures the growth in firm's market capitalization that is not due to its stock returns over the same period. Thus, it captures the firm's issuance activity net of its repurchases and excludes stock splits and stock dividends.

I compute the composite share issuance over a 12-month period that coincides with the momentum period. That is, for a given portfolio formation month t, when winners and losers are identified based on their cumulative returns over month t-6 to t-1, the composite share issuance is obtained for the period t+1 to t+12. Thus, for winners (losers), the composite share issuance is measured over a period that follows a period when these firms have experienced a superior (inferior) stock market performance. Additionally, if overreaction contributes to momentum returns, any issuance (repurchase) activity to take advantage of the resulting mispricing will also be reflected in the composite share issuance measure. Also note that reversal returns are computed starting month t+13. Thus, the reversal returns are measured over a subsequent period that does not overlap with the period over which the composite share issuance is computed. At the time of portfolio formation, I designate a firm as "Non-Issuer" ("Issuer") if its composite share issuance is less than or equal to (greater than) the median level of composite share issuance.

In addition to the analysis with the composite share issuance, I also repeat all the tests using a net equity issuance measure obtained from Compustat. The net equity issuance measure is obtained using quarterly balance sheet data. Following Baker, Stein, and Wurgler (2003), I compute the volume of net external equity issuance for a firm during any given year as the change in book equity (data60 + data74) minus the change in retained earnings (data 36), scaled by the lagged total assets (data6). The net equity issuance is measured over a period starting with end of calendar quarter coinciding or immediately preceding the portfolio formation month and ending four quarters hence. For example, when portfolio formation months are March, April, or May of a given year, the net equity issuance is measured over end of March of that year to the end of March of the following year. Since the Compustat data is available only at quarterly frequency, some overlap between the ranking period and measurement period of net equity issuance is unavoidable. As with composite share issuance, I designate the firms as "Non-Issuers" ("Issuers") if their net equity issuance is less than or equal to (greater than) the median level of net equity issuance.

2.4. Firm Size and Financial Constraints Criteria

The size of a firm is defined by its total assets (annual Compustat data 6) in the year prior to the portfolio formation. Small firms are those with total assets in the bottom 30% among all firms, and Large firms are those with total assets in top 30% among all firms. All other firms with intermediate values of asset size are assigned to Medium size group. Note that asset size is commonly used as a financial constraints criterion and the above scheme of classifying firms as Small and Large resembles that of Gilchrist and Himmelberg (1995) and Perez-Quiros and

Timmermann (2000), who use firm size to classify firms into constrained and unconstrained groups.

In addition to firm size, I also use three other financial constraints criteria commonly employed in the literature. The financial constraints measures are computed in the year prior to portfolio formation using data from the COMPUSTAT industrial annual files. These firms are then assigned to financial constraints subgroups as discussed below.

Payout Ratio: Payout ratio each year is calculated as total dividends (common and preferred) made by the firm scaled by operating income (data19 + data21)/data178). The classification into constraints subgroups is similar to that for asset size: 30% of the firms with highest payout ratio are assigned to unconstrained (UC) group and 30% of firms with lowest payout ratio are assigned to the constrained (C) group[16]. The remaining firms with intermediate values of payout ratio are assigned to the Medium Constrained (Med) group. This classification based on payout ratio follows Fazzari, Hubbard, and Petersen (1988) and has been widely used in several subsequent studies.

S&P Long-Term Credit Rating[17]: I use the historical long-term domestic issuer credit rating (data280) to assign firms into constrained and unconstrained subgroups. Firms with investment grade credit rating (BBB- or better) are assigned to the unconstrained group and all other firms are classified as constrained. The classifications are updated annually. Classifications based on

[16] In the later part of the sample period, there are several years when more than 30% of the firms have zero dividend payout (see Fama and French (2001) for a discussion on disappearing dividends). In those years, I classify all firms with zero payout as constrained. The rest of the sample is split into 4:3 ratio to identify Medium Constrained and Unconstrained Firms. Thus, under this scheme, the number of firm-years identified as constrained is larger than the number of firm-years identified as unconstrained.
[17] For credit ratings, the sample begins in 1985, since Compustat begins coverage of S&P credit ratings in 1985.

credit ratings have been proposed in Whited (1992) and Gilchrist and Himmelberg (1995). Recent papers that employ similar investment grade/non-investment grade classification of financial constraints include Malmendier and Tate (2005), and Rauh (2006).

KZ Index: Following Lamont, Polk, and Saa-Requejo (2001), the KZ index of financial constraints for a firm is computed as follows:

$$KZ\ index = -1.001909 * CashFlow + 0.2826389 * \text{Tobin's } Q + 3.139193 * Leverage$$
$$-39.3678 * Dividends - 1.314759 * CashHoldings$$

30% of the firms with highest level of KZ index are assigned to constrained group and 30% of the firms with lowest level of KZ index are assigned to unconstrained group. The firms with intermediate values are assigned to the Med group.

3. Momentum and Reversals

3.1. Entire Sample

I begin the analysis by documenting unconditional momentum and reversals for all the firms in my sample. Table I reports the regression results. Note that even though small and low-priced firms are excluded from the sample, the coefficients on lagged firm size and especially on lagged firm return are negative and statistically significant, thereby justifying controlling for these factors in the analyses. The raw momentum profit for (6, 6) strategy is 1.36% per month for all calendar months, and 1.58% per month when January returns are excluded. These magnitudes are consistent with those in previous studies that analyze momentum returns over comparable time periods. The momentum profits are weaker when the holding period is extended to 12 months, the overall and non-January returns being 0.85% and 1.08%, respectively. A larger fraction of the momentum profits comes from the losers, which is also consistent with the prior studies.

An examination of raw reversal returns suggests that reversals are concentrated in month 13 to 24, and months 25 to 36; there are no reversals in the subsequent 12-month periods. Further, the overall (winner minus loser) reversals are weaker outside January and are largely explained by Fama-French three-factor model (see also Fama and French (1996)). An important observation regarding reversals is that there is no reversal of the loser firm returns; all the observed reversals are due to reversals in winner firm returns. In fact, the reversal period returns of losers are negative when January returns are excluded, although the raw returns are not statistically significant. The winner reversals are strong, especially after adjusting for Fama-French factors, and when January returns are excluded. Given that the loser firm returns do not reverse in the long run, delayed overreaction does not appear to contribute to the short-term continuation of loser returns.

3.2. Issuers and Non-Issuers

I next examine the momentum and reversals among the sub-samples of issuing and non-issuing firms. As previously mentioned, issuers and non-issuers are identified based on median level of composite share issuance measure each month. Table 2 reports the raw returns (Panel A) and Fama-French alphas (Panel B) from the momentum and reversal strategies. Note that same cumulative return breakpoints are used to identify winners and losers across issuers and non-issuers. Consistent with the hypothesis that the reversal returns are related to poor performance following equity issuance, I find that while reversals are quite strong and statistically significant among issuing firms, they are non-existent among the non-issuing winners and losers. Again, it is the winner firms that primarily drive the reversals among issuers. There is weak evidence of small positive raw returns among issuing losers, but these returns are concentrated in January and are potentially attributable to tax loss selling. Again note that reversals are not significant over months 37 to 48, and months 49 to 60.

Perhaps a more striking result in Table 2 pertains to winner momentum among issuers and non-issuers. The momentum profits are quite weak among winners in the non-issuing firms. In fact, the winner portfolio return is negative, although it is not statistically significant. On the other hand, the winner returns are quite strong among the issuing firms. Both issuing and non-issuing losers, however, have statistically significant momentum profits, although the returns are higher for issuing firms as compared with the non-issuing firms. The results are similar after adjusting for Fama-French alphas. The momentum portfolio raw return for non-issuers (issuers) is 0.45% (1.49%) with a t-statistic of 1.92 (5.25). The corresponding Fama-French alpha for non-issuers (issuers) is 0.54% (1.66%) with a t-statistic of 2.21 (5.69).

I also examine the momentum and reversal returns after controlling for equity issuance in my baseline regression equation. Specifically, I estimate the following regression equation:

$$R_{i,t+1} = \beta_{0kt} + \beta_{1kt} R_{i,t} + \beta_{2kt} ME_{i,t} + \beta_{3kt} P1_{i,t-k} + \beta_{4kt} P10_{i,t-k} + \beta_{5kt} IS_{i,t-k} + \beta_{6kt} IS_{i,t-k} * P1_{t-k} + \beta_{7kt} IS_{t-k} * P10_{t-k} + \varepsilon_{ikt},$$

where $IS_{i,t-k}$ is a dummy variable that equals 1 if firm i is identified as an issuer in month t-k+1 and is 0 otherwise. Coefficient estimates, shown in Panel C of Table II, confirm the role of equity issuance in momentum and reversals among winners and losers. Note that equity issuing firms have positive and significant returns during the 6-month momentum period, even when they are not winners or losers. Further, they have negative returns during the reversal period, which are statistically significant outside January. Winners, however, exhibit momentum and reversals only when they are also equity issuers. This suggests that the equity issuance effect is the more dominant effect and seems to completely subsume the winner reversals.

As I mentioned earlier, while the above results appear consistent with the hypothesis that managers opportunistically issue equity to take advantage of the stock price overvaluation, other rational investment-based explanations can also explain these return patterns. It is also well-known that several other factors play an important role in momentum profitability. In particular, momentum profits are stronger among small firms (Hong, Lim, and Stein (2000)) and firms with poor credit ratings (Avramov, Chordia, Jostova, and Philipov (2007)). In general, firms that face greater information uncertainty exhibit stronger momentum (Zhang, 2006). These findings suggest that conditioning on firm size and other measures of financing constraints may provide further insights into the overreaction theories of momentum and reversals. I take up this task in the next section.

4. Conditioning on Firm Size and Other Financial Constraints Criteria

4.1. Composite Share Issuance and Past Returns: The Role of Firm Size

Having established that reversals occur only among issuing winners, I now turn my attention to examining what role does firm size play in the momentum and reversal returns. My hypothesis is that since the sensitivity of equity issuance to past performance is likely to be stronger for small firms, reversals should be stronger among small issuers. I begin by examining the role of firm size in the relationship between past returns and equity issuance. In Table 3, I report the coefficients from the following pooled time-series cross-sectional regression:

$$Issuance_{i,t} = \alpha + \beta_1\ Cumret_{i,t} + \beta_2\ LD_{i,t} + \beta_3\ SD_{i,t} + \beta_4\ Cumret_{i,t}{*}\ LD_{i,t} + \beta_5\ Cumret_{i,t}{*}\ SD_{i,t} + \varepsilon_{i,t}\ ,$$

where for each firm i and for each month t, Issuance is the composite share issuance over 12-month holding period, scaled by beginning of holding period firm size, and Cumret is the 6-month cumulative return over months t-1 to t-6. LD (SD) is large-firm (small-firm) dummy variable that equal 1 for large (small) firms, and is 0, otherwise. In Panel A, I report the coefficient estimate on Cumret from univariate regression of Issuance on Cumret. The coefficient is positive and statistically significant (t – statistic = 7.42)[18], confirming the positive relationship between equity issuance and past performance. In Panel B, I estimate the full specification described above. I find that the coefficient on interaction between past returns and large-firm dummy is significantly negative, while the coefficient on interaction between past returns and small-firm dummy is significantly positive. Thus, sensitivity of equity issuance to past performance is stronger for small firms and is weakened for large firms. These results are similar to the findings in Chang, Dasgupta, and Hilary (2006) on the role of information asymmetry in the sensitivity of equity issuance to past returns.

4.2. Conditioning on Firm Size

In Table IV, I examine the momentum and reversals for issuers and non-issuers, after further dividing them (independently) into subgroups based on firm size. I only report the results for (6,6) momentum strategy and since there are no significant reversals beyond month 36 following the ranking period, I only report average reversal returns over months 13 to 24, and months 25 to 36. Panel A of Table IV shows the momentum and reversal returns after dividing

[18] The t-statistics in Table III are computed using robust standard errors that are adjusted for firm and time clustering.

the entire sample in subgroups based on firm size. Consistent with evidence in prior literature, I find that winner and loser momentum is stronger among small firms. Further, note that statistically significant reversals are restricted to small firms and are due to reversals among winners. Thus, winner reversals are dependent on both firm size and equity issuance, while losers do not exhibit significant reversals, even among small firms. Although not shown in the Table, the loser reversals are significantly weakened when January returns are excluded.

Next, I condition on both firm size and composite share issuance. Panel B shows the results for non-issuers. There is no evidence of significant momentum among winners across all size groups. On the other hand, loser momentum is significant among small and large firms. The overall momentum profits are quite weak. Turning to reversals, I do not find any evidence of significant reversals for either winners or losers over months 13 to 24. Over months 25 to 36, there is weak evidence of winner reversals among small firms, with raw returns of -0.23% (t-statistic = -1.81). However, since these firms do not earn significant momentum profits, the weak evidence of reversals among them cannot be attributed to delayed overreaction. Nonetheless, the overall evidence of reversals over the entire 13 to 36 month period is quite weak for both winners and losers.

Panel C shows the results for issuers. The momentum returns are strong and statistically significant across all size groups. For large firms, the momentum portfolio raw return is 1.06% (t-stat = 2.86) and both winner and loser returns are statistically significant. For small firms, the raw momentum return is 1.67% (t-statistic = 6.20). Looking at winner and loser reversals, the statistically significant reversals are concentrated among small sized firms and are largely due to winner reversals. Again, there is strong January seasonality in loser reversals (not reported in Table) and they are largely explained by the Fama-French model. Note that for medium sized firms, although the overall reversal portfolio raw return is a statistically significant -0.44 (t-statistic = -2.20), the reversal returns are weakened and become insignificant once January returns are excluded. The overall evidence in Table IV suggests that reversals are largely due to reversals among small, equity issuing firms. This finding is consistent with Brav, Geczy, and Gompers (2000) that the poor performance of equity issuers is concentrated among small firms. These small, equity issuing firms represent about 19% of the overall firms in my sample. In terms of market cap, these firms represent about 13% of the overall market capitalization of the sample firms. And even among these firms, it is the winners, and not losers, that are responsible for the observed return reversals.

Given that results in Table IV are obtained by independent sorting across cumulative returns, firm size, and the composite share issuance, some of the resulting portfolios have a disproportionately large number of firms, while others have a relatively fewer firms. In order to ensure that my inferences are not biased due to undiversified portfolios, I examine the momentum and reversals among the group of firms remaining in the sample after excluding small issuers. If small issuers do indeed drive the reversals, then we should not observe any reversals among the remaining firms, after small issuers are excluded. And since small issuers form a relatively small fraction of the sample, the inferences for remaining firms should be statistically reliable. Table V shows the results of this analysis. In both raw returns in Panel A and Fama-French alphas in Panel B, I find that while momentum profits are strong for this portfolio of remaining firms, the reversals are non-existent. Moreover, both winner and loser momentum returns are statistically significant. Over the sample period, a momentum portfolio of these remaining firms would have earned an average monthly return of 1.05% over the 6-month holding period with no subsequent reversals.

In addition to the analysis in Table V, I also repeat the analysis in Table IV with less extreme cumulative return cutoffs to identify winners and losers. Specifically, I define losers (winners) as firms in bottom (top) 30% of all firms based on their cumulative returns over 6-month ranking period. A similar approach is used in Hong, Lim, and Stein (2000) to avoid biased inferences due to undiversified portfolios. The results of this analysis are shown in Table VI (only Fama-French alphas are shown to save space). The results confirm the findings of Table IV that non-issuing winners do not exhibit significant momentum and that reversals are restricted to small, equity issuing winner firms. The overall momentum returns across all subgroups are weaker as expected due to less extreme definition of winners and losers.

Figure 1 provides a graphical summary of my findings. I plot the cumulative returns of the winners, the losers, and the winner minus loser momentum portfolio over the 36-month event window following the ranking period. Panel A shows the results for all firms in the sample. The all firm sample shows a marked increase and subsequent decline in cumulative momentum returns. By the end of month 36, the cumulative momentum profits are -1.69%. The cumulative returns for winners rise to 4.34% by the end of month 9 and then decline to -3.40% by the end of month 36. The cumulative returns for losers fall to -6.18% by the end of month 11, and the rise to -1.71% by the end of month 36. However, loser returns display a strong January seasonality and all of the positive post-momentum loser returns are due to their positive January returns. After excluding January returns, the loser returns are largely constant after the initial momentum period decline.

Panel B of Figure 1 compares the cumulative returns for issuers and non-issuers. The non-issuing winners do not have significant momentum and reversal returns. The losers, however, have significant momentum returns with no subsequent reversals. For issuers, the cumulative returns increase to 11.08% by end of month 10, before declining to -1.68% by the end of month 36. The cumulative returns for both winners and losers are negative at the end of month 36 (-2.00% for winners and -0.32% for losers). Panel C plots the cumulative returns for small issuers and the remaining firms. The "all other firms" sample has positive cumulative returns of 1.84% by the end of month 36. There does appear to be a noticeable decline in their cumulative returns; however, this decline is not statistically significant and is largely due to large positive returns of losers in January.[19] Note that after excluding January returns, the cumulative returns for "all other firms" (in Panel B3) are largely constant following the initial increase. The cumulative returns rise to 10.18% in month 10, and decline marginally to 8.16% by the end of month 36. However, since reversals among constrained issuers are largely due to negative winner returns that are not as strongly affected by the January seasonality, these firms continue to exhibit significant decline in cumulative profits even after January returns are excluded. After reaching a peak of 13.92% in month 10, the cumulative returns fall to 4.78% by the end of month 36. Note that winners exhibit significant reversals and have a cumulative return of -4.96% at the end of month 36. However, the losers have a cumulative return of -9.74%, resulting in overall positive returns for the momentum portfolio.

4.3. Conditioning on Other Financial Constraints Criteria

In Tables VII and VIII, I examine the role of financing constraints in momentum and reversal returns. I condition on three commonly used constraints criteria based on dividend payout ratio, long-term credit ratings, and KZ index. Panel A of Table VII reports the results for

[19] Even with January included, the Fama-French factor adjusted returns are actually negative for losers in post-holding period, but they are not statistically significant (see Panel A of Table 6). The overall momentum portfolio returns are almost zero.

all sample firms across different constraints subgroups. The momentum profits are significantly stronger for constrained firms as compared with unconstrained firms across all financial constraints criteria and both winners and losers contribute to overall momentum returns. The reversals, however, are restricted only to constrained winners. Panels B and C repeats the analysis for subgroups of issuers and non-issuers. Similar to the evidence for firm size, I find that non-issuing winners do not exhibit significant momentum. Only the constrained issuers based on KZ index have statistically significant momentum returns. Further, there is no evidence of significant reversals for non-issuers, except in case of constrained firms based on payout ratio. For issuers, the momentum profits are statistically significant for constrained firms across all three constraints criteria. The momentum is also strong among unconstrained firms for payout ratio and KZ index, but not for credit ratings. This finding is consistent with Avramov *et al*. (2007) who document that investment grade firms do not exhibit significant momentum. Note that constrained non-issuers based on credit rating do not earn significant momentum returns. Thus, not only is momentum restricted to firms with poor credit ratings as in Avramov *et al*., it is also the case that even among low rated (and unrated) firms, the momentum is restricted to issuers only. As for firm size, the reversals among issuers are due to reversals in returns of constrained winners.

Table VIII shows the momentum and reversal returns after excluding constrained issuers from the sample. The results are similar to those for firm size. This is no evidence of reversals among this remaining sample of firms, although the overall momentum profits are quite strong, except in case of credit rating.

5. Additional Tests: Role of Market States and Firm-Specific Returns

5.1. Market States

Cooper, Gutierrez, and Hameed (2004) test the overreaction theories by examining momentum and reversals conditional on the state of the market. They argue that if aggregate overconfidence is higher following positive market returns, then the model of Daniel, Hirshleifer, and Subrahmanyam (1998) implies that momentum profits should be higher following "UP" markets. Similarly, Hong and Stein (1999) model predicts higher momentum profits following market gains if investors' risk aversion is lower subsequent to "UP" markets. Consistent with the implications of these models, Cooper, Gutierrez, and Hameed find that momentum profits are restricted to post "UP" market periods only, and there is no momentum in returns following "DOWN" markets.

In Table IX, I examine the momentum and reversals conditional on the state of the market. The market state is defined as "UP" ("DOWN") when the cumulative returns on the CRSP value-weighted index are nonnegative (negative) over 12-month period immediately preceding the portfolio formation month.[20] Consistent with Cooper, Gutierrez, and Hameed, I find that momentum is significantly stronger following UP markets, and the momentum profits subsequently reverse. There is also weak evidence of down-market momentum; however, I do not find any evidence of reversals following DOWN markets. Conditioning on composite share issuance suggests that the while there is evidence of up-market momentum for both issuers and non-issuers, the up-market reversals are exclusively due to the reversals among issuing firms and these reversals seem to be primarily driven by the winners. These findings suggest that

[20] Using 36 month cumulative returns to define UP and DOWN markets as in Cooper, Gutierrez, and Hameed results in only 52 out of 384 months defined as down-market months between 1972 and 2004. Moreover, 50 of these 52 months are concentrated in two contiguous time periods between 1974 and 1976, and between 2002 and 2004.

while state of the market plays a role in the momentum profitability, any contribution of investor overreaction to up-market momentum seems to be limited to the equity issuing winners.[21] In unreported results, I confirm that the reversals are primarily driven by constrained issuers.

5.2. Ranking Stocks Based on Firm-Specific Returns

My analysis so far suggests that if delayed overreaction contributes to stock return momentum, then this overreaction is largely restricted to a relatively small sample of financially constrained winner firms. This result is based on ranking the stocks based on their raw cumulative returns over a six month period. However, it is possible that investor overreact only to the firm-specific component of returns. Grundy and Martin (2001) examine the momentum strategies that rank stocks based on the component on returns that is unrelated to the Fama-French factors. Comparing the profits of this strategy to a strategy that identifies winners and losers based on total returns (and excludes winners and losers based on firm-specific returns), they find that the former strategy is significantly more profitable. Further, they do not find any significant momentum when stocks are ranked based on the factor-related component of returns.

In order to test if my results are robust to ranking of firms based on stock-specific returns instead of total returns, I follow the approach similar to Grundy and Martin (2001) to rank the stocks based on the component of their returns that is unrelated to the Fama-French factors. Specifically, in each month t, and for each individual stock i in the sample with valid return observations over at least the 36 month window t to t-35, I estimate the following regression for k = t-59,…,t:

[21] Note that over longer sample period from 1929 to 1995, Cooper, Gutierrez, and Hameed find reversals following down market as well.

$$r_{i,k} = \alpha_{0i} D_k + \alpha_{1i}(1 - D_k) + \beta_i r_{m,k} + s_i SMB_k + h_i HML_k + \varepsilon_{i,k},$$

where $D_k = 1$, if k is in $\{t\text{-}5,\ldots,t\}$, and $D_k = 0$, otherwise. Ten percent of the stocks with lowest α_0 are losers (P1 = 1) and ten percent of the stocks with highest α_0 are winners (P10 = 1).[22] The momentum and reversal returns are computed using the regression approach previously described.

Table X shows the momentum and reversal returns for a strategy based on firm-specific returns. Panel A shows the results for all firms, and separately for issuers and non-issuers. My results are similar to the total return strategy: the reversals are concentrated only in issuing winners and the momentum returns are higher for issuing winners, primarily due to higher winner returns. Panel B compares the results for small issuers with all other firms as a group. Again, I find that reversals are significantly stronger for small issuers as compared with other firms.

6. Robustness Tests

6.1. 12-Month Ranking Period

My analysis so far has primarily focused on the most popular 6-month ranking period/6-month holding period ((6, 6)) momentum strategy. I now examine the momentum and reversal returns after conditioning on equity issuance for (12, 6) and (12, 12). The raw returns and Fama-French alphas from these alternative strategies are reported in Table XI. The results are largely similar to those of (6, 6) strategy. Even with the 12-month ranking period, I do not find any significant reversals among non-issuers. On the other hand, reversals among issuers remain

[22] As Grundy and Martin (2001) note, labeling the "alpha" from a factor model as "firm-specific return" is not accurate, since there might be common factors other than those used in the factor model. I use the term firm-specific return to denote the component of returns that is unrelated to Fama-French factors.

strong even after adjusting for Fama-French factors, and are largely due to negative winner returns.

6.2. Measurement Period for Composite Share Issuance

The results so far are obtained by computing the composite share issuance over the 12-month period that coincides with the momentum period. I also examine the robustness of results to alternative measurement period of composite share issuance. In particular, I identify issuers and non-issuers based on the composite share issuance over the six months immediately preceding the reversal period. Since the momentum is strongest in the first six months following the formation period, this analysis helps to better understand the direction of causality between momentum and share issuance. As evident from Table XII, the inferences are similar with the alternative measurement period.

6.3. Longer Sample Period

The start of sample period in 1972 is governed by the need to have sufficient number of firms in the portfolios obtained by independent sorting across highly correlated variables. However, the results are similar when the sample period begins in 1963. As shown in Table XIII, the winner momentum and reversals are restricted to equity issuing firms. On the other hand, both issuing and non-issuing losers have strong momentum with no accompanying reversals.

7. Conclusion

Despite extensive research devoted to understanding stock return momentum, an explanation for this puzzling phenomenon remains elusive. The apparent failure of risk-based explanations has resulted in the emergence of behavioral models that aim to provide a unifying account of medium-term momentum and long-term reversals in stock returns. In this paper, I examine the role of delayed overreaction in stock returns momentum. My results indicate the well-documented reversals of momentum returns are entirely attributable to small winner firms that issue equity following their strong stock market performance. Momentum profits, however, remain strong even after excluding these constrained issuers from the sample. I find that following initial price continuation, a large fraction of firms do not subsequently earn significant positive or negative abnormal returns. Thus, underreaction, rather than overreaction to information, appears to be the more dominant source of price momentum. I conclude that behavioral theories that integrate momentum and reversals as sequential components of the same phenomenon do not fully explain the observed dynamics of return patterns associated with momentum and reversals.

Appendix: Analysis Using Compustat Net Equity Issuance

This Appendix presents the momentum and reversal results when firms' net equity issuance obtained from Compustat's quarterly balance sheet data is used to identify issuers and non-issuers. Table A.I shows the momentum and reversal returns for non-issuers and issuers. Similar to results for composite share issuance measure, I find no evidence of momentum among non-issuing winners. In fact, the winner portfolio returns are negative with marginal statistical significance. The winner momentum, on the other hand, is quite strong among issuers. The loser momentum is statistically significant for both issuers and non-issuers. The reversals, however, are largely concentrated in issuing winners.

Table A.II shows the results after further conditioning on firm size. Again, I find no evidence of momentum among non-issuing winners, even in small firms. And the statistically significant reversals are concentrated in small, issuing winners. Lastly, Table A.III examines momentum and reversals among firms remaining in the sample after excluding small issuers. The overall raw momentum profit is 1.04% for these firms and both winner and loser portfolios exhibit significant momentum. However, there is no evidence of significant reversals among winners or losers. Thus, similar inferences are obtained when we identify issuers and non-issuers based on composite share issuance measure of Daniel and Titman (2006) or net equity issuance measure obtained from Compustat.

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Table I - Momentum and Reversals for the Entire Sample

To obtain momentum returns, 6 (for k = 1,…,6) or 12 (for k = 1,…, 12) cross-sectional regressions of following form are estimated each month:

$$R_{i,t+1} = \beta_{0kt} + \beta_{1kt} R_{i,t} + \beta_{2kt} ME_{i,t} + \beta_{3kt} P1_{i,t-k} + \beta_{4kt} P10_{i,t-k} + \varepsilon_{ikt},$$

where $R_{i,t}$ is the return on stock i in month t, $ME_{i,t}$ is the market capitalization (price × shares outstanding) of stock i at end of month t (in million $), $P10_{i,t-k}$ ($P1_{i,t-k}$) is a winner (loser) dummy variable that equals 1 if the stock i is ranked in top (bottom) 10 percent of the stocks based on their cumulative return over six-month period ending in month t-k. Financial firms and firms with price less than $5 or market cap less than smallest NYSE size decile at the end of month t-k are excluded from the sample. The coefficient estimates are averaged over k = 1,…,6 (for column labeled 1 to 6) or k = 1,…,12 (for column labeled 1 to 12). The time-series means of each of these averages are reported as raw returns (Panel A). The t-statistics in parentheses are computed from time-series. The intercepts from time-series regressions of these averages on contemporaneous Fama-French factors are reported as Fama-French alphas along with the corresponding t-statistics in the parentheses (Panel B). Reversal returns are obtained similarly, except that 12 cross sectional regressions are estimated each month (for k = 13,…,24, k = 25,…,36, k = 37,…, 48, and k = 49,…,60). The corresponding average monthly reversal returns are reported in columns labeled 13 to 24, 25 to 36, 37 to 48, and 49 to 60. The returns are in percent per month. The sample period is January 1972 to December 2004.

Panel A: Raw Returns

	Momentum Period				Reversal Period							
	1 to 6		1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.
Intercept	1.33	1.09	1.35	1.09	1.60	1.35	1.58	1.36	1.53	1.34	1.55	1.36
	(4.74)	(3.85)	(4.77)	(3.85)	(6.00)	(5.10)	(5.99)	(5.09)	(5.79)	(4.95)	(5.77)	(4.94)
$R_{i,t}$	-3.15	-2.37	-3.61	-2.74	-4.15	-3.01	-4.09	-2.95	-3.99	-2.80	-4.31	-3.16
	(-5.53)	(-4.26)	(-6.21)	(-4.94)	(-6.73)	(-5.52)	(-6.74)	(-5.48)	(-6.69)	(-5.21)	(-7.14)	(-5.79)
ME	-0.03	-0.01	-0.03	-0.01	-0.03	-0.01	-0.02	-0.01	-0.02	-0.01	-0.01	0.00
	(-2.33)	(-1.19)	(-2.22)	(-1.04)	(-2.30)	(-1.18)	(-2.22)	(-1.15)	(-1.88)	(-0.89)	(-1.31)	(-0.40)
P1	-0.74	-0.95	-0.54	-0.78	0.08	-0.21	0.18	-0.07	0.02	-0.17	0.08	-0.08
	(-3.79)	(-5.21)	(-3.27)	(-4.88)	(0.54)	(-1.37)	(1.25)	(-0.55)	(0.14)	(-1.20)	(0.68)	(-0.67)
P10	0.62	0.63	0.30	0.30	-0.34	-0.40	-0.22	-0.33	0.08	-0.08	0.03	-0.14
	(3.39)	(3.27)	(1.80)	(1.70)	(-2.28)	(-2.70)	(-1.50)	(-2.26)	(0.56)	(-0.55)	(0.19)	(-0.87)
P10-P1	1.36	1.58	0.85	1.08	-0.42	-0.19	-0.39	-0.26	0.06	0.09	-0.05	-0.06
	(5.14)	(6.15)	(3.97)	(5.04)	(-2.52)	(-1.19)	(-2.91)	(-1.89)	(0.50)	(0.69)	(-0.44)	(-0.48)

Panel B: Fama-French Alphas

	Momentum Period				Reversal Period							
	1 to 6		1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.
Intercept	0.48	0.48	0.49	0.47	0.52	0.48	0.57	0.51	0.57	0.51	0.57	0.51
	(6.65)	(6.77)	(6.32)	(6.49)	(6.02)	(5.92)	(6.51)	(6.29)	(6.65)	(6.47)	(6.36)	(6.28)
$R_{i,t}$	-2.46	-2.12	-2.88	-2.48	-3.19	-2.65	-3.41	-2.62	-3.40	-2.47	-3.61	-2.72
	(-4.44)	(-3.89)	(-5.12)	(-4.58)	(-5.25)	(-4.79)	(-5.57)	(-4.79)	(-5.68)	(-4.55)	(-6.05)	(-4.96)
ME	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	(0.88)	(0.68)	(1.09)	(0.92)	(1.24)	(1.09)	(0.96)	(1.23)	(0.83)	(1.24)	(1.29)	(1.66)
P1	-0.81	-0.97	-0.68	-0.85	-0.19	-0.37	-0.01	-0.19	-0.07	-0.21	0.01	-0.12
	(-4.59)	(-5.99)	(-4.59)	(-6.03)	(-1.46)	(-2.87)	(-0.11)	(-1.86)	(-0.73)	(-2.22)	(0.12)	(-1.30)
P10	0.71	0.71	0.42	0.41	-0.30	-0.39	-0.25	-0.36	0.03	-0.11	-0.03	-0.16
	(4.99)	(4.95)	(3.68)	(3.54)	(-3.34)	(-4.54)	(-2.38)	(-3.39)	(0.28)	(-1.08)	(-0.31)	(-1.65)
P10-P1	1.52	1.68	1.10	1.26	-0.11	-0.02	-0.24	-0.17	0.11	0.10	-0.04	-0.04
	(5.59)	(6.52)	(5.19)	(6.05)	(-0.71)	(-0.13)	(-1.78)	(-1.26)	(0.85)	(0.75)	(-0.36)	(-0.32)

Table II - Momentum and Reversals for Issuers and Non-Issuers

Panels A and B of the Table report the momentum and reversal returns for firms divided into issuing and non-issuing subgroups. Firms are designated as "Non-Issuers" ("Issuers") at the beginning of holding period if their composite share issuance is less than or equal to (greater than) the median composite share issuance during the 12-month period that begins with the momentum holding period. The composite share issuance measure is computed as in Daniel and Titman (2006). Firms with insufficient data to compute composite share issuance are excluded. The loser, winner and momentum portfolio returns are obtained using cross-sectional regressions described in Table I. For Non-Issuers and Issuers, the losers and winners are identified using same cumulative return breakpoints. Raw returns are in Panel A and Fama-French alphas are in Panel B (the intercept term and coefficients on lagged size and return are not shown in these Panels). Panel C reports the average coefficient estimates from regression specification of Table 1 that is augmented by: an issuance dummy IS that equals 1 if firm is a issuer and 0 if it is non-issuer, and the interaction of IS with loser dummy (IS*P1) and with winner dummy (IS*P10). For reversals, the coefficients are averaged over months "13 to 36" (k = 13,…,36). The returns are in percent per month. t-statistics are in parentheses. The sample period is January 1972 to December 2004.

Panel A: Raw Returns

	Momentum Period				Reversal Period							
	1 to 6		1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.
Non-Issuers												
P1	-0.53	-0.70	-0.39	-0.58	0.10	-0.13	0.13	-0.05	0.05	-0.07	0.19	0.07
	(-2.93)	(-4.19)	(-2.54)	(-3.99)	(0.69)	(-0.95)	(1.06)	(-0.38)	(0.40)	(-0.51)	(1.73)	(0.61)
P10	-0.08	-0.08	-0.07	-0.10	0.01	-0.07	0.02	-0.08	0.18	0.01	0.06	-0.06
	(-0.49)	(-0.47)	(-0.45)	(-0.65)	(0.08)	(-0.61)	(0.20)	(-0.73)	(1.37)	(0.11)	(0.43)	(-0.39)
P10-P1	0.45	0.62	0.32	0.48	-0.09	0.06	-0.11	-0.04	0.13	0.08	-0.13	-0.12
	(1.92)	(2.70)	(1.78)	(2.60)	(-0.62)	(0.42)	(-0.90)	(-0.31)	(0.94)	(0.57)	(-0.99)	(-0.93)
Issuers												
P1	-0.86	-1.09	-0.54	-0.79	0.26	-0.02	0.23	-0.02	0.05	-0.14	0.11	-0.03
	(-4.26)	(-5.84)	(-3.22)	(-4.96)	(1.79)	(-0.13)	(1.66)	(-0.12)	(0.35)	(-1.07)	(0.87)	(-0.24)
P10	0.63	0.67	0.34	0.36	-0.28	-0.26	-0.19	-0.25	0.11	-0.01	0.06	-0.07
	(3.95)	(4.00)	(2.45)	(2.51)	(-2.42)	(-2.26)	(-1.74)	(-2.27)	(0.89)	(-0.10)	(0.50)	(-0.52)
P10-P1	1.49	1.76	0.88	1.15	-0.54	-0.24	-0.42	-0.24	0.06	0.13	-0.05	-0.04
	(5.25)	(6.42)	(3.90)	(5.17)	(-2.85)	(-1.31)	(-2.83)	(-1.57)	(0.41)	(0.92)	(-0.37)	(-0.25)

Panel B: Fama-French Alphas

	Momentum Period				Reversal Period							
	1 to 6		1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.
Non-Issuers												
P1	-0.59	-0.71	-0.51	-0.65	-0.10	-0.28	-0.05	-0.17	-0.06	-0.13	0.08	-0.01
	(-3.56)	(-4.79)	(-3.72)	(-5.05)	(-0.83)	(-2.32)	(-0.53)	(-1.73)	(-0.66)	(-1.42)	(0.85)	(-0.12)
P10	-0.05	-0.06	0.00	-0.04	-0.02	-0.10	-0.06	-0.13	0.11	-0.04	0.01	-0.07
	(-0.36)	(-0.41)	(0.03)	(-0.34)	(-0.17)	(-1.19)	(-0.57)	(-1.39)	(1.02)	(-0.34)	(0.12)	(-0.69)
P10-P1	0.54	0.66	0.51	0.61	0.09	0.18	0.00	0.04	0.18	0.10	-0.07	-0.06
	(2.21)	(2.82)	(2.80)	(3.31)	(0.61)	(1.21)	(-0.02)	(0.29)	(1.31)	(0.71)	(-0.54)	(-0.48)
Issuers												
P1	-0.96	-1.14	-0.71	-0.89	0.01	-0.16	0.07	-0.10	-0.04	-0.17	0.08	-0.04
	(-4.92)	(-6.34)	(-4.42)	(-5.85)	(0.05)	(-1.16)	(0.54)	(-0.92)	(-0.31)	(-1.61)	(0.66)	(-0.33)
P10	0.70	0.72	0.44	0.44	-0.21	-0.24	-0.20	-0.26	0.07	-0.03	0.02	-0.08
	(4.95)	(5.06)	(4.07)	(4.07)	(-2.47)	(-2.90)	(-2.26)	(-2.95)	(0.75)	(-0.32)	(0.20)	(-0.86)
P10-P1	1.66	1.85	1.15	1.33	-0.22	-0.08	-0.27	-0.16	0.11	0.14	-0.06	-0.04
	(5.69)	(6.71)	(5.11)	(6.07)	(-1.20)	(-0.46)	(-1.77)	(-1.03)	(0.80)	(0.98)	(-0.42)	(-0.28)

Panel C: Regressions with Control for Equity Issuance

	Intercept	$R_{i,t}$	ME	P1	P10	IS	IS*P1	IS*P10
All Months								
Momentum (months 1 to 6)	1.01	-4.34	-0.02	-0.54	-0.09	0.52	-0.31	0.74
	(4.08)	(-7.76)	(-1.61)	(-3.04)	(-0.53)	(3.53)	(-3.22)	(6.73)
Reversals (months 13 to 36)	1.72	-4.46	-0.03	0.14	0.02	-0.20	0.13	-0.26
	(7.11)	(-7.60)	(-2.79)	(1.14)	(0.15)	(-1.53)	(1.90)	(-4.12)
Excluding January								
Momentum (months 1 to 6)	0.79	-3.55	0.00	-0.71	-0.09	0.46	-0.38	0.77
	(3.22)	(-6.52)	(-0.42)	(-4.29)	(-0.50)	(3.01)	(-3.86)	(6.75)
Reversals (months 13 to 36)	1.50	-3.31	-0.02	-0.07	-0.07	-0.31	0.06	-0.20
	(6.29)	(-6.44)	(-1.79)	(-0.61)	(-0.70)	(-2.26)	(0.84)	(-3.10)

Table III - Stock Returns, Firm Size and Equity Issuance

The Table reports the coefficient estimates from pooled time series cross-sectional regressions, where for each firm i and for each month t, Issuance is the composite share issuance over months t+1 to t+12, scaled by beginning of month t+1 firm size, and Cumret is the 6-month cumulative return over months t-1 to t-6. LD (SD) is large-firm (small-firm) dummy variable that equal 1 for large (small) firms, and is 0, otherwise. Firms are classified as large (small) firms if their total assets in prior year place them in the top (bottom) 30% of all firms in the sample. t-statistics in parentheses are computed using robust standard errors that are adjusted for firm and time clustering. The sample comprises of non-financial firms listed on NYSE, AMEX, and NASDAQ over January 1972 to December 2004. Firms with price less than \$5 or market cap less than smallest NYSE size decile at the end of month t -1 are excluded.

Cumret	LD	SD	Cumret*LD	Cumret*SD
Panel A				
$Issuance_{i,t} = \alpha + \beta_1 Cumret_{i,t} + \varepsilon_{i,t}$				
0.21				
(7.42)				
Panel B				
$Issuance_{i,t} = \alpha + \beta_1 Cumret_{i,t} + \beta_2 LD_{i,t} + \beta_3 SD_{i,t} + \beta_4 Cumret_{i,t} * LD_{i,t} + \beta_5 Cumret_{i,t} * SD_{i,t} + \varepsilon_{i,t}$				
0.14	0.06	0.16	-0.10	0.10
(6.61)	(4.46)	(6.71)	(-5.11)	(2.31)

Table IV - Momentum and Reversals: Conditioning on Firm Size

At the beginning of momentum holding period, firms are classified into Small, Medium, and Large subgroups obtained using 30 and 70 percent cutoffs based on prior year asset size (Compustat data 6). For each group, cross-sectional regressions as described in Table I are estimated each month to obtain momentum and reversal returns. The breakpoints to identify winners and losers are independently determined. Momentum returns are reported for k = 1,…,6 and reversal returns are reported for k =13,…,24 and k = 25,…,36. Panel A shows the raw returns and Fama-French alphas for all firms, and Panels B and C show the corresponding results for Non-Issuers and Issuers, respectively (the intercept term and coefficients on lagged size and return are not shown). Firms are designated as "Non-Issuers" ("Issuers") at the beginning of holding period if their composite share issuance is less than or equal to (greater than) the median composite share issuance during the 12-month period that begins with the momentum holding period. The returns are in percent per month. t-statistics are reported in parentheses. The sample period is January 1972 to December 2004.

Panel A: All Firms

	Raw Returns								
	1 to 6			13 to 24			25 to 36		
	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small
P1	-0.57	-0.64	-0.85	0.18	0.11	0.18	0.24	0.12	0.15
	(-2.32)	(-3.26)	(-4.80)	(0.96)	(0.68)	(1.43)	(1.44)	(0.90)	(1.23)
P10	0.52	0.59	0.70	-0.02	-0.18	-0.40	0.02	-0.06	-0.38
	(2.87)	(3.83)	(4.88)	(-0.15)	(-1.42)	(-3.80)	(0.13)	(-0.45)	(-3.57)
P10 - P1	1.09	1.23	1.55	-0.21	-0.29	-0.58	-0.22	-0.18	-0.53
	(3.41)	(4.92)	(6.33)	(-0.92)	(-1.60)	(-3.86)	(-1.19)	(-1.12)	(-3.78)
	Fama-French Alphas								
P1	-0.71	-0.67	-0.89	-0.17	-0.14	0.09	-0.02	-0.07	0.05
	(-3.01)	(-3.79)	(-5.32)	(-0.95)	(-0.93)	(0.77)	(-0.14)	(-0.63)	(0.46)
P10	0.47	0.61	0.77	-0.05	-0.18	-0.40	0.00	-0.12	-0.44
	(2.90)	(4.62)	(5.91)	(-0.38)	(-1.74)	(-4.45)	(-0.02)	(-0.93)	(-4.59)
P10 - P1	1.18	1.28	1.66	0.11	-0.04	-0.49	0.02	-0.05	-0.49
	(3.57)	(4.99)	(6.58)	(0.50)	(-0.22)	(-3.15)	(0.09)	(-0.30)	(-3.40)

Panel B: Non-Issuers

	Raw Returns								
	1 to 6			13 to 24			25 to 36		
	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small
P1	-0.50	-0.40	-0.58	0.15	0.06	0.15	0.24	0.14	0.04
	(-2.20)	(-2.25)	(-2.92)	(0.87)	(0.40)	(1.00)	(1.63)	(1.06)	(0.28)
P10	0.00	0.09	-0.12	0.12	0.08	-0.13	0.31	0.13	-0.23
	(0.02)	(0.50)	(-0.69)	(0.73)	(0.66)	(-0.96)	(1.81)	(0.97)	(-1.81)
P10 - P1	0.50	0.48	0.46	-0.03	0.02	-0.28	0.07	-0.01	-0.27
	(1.64)	(1.99)	(1.79)	(-0.13)	(0.09)	(-1.59)	(0.35)	(-0.04)	(-1.61)
	Fama-French Alphas								
P1	-0.58	-0.45	-0.65	-0.14	-0.13	0.03	0.00	-0.06	-0.07
	(-2.67)	(-2.76)	(-3.45)	(-0.90)	(-0.88)	(0.18)	(0.03)	(-0.49)	(-0.56)
P10	-0.09	0.09	-0.03	0.06	0.07	-0.17	0.35	0.03	-0.30
	(-0.44)	(0.57)	(-0.20)	(0.40)	(0.63)	(-1.37)	(2.15)	(0.23)	(-2.29)
P10 - P1	0.49	0.54	0.61	0.20	0.20	-0.20	0.35	0.09	-0.23
	(1.55)	(2.14)	(2.33)	(0.92)	(1.10)	(-1.07)	(1.79)	(0.56)	(-1.31)

Panel C: Issuers

	Raw Returns								
	1 to 6			13 to 24			25 to 36		
	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small
P1	-0.58	-0.79	-1.00	0.33	0.27	0.24	0.28	0.14	0.22
	(-2.12)	(-3.68)	(-5.38)	(1.55)	(1.66)	(1.82)	(1.41)	(0.94)	(1.61)
P10	0.48	0.57	0.67	-0.08	-0.17	-0.35	-0.01	-0.08	-0.33
	(2.41)	(3.83)	(4.59)	(-0.47)	(-1.51)	(-3.58)	(-0.08)	(-0.62)	(-3.37)
P10 - P1	1.06	1.35	1.67	-0.41	-0.44	-0.59	-0.30	-0.21	-0.55
	(2.86)	(4.86)	(6.20)	(-1.52)	(-2.20)	(-3.43)	(-1.29)	(-1.18)	(-3.35)
	Fama-French Alphas								
P1	-0.80	-0.82	-1.03	-0.04	0.03	0.16	0.09	0.00	0.13
	(-2.98)	(-4.00)	(-5.54)	(-0.19)	(0.19)	(1.20)	(0.50)	(-0.02)	(1.02)
P10	0.46	0.57	0.72	-0.05	-0.14	-0.32	-0.06	-0.09	-0.39
	(2.39)	(4.12)	(5.02)	(-0.37)	(-1.38)	(-3.40)	(-0.37)	(-0.74)	(-4.03)
P10 - P1	1.26	1.39	1.76	-0.01	-0.17	-0.48	-0.15	-0.09	-0.52
	(3.31)	(4.83)	(6.31)	(-0.05)	(-0.83)	(-2.70)	(-0.62)	(-0.47)	(-3.10)

Table V - Momentum and Reversals: Excluding Small Equity Issuers

At the beginning of momentum holding period, firms are classified into Small, Medium, and Large subgroups obtained using 30 and 70 percent cutoffs based on prior year asset size (Compustat data 6). The Table shows the momentum and reversal returns for the firms remaining in the sample after excluding Small Issuers. Cross-sectional regressions as described in Table I are estimated each month to obtain momentum and reversal returns. Momentum returns are reported for k = 1,…,6 and reversal returns are reported for k =13,…,24 and k = 25,…,36. Panels A and B report the raw returns and Fama-French alphas, respectively, for loser (P1), winner (P10) and momentum (P10-P1) portfolios. t-statistics are reported in parentheses. The sample period is January 1972 to December 2004.

Panel A: Raw Returns

	1 to 6		13 to 24		25 to 36	
	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec
P1	-0.57	-0.78	0.15	-0.11	0.15	-0.07
	(-2.83)	(-4.19)	(0.97)	(-0.72)	(1.07)	(-0.55)
P10	0.49	0.50	-0.12	-0.18	-0.05	-0.12
	(2.85)	(2.74)	(-0.88)	(-1.26)	(-0.39)	(-0.89)
P10 - P1	1.05	1.28	-0.28	-0.07	-0.20	-0.05
	(3.98)	(4.94)	(-1.51)	(-0.36)	(-1.35)	(-0.34)

Panel B: Fama-French Alphas

	1 to 6		13 to 24		25 to 36	
	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec
P1	-0.65	-0.81	-0.12	-0.29	-0.06	-0.21
	(-3.55)	(-4.83)	(-0.85)	(-2.08)	(-0.54)	(-2.08)
P10	0.52	0.53	-0.10	-0.18	-0.09	-0.15
	(3.78)	(3.74)	(-0.99)	(-1.65)	(-0.84)	(-1.40)
P10 - P1	1.17	1.34	0.02	0.11	-0.04	0.05
	(4.30)	(5.14)	(0.09)	(0.59)	(-0.24)	(0.37)

Table VI - Momentum and Reversals for Size-Sorted Firms: Three Momentum Portfolios

At the beginning of momentum holding period, firms are classified into Small, Medium, and Large subgroups obtained using 30 and 70 percent cutoffs based on prior year asset size (Compustat data 6). For each group, cross-sectional regressions as described in Table I are estimated each month to obtain momentum and reversal returns (for this table, winners (losers), designated by dummy variable P3 (P1), are firms which rank in top (bottom) 30% of all firms based on past cumulative returns). The breakpoints to identify winners and losers are independently determined. Momentum returns are reported for k = 1,…,6 and reversal returns are reported for k =13,…,24 and k = 25,…,36. The Table reports the intercepts from time-series regressions of coefficients on loser (P1), winner (P3), and momentum (P10-P1) portfolio returns on Fama-French factors. Panel A shows the results for all firms, and Panels B and C show the results for Non-Issuers and Issuers, respectively. The returns are in percent per month. t-statistics are reported in parentheses. The sample period is January 1972 to December 2004.

	1 to 6			13 to 24			25 to 36		
	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small
Panel A: All Firms									
P1	-0.25	-0.44	-0.65	-0.03	-0.11	0.05	-0.02	-0.05	0.10
	(-1.76)	(-3.52)	(-4.80)	(-0.40)	(-1.41)	(0.68)	(-0.34)	(-0.76)	(1.34)
P3	0.11	0.30	0.73	-0.05	-0.06	-0.20	-0.04	-0.09	-0.22
	(1.10)	(3.23)	(6.53)	(-0.76)	(-1.07)	(-3.31)	(-0.61)	(-1.23)	(-3.11)
P3 - P1	0.37	0.74	1.38	-0.02	0.05	-0.26	-0.02	-0.05	-0.32
	(1.71)	(3.93)	(6.63)	(-0.15)	(0.46)	(-2.55)	(-0.20)	(-0.48)	(-3.39)
Panel B: Non-Issuers									
P1	-0.15	-0.27	-0.42	-0.04	-0.13	0.04	0.00	-0.06	0.05
	(-1.38)	(-3.00)	(-3.59)	(-0.54)	(-1.85)	(0.42)	(-0.08)	(-1.00)	(0.52)
P3	-0.03	0.02	0.03	-0.01	0.05	-0.09	0.07	0.02	-0.12
	(-0.28)	(0.30)	(0.39)	(-0.20)	(0.94)	(-1.32)	(1.18)	(0.32)	(-1.60)
P3 - P1	0.13	0.29	0.45	0.03	0.18	-0.13	0.08	0.08	-0.17
	(0.76)	(2.09)	(2.90)	(0.27)	(2.08)	(-1.23)	(0.85)	(0.91)	(-1.67)
Panel C: Issuers									
P1	-0.49	-0.53	-0.78	0.00	-0.05	0.10	0.01	-0.03	0.15
	(-3.09)	(-4.06)	(-6.28)	(0.03)	(-0.49)	(1.15)	(0.15)	(-0.31)	(1.78)
P3	0.24	0.34	0.62	-0.02	-0.06	-0.16	-0.07	-0.08	-0.17
	(2.04)	(3.67)	(5.65)	(-0.22)	(-0.83)	(-2.30)	(-0.78)	(-0.99)	(-2.30)
P3 - P1	0.73	0.87	1.40	-0.02	-0.01	-0.26	-0.08	-0.05	-0.33
	(3.07)	(4.54)	(7.28)	(-0.14)	(-0.07)	(-2.18)	(-0.57)	(-0.42)	(-2.90)

Table VII – Momentum and Reversals: Conditioning on Financing Constraints

At the beginning of momentum holding period, firms are assigned to unconstrained (UC), medium constrained (Med), and constrained (C) subgroups obtained using 30 and 70 percent cutoffs based on prior year dividend payout ratio, and KZ index . The constrained firms have smallest payout ratio and largest KZ index. Based on prior year long-term (LT) credit ratings, investment grade firms are classified as unconstrained, and all other firms including unrated firms are classified as constrained. For each group, cross-sectional regressions as described in Table I are estimated each month to obtain momentum and reversal returns. The breakpoints to identify winners and losers are independently determined. The Table reports the intercepts from time-series regressions of loser (P1), winner (P3), and momentum (P10-P1) portfolio returns on Fama-French factors. Momentum returns are reported for k = 1,…,6 and reversal returns are reported for k =13,…,24 and k = 25,…,36. Panel A shows the results for all firms, and Panels B and C show the results for Non-Issuers and Issuers, respectively. The returns are in percent per month. t-statistics are reported in parentheses. The sample period is January 1972 to December 2004.

Panel A: All Firms

Constraints Criteria			1 to 6			13 to 24			25 to 36	
		UC	Med	C	UC	Med	C	UC	Med	C
PAYOUT RATIO	P1	-0.70	-0.75	-0.84	-0.16	-0.19	0.02	-0.21	-0.08	0.07
		(-2.56)	(-4.65)	(-4.67)	(-0.82)	(-1.43)	(0.14)	(-1.45)	(-0.76)	(0.64)
	P10	0.58	0.67	0.85	-0.14	-0.20	-0.29	-0.11	-0.04	-0.33
		(2.77)	(3.67)	(5.95)	(-0.91)	(-1.89)	(-3.33)	(-0.61)	(-0.34)	(-3.42)
	P10 - P1	1.29	1.42	1.69	0.01	-0.02	-0.31	0.10	0.04	-0.41
		(3.42)	(5.25)	(6.19)	(0.06)	(-0.10)	(-1.85)	(0.43)	(0.33)	(-2.65)
LT CREDIT RATING	P1	-0.30		-0.72	0.11		0.11	0.20		0.27
		(-0.96)		(-2.70)	(0.44)		(0.60)	(1.05)		(1.68)
	P10	0.41		0.82	0.00		-0.34	0.37		-0.32
		(1.60)		(4.27)	(0.00)		(-2.73)	(1.64)		(-2.11)
	P10 - P1	0.71		1.54	-0.11		-0.45	0.17		-0.58
		(1.56)		(3.81)	(-0.33)		(-1.85)	(0.55)		(-2.95)
KZ INDEX	P1	-0.65	-0.66	-1.05	-0.04	-0.06	-0.15	0.02	-0.07	-0.09
		(-3.64)	(-3.88)	(-4.94)	(-0.34)	(-0.41)	(-0.88)	(0.20)	(-0.63)	(-0.64)
	P10	0.58	0.76	0.98	-0.13	-0.08	-0.40	-0.16	-0.11	-0.35
		(3.44)	(4.82)	(6.27)	(-1.12)	(-0.74)	(-3.54)	(-1.37)	(-0.93)	(-2.62)
	P10 - P1	1.23	1.43	2.04	-0.08	-0.02	-0.26	-0.19	-0.04	-0.26
		(4.31)	(5.30)	(6.65)	(-0.47)	(-0.11)	(-1.22)	(-1.21)	(-0.23)	(-1.40)

Panel B: Non-Issuers

Constraints Criteria		1 to 6 UC	1 to 6 Med	1 to 6 C	13 to 24 UC	13 to 24 Med	13 to 24 C	25 to 36 UC	25 to 36 Med	25 to 36 C
PAYOUT RATIO	P1	-0.34	-0.48	-0.68	-0.15	-0.11	-0.13	-0.15	-0.22	-0.02
		(-1.56)	(-3.10)	(-3.65)	(-1.04)	(-0.92)	(-0.92)	(-1.24)	(-2.20)	(-0.15)
	P10	-0.08	0.08	0.29	0.05	-0.02	-0.03	-0.06	0.16	-0.36
		(-0.42)	(0.51)	(1.58)	(0.34)	(-0.18)	(-0.20)	(-0.40)	(1.44)	(-2.52)
	P10 - P1	0.26	0.56	0.96	0.19	0.09	0.10	0.09	0.38	-0.34
		(0.86)	(2.30)	(3.42)	(0.97)	(0.55)	(0.51)	(0.49)	(2.59)	(-1.83)
LT CREDIT RATING	P1	-0.15		-0.47	0.00		0.03	0.13		0.15
		(-0.42)		(-1.93)	(0.00)		(0.14)	(0.66)		(0.93)
	P10	-0.08		-0.26	0.35		-0.07	0.44		-0.13
		(-0.26)		(-1.45)	(1.47)		(-0.56)	(1.99)		(-0.87)
	P10 - P1	0.06		0.20	0.35		-0.10	0.31		-0.28
		(0.12)		(0.59)	(1.05)		(-0.45)	(1.08)		(-1.47)
KZ INDEX	P1	-0.56	-0.50	-0.69	-0.06	-0.03	-0.22	0.00	-0.07	-0.14
		(-3.17)	(-2.86)	(-3.29)	(-0.46)	(-0.18)	(-1.24)	(0.04)	(-0.48)	(-0.90)
	P10	-0.37	-0.01	0.50	0.08	0.12	-0.10	0.00	-0.01	-0.15
		(-2.00)	(-0.07)	(2.27)	(0.53)	(0.99)	(-0.64)	(-0.02)	(-0.11)	(-0.99)
	P10 - P1	0.18	0.49	1.19	0.14	0.15	0.13	-0.01	0.05	-0.01
		(0.66)	(1.83)	(3.57)	(0.76)	(0.77)	(0.54)	(-0.04)	(0.33)	(-0.07)

Panel C: Issuers

Constraints Criteria		1 to 6 UC	1 to 6 Med	1 to 6 C	13 to 24 UC	13 to 24 Med	13 to 24 C	25 to 36 UC	25 to 36 Med	25 to 36 C
PAYOUT RATIO	P1	-1.42	-1.06	-0.84	-0.09	-0.21	0.13	-0.51	0.15	0.12
		(-4.65)	(-4.92)	(-4.32)	(-0.32)	(-1.20)	(0.98)	(-2.31)	(0.96)	(0.94)
	P10	0.59	0.56	0.81	-0.12	-0.11	-0.25	0.12	-0.09	-0.30
		(2.04)	(2.70)	(5.55)	(-0.65)	(-0.95)	(-2.93)	(0.53)	(-0.84)	(-3.34)
	P10 - P1	2.00	1.63	1.65	-0.04	0.10	-0.38	0.63	-0.24	-0.42
		(4.47)	(5.09)	(5.65)	(-0.10)	(0.43)	(-2.11)	(2.01)	(-1.26)	(-2.62)
LT CREDIT RATING	P1	-0.60		-0.78	0.52		0.25	0.45		0.36
		(-1.44)		(-2.68)	(1.33)		(1.23)	(1.55)		(2.05)
	P10	0.25		0.80	-0.09		-0.29	0.22		-0.29
		(0.90)		(4.21)	(-0.36)		(-2.53)	(0.85)		(-2.33)
	P10 - P1	0.85		1.59	-0.60		-0.54	-0.23		-0.65
		(1.55)		(3.68)	(-1.29)		(-2.02)	(-0.58)		(-3.09)
KZ INDEX	P1	-0.88	-0.92	-1.06	0.06	0.02	0.11	-0.01	-0.05	0.03
		(-4.14)	(-4.48)	(-4.44)	(0.35)	(0.10)	(0.62)	(-0.09)	(-0.38)	(0.17)
	P10	0.62	0.79	0.90	-0.10	-0.09	-0.34	-0.12	-0.09	-0.27
		(3.27)	(4.87)	(5.34)	(-0.81)	(-0.78)	(-3.02)	(-0.96)	(-0.76)	(-1.95)
	P10 - P1	1.50	1.72	1.96	-0.16	-0.11	-0.46	-0.10	-0.04	-0.29
		(4.58)	(5.69)	(5.96)	(-0.71)	(-0.46)	(-2.00)	(-0.55)	(-0.20)	(-1.41)

Table VIII – Momentum and Reversals: Excluding Constrained Issuers

At the beginning of momentum holding period, firms are assigned to unconstrained (UC), medium constrained (Med), and constrained (C) subgroups based on prior year dividend payout ratio, credit rating, and KZ Index, as described in Table VII. Panel A of the Table shows the momentum and reversal returns for the firms remaining in the sample after excluding constrained issuers. Cross-sectional regressions as described in Table 1 are estimated each month to obtain momentum and reversal returns. Momentum returns are reported for k = 1,…,6 and reversal returns are reported for k =13,…,24 and k = 25,…,36. The Table reports the raw returns and Fama-French alphas for loser (P1), winner (P10), and momentum portfolios. t-statistics are reported in parentheses. The sample period is January 1972 to December 2004.

		Raw Returns			Fama-French Alphas		
Constraints Criteria		1 to 6	13 to 24	25 to 36	1 to 6	13 to 24	25 to 36
	P1	-0.57	0.11	0.13	-0.66	-0.13	-0.06
		(-3.19)	(0.75)	(1.07)	(-4.05)	(-1.00)	(-0.61)
PAYOUT RATIO	P10	0.30	-0.10	-0.02	0.34	-0.09	-0.08
		(1.76)	(-0.78)	(-0.17)	(2.42)	(-0.93)	(-0.90)
	P10 - P1	0.87	-0.21	-0.15	1.00	0.04	-0.02
		(3.61)	(-1.31)	(-1.26)	(4.04)	(0.26)	(-0.16)
	P1	-0.40	0.28	0.37	-0.50	0.05	0.16
		(-1.37)	(1.22)	(1.82)	(-1.92)	(0.26)	(1.09)
LT CREDIT RATING	P10	-0.28	0.08	0.12	-0.26	-0.01	-0.03
		(-1.21)	(0.42)	(0.63)	(-1.44)	(-0.05)	(-0.16)
	P10 - P1	0.12	-0.20	-0.24	0.25	-0.06	-0.19
		(0.33)	(-0.91)	(-1.35)	(0.68)	(-0.26)	(-1.03)
	P1	-0.69	0.14	0.12	-0.68	-0.08	-0.06
		(-3.68)	(0.93)	(0.88)	(-4.04)	(-0.60)	(-0.51)
KZ INDEX	P10	0.60	-0.16	-0.15	0.75	-0.10	-0.15
		(3.20)	(-1.06)	(-1.06)	(4.83)	(-1.06)	(-1.46)
	P10 - P1	1.29	-0.29	-0.26	1.43	-0.02	-0.10
		(4.90)	(-1.65)	(-1.89)	(5.30)	(-0.14)	(-0.71)

Table IX - Market States, Momentum, and Reversals

The Table shows the momentum and reversal returns following UP market and DOWN market for all firms and for Non-Issuers and Issuers. The market is defined as UP (DOWN) market if the cumulative return on the value-weighted CRSP index over the 12-month period that precedes the momentum holding period (months t-11 to t) is nonnegative (negative). Cross-sectional regressions as described in Table 1 are estimated each month to obtain momentum and reversal returns. Momentum returns are reported for k = 1,…,6 and reversal returns are reported for k =13,…,24 and k = 25,…,36. The Table reports the intercepts from time-series regressions of loser (P1), winner (P3), and momentum (P10-P1) portfolio returns on Fama-French factors. t-statistics are reported in parentheses. The sample period is January 1972 to December 2004.

				UP Market					
	All Firms			Non-Issuers			Issuers		
	1 to 6	13 to 24	25 to 36	1 to 6	13 to 24	25 to 36	1 to 6	13 to 24	25 to 36
P1	-0.87	-0.03	0.09	-0.61	-0.12	-0.01	-1.02	-0.01	0.07
	(-4.88)	(-0.24)	(0.76)	(-4.55)	(-1.20)	(-0.08)	(-6.05)	(-0.08)	(0.49)
P10	0.69	-0.37	-0.24	-0.15	0.03	-0.01	0.66	-0.20	-0.15
	(4.89)	(-3.78)	(-2.13)	(-1.01)	(0.33)	(-0.05)	(4.73)	(-2.54)	(-1.68)
P10 - P1	1.56	-0.34	-0.33	0.47	0.15	0.00	1.68	-0.19	-0.21
	(5.83)	(-2.19)	(-2.34)	(2.23)	(1.25)	(0.03)	(6.55)	(-1.32)	(-1.34)
				DOWN Market					
	All Firms			Non-Issuers			Issuers		
	1 to 6	13 to 24	25 to 36	1 to 6	13 to 24	25 to 36	1 to 6	13 to 24	25 to 36
P1	-0.62	-0.30	-0.27	-0.30	0.04	-0.26	-0.58	0.17	0.01
	(-1.90)	(-1.21)	(-1.41)	(-0.63)	(0.08)	(-1.06)	(-1.10)	(0.33)	(0.03)
P10	0.52	-0.12	-0.08	0.01	-0.25	-0.17	0.58	-0.37	-0.38
	(2.45)	(-0.93)	(-0.62)	(0.05)	(-0.88)	(-0.59)	(2.08)	(-1.39)	(-1.47)
P10 - P1	1.14	0.18	0.19	0.31	-0.29	0.08	1.16	-0.54	-0.39
	(2.48)	(0.58)	(0.80)	(0.54)	(-0.54)	(0.25)	(1.67)	(-0.79)	(-1.00)

Table X - Momentum and Reversals: Ranking on Firm-Specific Returns

In each month t, winners and losers based on firm-specific returns are identified as follows: for each individual stock i in the sample with valid return observations over at least 36 month window t to t-35, the following regression is estimated for k = t-59,…,t:

$$r_{i,k} = \alpha_{0i} D_k + \alpha_{1i}(1 - D_k) + \beta_i r_{m,k} + s_i SMB_k + h_i HML_k + \varepsilon_{i,k},$$

where $D_k = 1$, if $k \in \{t\text{-}5,\ldots,t\}$, and $D_k = 0$, otherwise. r_m, SMB, and HML are the Fama-French market, size, and book-to-market factors, respectively. Ten percent of the stocks with lowest α_0 are losers (P1 = 1) and ten percent of the stocks with highest α_0 are winners (P10 = 1). Momentum and reversal returns are then computed using the regression approach described in Table 1. Panel A shows the results for all firms and for the subsamples of Non-Issuers and Issuers. Panel B compares the returns for Small Issuers with the remaining firms. The numbers in the Table are the intercepts from time-series regressions of loser (P1), winner (P3), and momentum (P10-P1) portfolio returns on Fama-French factors. t-statistics are reported in parentheses.

Panel A: Non-Issuers versus Issuers

	All Firms			Non-Issuers			Issuers		
	1 to 6	13 to 24	25 to 36	1 to 6	13 to 24	25 to 36	1 to 6	13 to 24	25 to 36
P1	-0.66	-0.08	-0.02	-0.48	-0.08	-0.01	-0.86	-0.03	0.01
	(-5.11)	(-0.79)	(-0.19)	(-4.14)	(-0.82)	(-0.11)	(-5.76)	(-0.24)	(0.08)
P10	0.51	-0.29	-0.14	-0.25	-0.05	0.02	0.46	-0.25	-0.09
	(4.00)	(-2.92)	(-1.17)	(-1.91)	(-0.49)	(0.16)	(3.76)	(-2.91)	(-0.85)
P10 - P1	1.16	-0.22	-0.12	0.22	0.03	0.03	1.32	-0.22	-0.10
	(5.85)	(-1.81)	(-0.92)	(1.23)	(0.28)	(0.23)	(6.03)	(-1.72)	(-0.69)

Panel B: Small Issuers Versus All Other Firms

	Small Issuers			All Other Firms		
	1 to 6	13 to 24	25 to 36	1 to 6	13 to 24	25 to 36
P1 (Losers)	-0.89	0.15	0.10	-0.58	-0.11	-0.04
	(-5.65)	(1.34)	(0.77)	(-4.43)	(-1.06)	(-0.44)
P10 (Winners)	0.41	-0.41	-0.31	0.33	-0.12	-0.06
	(3.27)	(-4.45)	(-2.85)	(2.69)	(-1.17)	(-0.50)
P10 - P1	1.30	-0.56	-0.41	0.91	-0.01	-0.02
	(5.85)	(-3.92)	(-2.45)	(4.59)	(-0.09)	(-0.13)

Table XI - Momentum and Reversals for Issuers and Non-Issuers: 12-month Ranking Period

Panels A and B of the Table report the momentum and reversal returns for firms divided into issuing and non-issuing subgroups. The loser, winner and momentum portfolio returns are obtained using cross-sectional regressions described in Table I, except that $P10_{i,t-k}$ ($P1_{i,t-k}$) is a winner (loser) dummy variable that equals 1 if the stock i is ranked in top (bottom) 10 percent of the stocks based on their cumulative return over 12-month period ending in month t-k. Raw returns are in Panel A and Fama-French alphas are in Panel B (the intercept term and coefficients on lagged size and return are not shown in these Panels). The returns are in percent per month. t-statistics are in parentheses. The sample period is January 1972 to December 2004.

Panel A: Raw Returns

	1 to 6		1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.
						Non-Issuers						
P1	-0.49	-0.68	-0.25	-0.47	0.18	-0.09	0.15	-0.04	0.04	-0.10	0.17	0.03
	(-2.85)	(-4.01)	(-1.57)	(-2.96)	(1.18)	(-0.59)	(1.10)	(-0.32)	(0.33)	(-0.77)	(1.51)	(0.25)
P10	-0.26	-0.23	-0.25	-0.27	-0.07	-0.14	-0.11	-0.23	0.01	-0.18	0.02	-0.14
	(-1.32)	(-1.15)	(-1.41)	(-1.48)	(-0.50)	(-1.07)	(-0.85)	(-1.65)	(0.04)	(-1.29)	(0.12)	(-0.79)
P10-P1	0.23	0.44	0.00	0.20	-0.24	-0.06	-0.27	-0.19	-0.04	-0.08	-0.15	-0.16
	(0.91)	(1.73)	(0.00)	(0.87)	(-1.46)	(-0.35)	(-1.81)	(-1.24)	(-0.26)	(-0.53)	(-0.94)	(-1.00)
						Issuers						
P1	-0.67	-0.97	-0.30	-0.61	0.33	0.01	0.15	-0.10	0.03	-0.16	0.25	0.08
	(-3.28)	(-4.98)	(-1.63)	(-3.51)	(2.13)	(0.04)	(0.92)	(-0.63)	(0.22)	(-1.17)	(1.70)	(0.52)
P10	0.41	0.48	0.14	0.21	-0.38	-0.34	-0.27	-0.32	0.11	-0.04	-0.04	-0.15
	(2.39)	(2.69)	(0.93)	(1.30)	(-2.87)	(-2.57)	(-2.21)	(-2.46)	(0.82)	(-0.28)	(-0.29)	(-1.19)
P10-P1	1.08	1.45	0.44	0.82	-0.71	-0.35	-0.42	-0.22	0.08	0.13	-0.29	-0.23
	(3.62)	(4.96)	(1.70)	(3.20)	(-3.33)	(-1.73)	(-2.25)	(-1.16)	(0.51)	(0.81)	(-1.88)	(-1.47)

Panel B: Fama-French Alphas

	1 to 6		1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.
						Non-Issuers						
P1	-0.64	-0.78	-0.44	-0.59	-0.09	-0.28	-0.04	-0.16	-0.10	-0.19	0.03	-0.06
	(-4.10)	(-5.03)	(-3.02)	(-4.11)	(-0.65)	(-2.15)	(-0.38)	(-1.56)	(-0.95)	(-1.87)	(0.35)	(-0.60)
P10	-0.16	-0.14	-0.14	-0.17	-0.07	-0.16	-0.19	-0.29	-0.05	-0.22	-0.01	-0.13
	(-1.02)	(-0.93)	(-1.03)	(-1.27)	(-0.69)	(-1.56)	(-1.65)	(-2.45)	(-0.45)	(-1.96)	(-0.09)	(-1.04)
P10-P1	0.48	0.63	0.30	0.42	0.02	0.12	-0.15	-0.13	0.04	-0.04	-0.05	-0.07
	(1.94)	(2.52)	(1.39)	(1.91)	(0.10)	(0.69)	(-1.02)	(-0.84)	(0.29)	(-0.24)	(-0.30)	(-0.47)
						Issuers						
P1	-0.89	-1.09	-0.57	-0.77	0.02	-0.17	-0.02	-0.18	-0.06	-0.20	0.18	0.05
	(-4.41)	(-5.69)	(-3.27)	(-4.51)	(0.12)	(-1.24)	(-0.18)	(-1.39)	(-0.46)	(-1.76)	(1.38)	(0.38)
P10	0.57	0.60	0.30	0.33	-0.29	-0.32	-0.27	-0.33	0.08	-0.06	-0.10	-0.17
	(4.04)	(4.29)	(2.55)	(2.81)	(-2.75)	(-3.06)	(-2.48)	(-2.99)	(0.69)	(-0.60)	(-1.02)	(-1.87)
P10-P1	1.46	1.70	0.87	1.10	-0.31	-0.14	-0.24	-0.15	0.13	0.14	-0.28	-0.22
	(4.91)	(5.94)	(3.50)	(4.48)	(-1.52)	(-0.72)	(-1.34)	(-0.81)	(0.87)	(0.89)	(-1.75)	(-1.39)

Table XII – Momentum and Reversals: Alternative Measurement Period for Share Issuance

The Table reports the momentum and reversal returns for firms divided into issuing and non-issuing subgroups. Firms are designated as "Non-Issuers" ("Issuers") at the beginning of holding period if their composite share issuance is less than or equal to (greater than) the median composite share issuance during the 6-month period immediately preceding the reversal period. The composite share issuance measure is computed as in Daniel and Titman (2006). Firms with insufficient data to compute composite share issuance are excluded. The loser, winner and momentum portfolio returns are obtained using cross-sectional regressions described in Table I. The returns are in percent per month. t-statistics are in parentheses. The sample period is January 1972 to December 2004.

	1 to 6		13 to 24		25 to 36	
	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.
			Non-Issuers			
P1	-0.56	-0.73	0.12	-0.11	0.19	-0.02
	(-2.95)	(-4.15)	(0.79)	(-0.74)	(1.44)	(-0.16)
P10	-0.21	-0.20	-0.09	-0.19	0.02	-0.10
	(-1.26)	(-1.15)	(-0.67)	(-1.53)	(0.19)	(-0.82)
P10-P1	0.35	0.53	-0.21	-0.08	-0.16	-0.08
	(1.47)	(2.27)	(-1.37)	(-0.51)	(-1.34)	(-0.67)
			Issuers			
P1	-0.95	-1.16	0.25	-0.04	0.25	0.01
	(-4.91)	(-6.35)	(1.78)	(-0.32)	(1.84)	(0.05)
P10	0.65	0.69	-0.34	-0.33	-0.24	-0.31
	(4.00)	(4.04)	(-3.03)	(-2.93)	(-2.14)	(-2.74)
P10-P1	1.60	1.85	-0.59	-0.29	-0.49	-0.32
	(5.78)	(6.85)	(-3.30)	(-1.71)	(-3.34)	(-2.17)

Table XIII – Momentum and Reversals for Issuers and Non-Issuers: 1963-2004

The Table reports the momentum and reversal returns for firms divided into issuing and non-issuing subgroups. Firms are designated as "Non-Issuers" ("Issuers") at the beginning of holding period if their composite share issuance is less than or equal to (greater than) the median composite share issuance during 12-month momentum holding period. The composite share issuance measure is computed as in Daniel and Titman (2006). Firms with insufficient data to compute composite share issuance are excluded. The loser, winner and momentum portfolio returns are obtained using cross-sectional regressions described in Table I. The returns are in percent per month. t-statistics are in parentheses. The sample period is January 1963 to December 2004.

	1 to 6		13 to 24		25 to 36	
	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.
			Non-Issuers			
P1	-0.57	-0.72	0.02	-0.22	0.13	-0.06
	(-3.92)	(-5.23)	(0.16)	(-1.98)	(1.24)	(-0.66)
P10	-0.08	-0.08	-0.04	-0.10	-0.04	-0.14
	(-0.59)	(-0.60)	(-0.46)	(-1.04)	(-0.40)	(-1.55)
P10-P1	0.49	0.63	-0.06	0.12	-0.16	-0.08
	(2.61)	(3.46)	(-0.52)	(1.03)	(-1.60)	(-0.75)
			Issuers			
P1	-0.90	-1.13	0.12	-0.20	0.21	-0.09
	(-5.48)	(-7.32)	(0.97)	(-1.65)	(1.72)	(-0.76)
P10	0.60	0.63	-0.29	-0.29	-0.17	-0.24
	(4.28)	(4.36)	(-2.85)	(-2.82)	(-1.80)	(-2.43)
P10-P1	1.50	1.76	-0.42	-0.09	-0.38	-0.15
	(6.45)	(7.84)	(-2.71)	(-0.65)	(-3.02)	(-1.24)

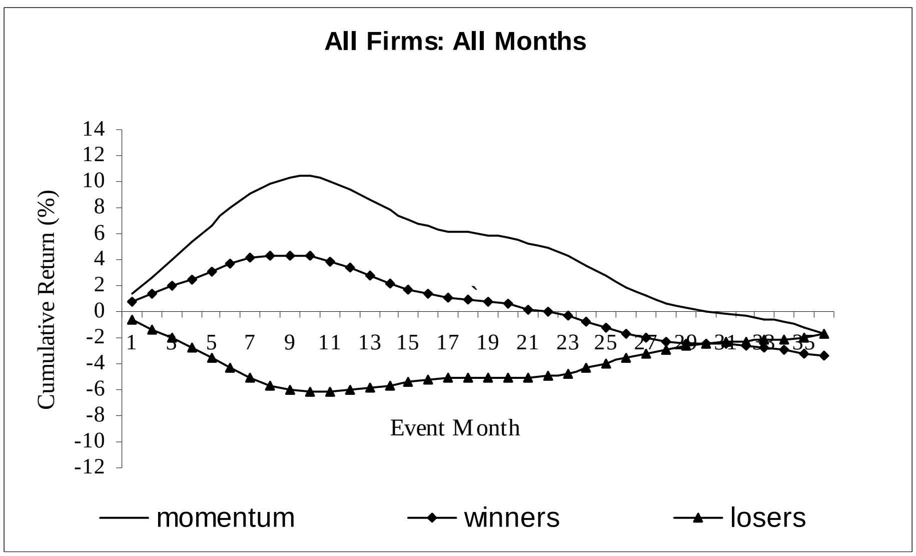
Figure 1 - Cumulative Returns in Event Time

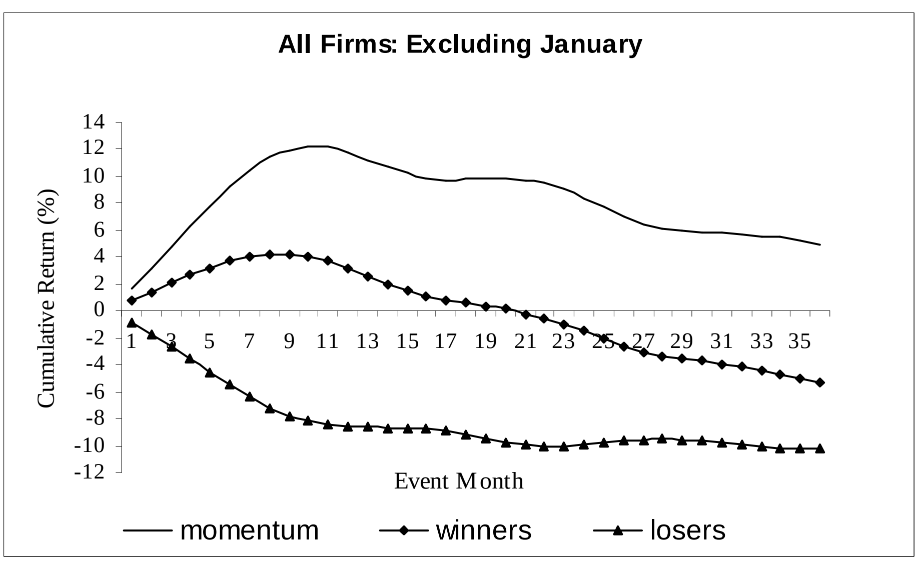
Cross-sectional regressions of following form are estimated each month, for k = 1,…,36:

$$R_{i,t+1} = \beta_{0kt} + \beta_{1kt} R_{i,t} + \beta_{2kt} ME_{i,t} + \beta_{3kt} P1_{i,t-k} + \beta_{4kt} P10_{i,t-k} + \varepsilon_{ikt},$$

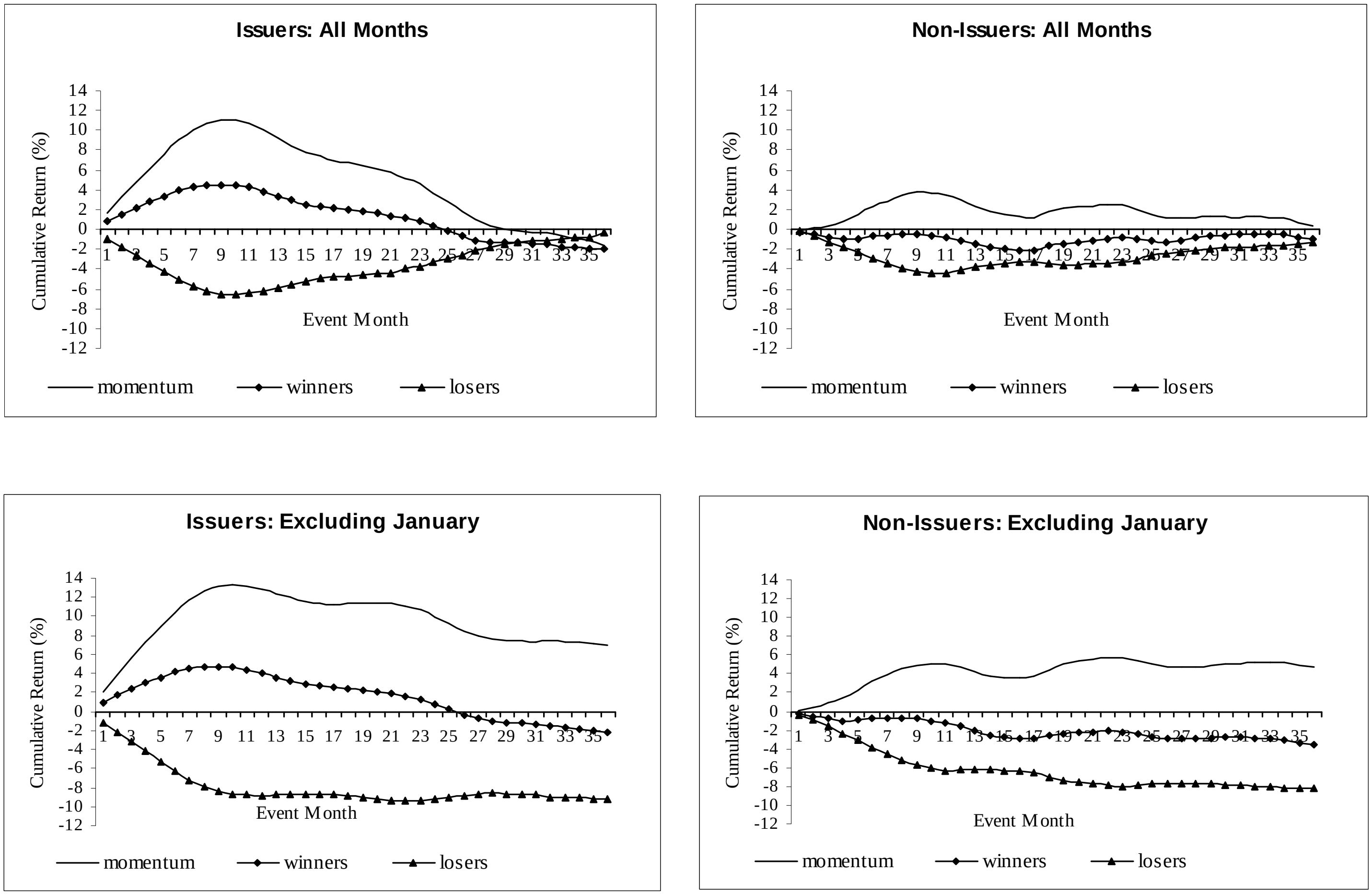
where $R_{i,t}$ is the return on stock i in month t, $ME_{i,t}$ is the market capitalization (price × shares outstanding) of stock i at end of month t (in million \$), $P10_{i,t-k}$ ($P1_{i,t-k}$) is a winner (loser) dummy variable that equals 1 if the stock i is ranked in top (bottom) 10 percent of the stocks based on their cumulative return over six-month period ending in month t-k. Financial firms and firms with price less than \$5 or market cap less than smallest NYSE size decile at the end of month t-k are excluded from the sample. The coefficient estimates on P1 and P10 are averaged for each k to obtain raw average returns on loser and winner portfolios in each the 36 months following the portfolio formation. Cumulative returns for the winner, the loser and the winner minus loser momentum portfolio are plotted. The graphs show the cumulative returns computed using returns from all calendar months and with January returns excluded from the sample. Panel A shows the graphs for all firms in the sample, Panel B shows the graphs for issuers and non-issuers, and Panel C shows the graphs for Small Issuers and for all firms other than the Small Issuers.

Panel A: All Firms

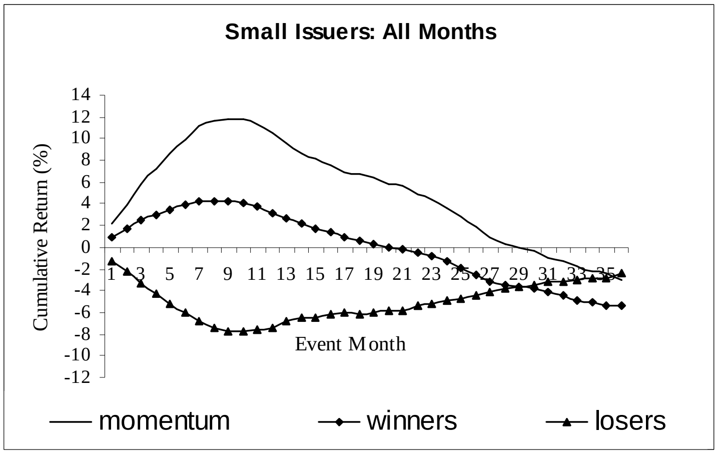


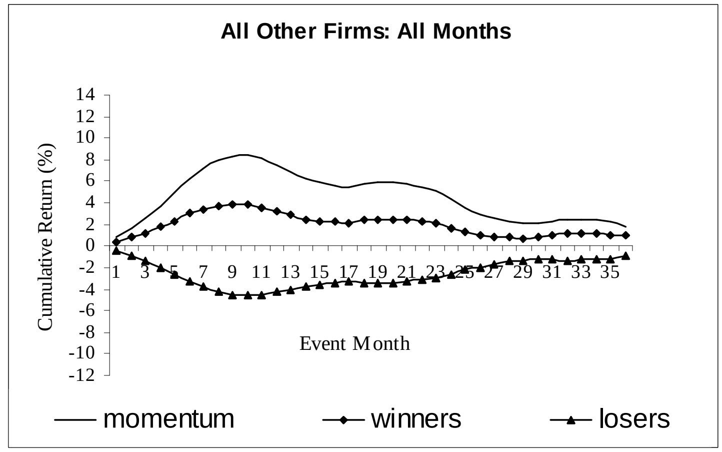


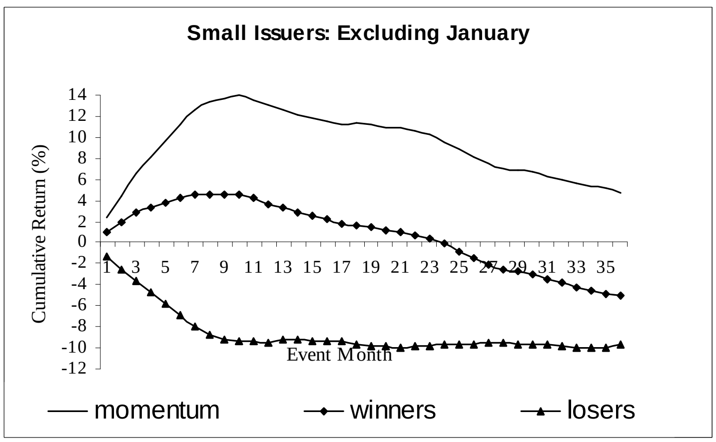
Panel B: Issuers and Non-Issuers



Panel C: Small Issuers and All Other Firms







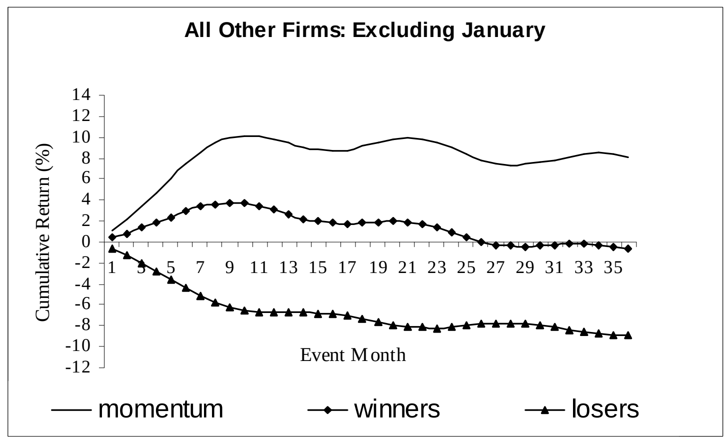


Table A.I - Momentum and Reversals for Issuers and Non-Issuers: Using Compustat Net Equity Issuance

Panels A and B of the Table report the momentum and reversal returns for firms divided into issuing and non-issuing subgroups. Firms are designated as "Non-Issuers" ("Issuers") at the beginning of holding period if their net equity issuance is less than or equal to (greater than) the median level of net equity issuance during the year following the portfolio formation. Net equity issuance is obtained using quarterly Compustat data as the annual change in book equity (Compustat data 59 + 52) minus change in retained earnings (Compustat data 58), scaled by the total assets (Compustat data 44) at the beginning of the year. Firms with insufficient data to compute net equity issuance are excluded. Raw returns are in Panel A and Fama-French alphas are in Panel B (the intercept term and coefficients on lagged size and return are not shown). The returns are in percent per month. t-statistics are in parentheses. The sample period is January 1972 to December 2004.

Panel A: Raw Returns

Non-Issuers (NI)

	1 to 6		13 to 24		25 to 36		37 to 48		49 to 60	
	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.
P1	-0.77	-0.97	0.10	-0.17	0.13	-0.10	0.02	-0.18	0.18	0.03
	(-3.84)	(-5.26)	(0.64)	(-1.12)	(0.97)	(-0.76)	(0.12)	(-1.31)	(1.38)	(0.20)
P10	-0.28	-0.29	-0.11	-0.17	0.01	-0.09	0.23	0.09	0.16	0.02
	(-1.78)	(-1.71)	(-0.98)	(-1.49)	(0.10)	(-0.76)	(1.75)	(0.76)	(1.05)	(0.12)
P10-P1	0.48	0.68	-0.21	0.00	-0.12	0.01	0.21	0.28	-0.02	-0.01
	(1.93)	(2.81)	(-1.37)	(0.02)	(-0.94)	(0.08)	(1.55)	(2.09)	(-0.13)	(-0.04)

Issuers (I)

	1 to 6		13 to 24		25 to 36		37 to 48		49 to 60	
	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.
P1	-0.54	-0.75	0.27	-0.02	0.30	0.04	0.14	-0.03	0.14	-0.01
	(-2.68)	(-3.91)	(1.75)	(-0.15)	(1.94)	(0.26)	(0.94)	(-0.20)	(0.97)	(-0.09)
P10	0.65	0.66	-0.35	-0.40	-0.27	-0.38	0.08	-0.09	0.07	-0.09
	(3.85)	(3.76)	(-2.70)	(-2.96)	(-2.09)	(-2.84)	(0.54)	(-0.61)	(0.49)	(-0.62)
P10-P1	1.19	1.41	-0.63	-0.37	-0.58	-0.42	-0.06	-0.06	-0.06	-0.08
	(4.54)	(5.53)	(-3.55)	(-2.22)	(-3.99)	(-2.90)	(-0.47)	(-0.40)	(-0.45)	(-0.58)

Panel B: Fama-French Alphas

	Non-Issuers (NI)									
	1 to 6		13 to 24		25 to 36		37 to 48		49 to 60	
	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.
P1	-0.83	-0.99	-0.12	-0.32	-0.05	-0.21	-0.11	-0.25	0.09	-0.03
	(-4.64)	(-6.10)	(-0.85)	(-2.39)	(-0.44)	(-2.02)	(-1.02)	(-2.41)	(0.82)	(-0.33)
P10	-0.25	-0.25	-0.12	-0.20	-0.06	-0.15	0.20	0.07	0.12	0.02
	(-1.80)	(-1.78)	(-1.32)	(-2.37)	(-0.54)	(-1.51)	(1.80)	(0.67)	(1.03)	(0.15)
P10-P1	0.59	0.74	0.00	0.12	-0.01	0.06	0.31	0.32	0.03	0.05
	(2.27)	(3.00)	(0.01)	(0.75)	(-0.05)	(0.50)	(2.28)	(2.39)	(0.20)	(0.35)
	Issuers (I)									
	1 to 6		13 to 24		25 to 36		37 to 48		49 to 60	
	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.	All Months	Feb-Dec.
P1	-0.59	-0.76	0.03	-0.14	0.13	-0.06	0.07	-0.06	-0.03	0.00
	(-3.26)	(-4.40)	(0.19)	(-1.09)	(1.01)	(-0.52)	(0.66)	(-0.53)	(-0.30)	(0.01)
P10	0.67	0.67	-0.36	-0.41	-0.33	-0.41	0.01	-0.13	-0.15	-0.14
	(4.98)	(5.06)	(-4.26)	(-5.04)	(-3.45)	(-4.34)	(0.08)	(-1.29)	(-1.52)	(-1.49)
P10-P1	1.26	1.43	-0.39	-0.27	-0.45	-0.35	-0.07	-0.08	-0.11	-0.14
	(4.65)	(5.51)	(-2.23)	(-1.60)	(-3.07)	(-2.41)	(-0.49)	(-0.53)	(-0.80)	(-1.16)

Table A.II - Momentum and Reversals: Using Compustat Net Equity Issuance and Conditioning on Firm Size

At the beginning of momentum holding period, firms are classified into Small, Medium, and Large subgroups obtained using 30 and 70 percent cutoffs based on prior year asset size (Compustat data 6). For each group, cross-sectional regressions as described in Table I are estimated each month to obtain momentum and reversal returns. The breakpoints to identify winners and losers are independently determined. Momentum returns are reported for k = 1,…,6 and reversal returns are reported for k =13,…,24 and k = 25,…,36. Panel A shows the raw returns and Fama-French alphas for all firms, and Panels B and C show the corresponding results for Non-Issuers and Issuers, respectively (the intercept term and coefficients on lagged size and return are not shown). Firms are designated as "Non-Issuers" ("Issuers") at the beginning of holding period if their Compustat net equity issuance is less than or equal to (greater than) the median net equity issuance during the year following the momentum portfolio formation. The returns are in percent per month. t-statistics are reported in parentheses. The sample period is January 1972 to December 2004.

Panel A: Non-Issuers

	1 to 6			13 to 24			25 to 36		
	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small
Raw Returns									
P1	-0.72	-0.58	-0.70	0.11	0.04	0.25	0.27	0.06	0.06
	(-2.82)	(-2.96)	(-3.56)	(0.62)	(0.24)	(1.57)	(1.61)	(0.44)	(0.49)
P10	-0.13	-0.12	-0.15	0.00	-0.06	-0.16	0.14	0.15	-0.18
	(-0.61)	(-0.75)	(-0.89)	(0.00)	(-0.52)	(-1.36)	(0.81)	(0.97)	(-1.37)
P10 - P1	0.59	0.46	0.55	-0.11	-0.10	-0.41	-0.13	0.09	-0.24
	(1.75)	(1.80)	(2.16)	(-0.49)	(-0.54)	(-2.44)	(-0.60)	(0.51)	(-1.52)
Fama-French Alphas									
P1	-0.86	-0.62	-0.72	-0.23	-0.20	0.17	0.03	-0.12	-0.08
	(-3.54)	(-3.46)	(-3.96)	(-1.39)	(-1.25)	(1.18)	(0.17)	(-0.99)	(-0.66)
P10	-0.27	-0.13	-0.06	-0.06	-0.06	-0.16	0.09	0.05	-0.27
	(-1.32)	(-0.87)	(-0.40)	(-0.42)	(-0.61)	(-1.56)	(0.56)	(0.35)	(-2.10)
P10 - P1	0.58	0.49	0.66	0.17	0.13	-0.34	0.07	0.17	-0.19
	(1.68)	(1.88)	(2.51)	(0.72)	(0.72)	(-1.96)	(0.31)	(1.00)	(-1.16)

Panel B: Issuers

	1 to 6			13 to 24			25 to 36		
	Large	Medium	Small	Large	Medium	Small	Large	Medium	Small
Raw Returns									
P1	0.01	-0.57	-0.73	0.40	0.32	0.17	0.24	0.23	0.25
	(0.03)	(-2.63)	(-3.81)	(1.95)	(1.77)	(1.26)	(1.25)	(1.48)	(1.61)
P10	0.80	0.63	0.60	-0.09	-0.24	-0.42	-0.14	-0.09	-0.38
	(3.62)	(3.93)	(4.36)	(-0.51)	(-1.69)	(-4.18)	(-0.73)	(-0.66)	(-3.63)
P10 - P1	0.79	1.20	1.34	-0.49	-0.56	-0.59	-0.38	-0.32	-0.63
	(2.15)	(4.39)	(5.23)	(-1.95)	(-2.80)	(-3.46)	(-1.75)	(-1.75)	(-3.59)
Fama-French Alphas									
P1	-0.05	-0.61	-0.77	0.15	0.06	0.07	-0.03	0.08	0.14
	(-0.17)	(-3.11)	(-4.17)	(0.77)	(0.38)	(0.56)	(-0.17)	(0.62)	(0.97)
P10	0.75	0.60	0.62	-0.14	-0.26	-0.40	-0.22	-0.14	-0.43
	(3.70)	(4.22)	(4.67)	(-0.92)	(-1.83)	(-4.23)	(-1.35)	(-1.16)	(-4.27)
P10 - P1	0.80	1.21	1.40	-0.29	-0.32	-0.48	-0.20	-0.22	-0.58
	(2.10)	(4.32)	(5.29)	(-1.12)	(-1.56)	(-2.72)	(-0.89)	(-1.21)	(-3.20)

Table A.III - Momentum and Reversals: Using Compustat New Equity Issuance and Excluding Small Equity Issuers

At the beginning of momentum holding period, firms are classified into Small, Medium, and Large subgroups obtained using 30 and 70 percent cutoffs based on prior year asset size (Compustat data 6). The Table shows the momentum and reversal returns for the firms remaining in the sample after excluding Small Issuers. Firms are designated as "Non-Issuers" ("Issuers") at the beginning of holding period if their Compustat net equity issuance is less than or equal to (greater than) the median net equity issuance during the year following the momentum portfolio formation. Cross-sectional regressions as described in Table I are estimated each month to obtain momentum and reversal returns. Momentum returns are reported for k = 1,…,6 and reversal returns are reported for k =13,…,24 and k = 25,…,36. Panels A and B report the raw returns and Fama-French alphas, respectively, for loser (P1), winner (P10) and momentum (P10-P1) portfolios. t-statistics are reported in parentheses. The sample period is January 1972 to December 2004.

	Raw Returns			Fama-French Alphas		
	1 to 6	13 to 24	25 to 36	1 to 6	13 to 24	25 to 36
P1	-0.68	0.19	0.18	-0.75	-0.06	-0.02
	(-3.28)	(1.17)	(1.30)	(-3.99)	(-0.45)	(-0.18)
P10	0.36	-0.16	-0.04	0.39	-0.15	-0.10
	(2.15)	(-1.17)	(-0.32)	(2.84)	(-1.55)	(-0.94)
P10 - P1	1.04	-0.35	-0.22	1.13	-0.09	-0.08
	(3.93)	(-1.86)	(-1.55)	(4.14)	(-0.49)	(-0.58)

Chapter 2

Long-Term Return Reversals: Share Issuance or Taxes?

1. Introduction

DeBondt and Thaler (1985) show that when stocks are ranked on their past three to five year returns, extreme losers significantly outperform extreme winners over subsequent three to five years. DeBondt and Thaler (1985, 1987) attribute these long-term return reversals to investors' overreaction to information.[23]

George and Hwang (2007) challenge the overreaction based explanation of return reversals and provide evidence supporting a tax based explanation. The intuition behind their tax hypothesis, originally formalized in Klein (1999, 2001), is as follows. Since winners have large accrued capital gains which are taxed upon realization, investors holding winner stocks have an incentive not to sell these stocks to delay payment of capital gains taxes. Since market demand for these stocks is not altered, they have higher equilibrium prices and lower expected returns as compared with otherwise similar stocks that have no locked-in capital gains. George and Hwang show that winner return reversals disappear after controlling for measures of embedded capital gains. They also note that the loser reversals are entirely due their positive returns in January, a finding that is potentially attributable to the year-end tax-loss selling.

In a recent study, Daniel and Titman (2006) document a strong negative cross-sectional relationship between future stocks returns and a "composite share issuance" measure that

[23] Evidence in support of overreaction hypothesis of reversals has been documented in Chopra, Lakonishok, and Ritter (1992) and Lakonoshok, Shleifer, and Vishny (1994). Explanations based on measurement errors have been proposed in Conrad and Kaul (1993) and Ball, Kothari, and Shanken (1995). Risk-based explanations have been proposed in Chan (1988) and Ball and Kothari (1989) who attribute profitability of contrarian strategies to time variation in systematic risk, and in Fama and French (1996) who find that their three-factor model explains the return reversals. Lo and MacKinlay (1990) argue that contrarian profits stem from positive cross-autocorrelations in portfolio returns, rather than from negative serial correlation in individual security returns.

captures the firms' share issuance net of repurchases. Daniel and Titman propose composite share issuance as a measure of what they term as the "intangible" information. They define tangible return as the component of a firm's return that is related to the accounting measures of past performance. The intangible return is the component that is orthogonal to past performance. The intuition behind their interpretation of composite share issuance is that managers' equity issuance/repurchase decision may reflect realization of intangible information that is not captured by the accounting based measure. The return predictability of composite share issuance is not explained by the well-known factor models including the Sharpe-Lintner CAPM, the Fama-French (1993) three factor model, and the Lettau and Ludvigon (2001) conditional CAPM. In another recent study, Pontiff and Woodgate (2008) also find that the negative relationship between share issuance and future stock returns is stronger than other well known return predictors such as size and book-to-market ratio.

In the light of the Daniel and Titman evidence, my goal in this paper is to re-examine the tax based explanation of return reversals. I hypothesize that return reversals among winners are attributable to the poor performance of share issuing winner firms, rather than to the unlocking of embedded capital gains taxes. Using the empirical approach of George and Hwang, I systematically examine whether locked-in capital gains taxes or the composite share issuance measure better explain the return reversals. Consistent with George and Hwang, the reversals among total return losers are largely due to their positive January returns during the holding period and tax based measures largely explain the reversals in total return winners. However, tax based measures do not explain the negative relationship between future returns and composite share issuance. In fact, the composite share issuance measure largely subsumes the ability of the measures of embedded capital gains to explain winner reversals. I obtain similar results when I replace composite share issuance with the accounting based intangible return or the Pontiff and Woodgate (2008) share issuance variable.

Since investors have a greater incentive to defer payment of capital gains taxes during periods of high taxes, an empirical implication of the tax hypothesis is that we should observe stronger reversals during periods of higher capital gains taxes. When I split my sample into periods of high and low capital gains taxes, I do not find any evidence of systematically stronger reversals in high tax periods. Overall, my findings suggest that returns reversals are not attributable to locked-in capital gains taxes.

I also examine if the firms' optimal corporate investment decisions can explain the observed negative relationship between composite share issuance/intangible return and future stock returns. This examination is motivated by recent theoretical work that postulates that many of the stock market anomalies including the book-to-market effect and the long-term return reversals can be explained by time variation in expected returns resulting from firms' optimal investment decisions. For example, in the model of Berk, Green, and Naik (1999), firm valuation reflects the value of assets in place and the value of its growth options. As the riskier growth options are substituted with less risky assets through investment in positive net present value projects, the firms' systematic risk, and hence the expected returns, are lowered. If equity issuance is positively related with corporate investment in the cross-section, it is possible that the return predictability of composite share issuance stems from time variation in systematic risk rather than from market's overreaction to intangible information. To address this possibility, I examine the return predictability of intangible returns and composite share issuance after controlling for growth in capital expenditures. I find that reversals in intangible returns cannot be explained by the firms' investment in capital expenditure.

In addition, I also examine the role of asset growth in the reversals of intangible returns. Cooper, Gulen, and Schill (2007) document that the annual growth rate of firms' assets is strongly negatively associated with future stock returns. Consistent with this evidence, I find that when I include asset growth in my regressions, it weakens the forecasting power of the measures of intangible information in the first year after portfolio formation. However, the effect of intangible returns and composite share issuance is persistent and these measures of intangible information continue to predict returns in the subsequent four year period. It is also noteworthy that Cooper, Gulen, and Schill attribute the predictability of asset growth to misvaluation resulting from the investors' tendency to extrapolate past growth too far into the future. Thus, the predictability of asset growth also seems consistent with an overreaction based explanation rather than with a rational expectations based explanation.

To summarize, my evidence suggests that measures of locked-in capital gains do not explain the return predictability of share issuance measures and the reversals in intangible returns. If investors overreact to intangible information, then overreaction appears to be an important source of return reversals. However, I also find that loser reversals are largely concentrated in January. Thus, I also cannot rule out the possibility that tax-loss selling contributes to the reversals in loser firm returns.[24]

The rest of the paper is organized as follows. Section I describes the data and various measures used in the study. Section II outlines the methodology to examine return reversals. Results are discussed in Section III and Section IV concludes.

[24] Numerous studies have examined tax-loss selling as a potential explanation of the January effect. A partial list includes Reinganum (1983), Roll (1983), Jones, Lee, and Apenbrink (1991), Poterba and Weisbenner (2001), and Grinblatt and Keloharju (2004).

2. Data Description

My basic sample comprises of all firms listed on CRSP monthly files between 1972 and 2006. Each month, I rank the stocks based on their cumulative returns over the past 60 months. For most of my analysis, a stock is classified as cumulative return winner (loser) if it belongs to top (bottom) 30% of the stocks based on prior 60 month cumulative returns. The use of 30% cutoff is consistent with George and Hwang (2007), although my results are stronger if I use the more stringent 10% cutoffs. My base sample comprises of 1,243,589 firm-month observations. I create an indicator variable cumretW (cumretL) that equals one if a stock is a cumulative return winner (loser) and equals zero, otherwise. In addition, I also construct measures of embedded capital gains following George and Hwang (2007), composite share issuance and intangible information following Daniel and Titman (2006), share issuance variable of Pontiff and Woodgate (2008), and investment-based measures including growth rate in capital expenditures and assets. The construction of these measures is described below.

2.1. Measures of Embedded Capital Gains

As in George and Hwang (2007), I construct measures to capture the extent of capital gains embedded in stocks at the end of 60-month holding period. In the equations below, P_t denotes the closing price of a stock the end of the month t, after adjusting for stock splits and dividends using the CRSP price adjustment factor. Each of the measures below is updated each month during the sample period.

2.1.1. Five Year Low Measure (fyl)

The five year low measure captures the nearness of a stock's current price to its five year low price:

$$fyl_t = \frac{P_t - P_{min}}{P_{min}},$$

where P_{min} = min (P_t, P_{t-1}, …, P_{t-60}), i.e. the minimum month-end closing price of the stock over 61 month period including month t. The five year low measure is an extreme measure of embedded capital gains in that it assumes that all shares of stock were bought at its five-year low price. In other words, this measure captures the maximum possible capital gains embedded in stock the end of month t.

2.1.2. Equally-Weighted Gain Only Measure (ewgo)

For each month t, the equally-weighted gain only measure is defined as:

$$ewgo_t = 0, \text{ if } P_t = \min(P_t, P_{t-1}, \ldots, P_{t-60}), \text{ else}$$

$$ewgo_t = \frac{\sum_{n=1}^{60} w_{t-n}\left[\frac{P_t - P_{t-n}}{P_{t-n}}\right]}{\sum_{n=1}^{60} w_{t-n}},$$

where $w_{t-n} = 1$ if $P_t > P_{t-n}$, and $w_{t-n} = 0$ otherwise. This measure captures the average embedded capital gains in a stock under the assumption that stocks are uniformly acquired over the 60-month holding period. As argued in George and Hwang (2007), the benefit to defer the sale of stocks only arises in the case of capital gains; there are no deferral benefits associated with capital gains losses. Therefore, the ewgo measure captures only the average capital gains, but places no weight on capital losses. George and Hwang also propose an equally-weighted gain loss (ewgl) measure that treats capital gains and losses symmetrically, and is defined as:

$$ewgl_t = \frac{\sum_{n=1}^{60}\left[\frac{P_t - P_{t-n}}{P_{t-n}}\right]}{60}.$$

George and Hwang argue that ewgo and fyl measures should dominate the ewgl measure in testing the capital-gains lock-in hypothesis. Therefore, I primarily focus on the ewgo and fyl measures in out tests. For each of the measures above, I require that at least 40 month-end non-missing prices from P_{t-1}, P_{t-2}, …, P_{t-60} are available, otherwise the stock is excluded from the sample in month t.

2.2. Composite Share Issuance (issue)

Following Daniel and Titman (2006), I compute the composite share issuance measure as follows:

$$issue_{i,t} = \log\left(\frac{ME_{i,t}}{ME_{i,t-60}}\right) - r_i(t-60, t),$$

where $ME_{i,t}$ is the market capitalization of firm i in month t, $ME_{i,t-60}$ is the sixty month lagged market capitalization, and r_i (t-60, t) is the log sixty month stock return at the end of month t. Thus, composite share issuance is the part of growth in firm's market capitalization that is unrelated to its stocks returns, and includes actual equity issues and repurchases, but leaves out stock splits and stock dividends. Since composite share issuance is obtained using monthly CRSP data, I update this measure each month in my empirical analysis.

2.3.Intangible Return (intan_ret)

The accounting based measure of intangible information, which I simply refer to as intangible return in this paper, is the component of a stock's total return that is not explained by the fundamental accounting measures of performance. In this paper, my fundamental accounting variable of interest is the book-to-market ratio and the tangible and intangible components of the return are estimated from the following cross-sectional regression:

$$r_i(t-60,t) = \delta_0 + \delta_{BM} bm_{i,t-60} + \delta_B r_{i,B}(t-60,t) + u_{i,t}\,,$$

where r_i (t-60,t) is firm i's past sixty month log stock return, $bm_{i,t-60}$ is the log of book-to-market ratio lagged sixty months, and $r_{i,B}$(t-60,t) is the past sixty month log book return.[25] The lagged book-to-market ratio serves as control for tangible information in month t-60 and the sixty month book return serves to capture the tangible information that arrives between time t-60 and t. The fitted component from the above regression is the estimate of stock's tangible return component (tan_ret). That is,

$$r_i^{Tangible}(t-60,t) = \hat{\delta}_0 + \hat{\delta}_{BM} bm_{i,t-60} + \hat{\delta}_B r_{i,B}(t-60,t)\,.$$

The intangible return is defined as the regression residual:

$$r_i^{Intangible}(t-60,t) = \hat{u}_{i,t}$$

Following Daniel and Titman, the log stock return r_i (t-60,t) is computed from last trading day of calendar year t-6 to last trading day of calendar year t-1. The variable $bm_{i,t-60}$ is the log of the book-to-market ratio for fiscal year ending anywhere is calendar year t-6. Finally, $r_{i,B}$ (t-60,t) is computed over same time period as r_i (t-60,t). Firms are assigned to winner and

[25] We compute book return from equation (6) in Daniel and Titman (2006). That is, the log book return over t-60 to t is given by:

$$r_{i,B}(t-60,t) = bm_{i,t} - bm_{i,t-60} + r_i(t-60,t)\,.$$

loser portfolios from July of year t to June of year t+1, based on the estimates of intangible return obtained in calendar year t-1.

2.4. Pontiff and Woodgate Share Issuance Variable (issue)

Pontiff and Woodgate (2008) obtain the share issuance variable from CRSP using the number of shares outstanding and the factor to adjust shares outstanding. Their five year share issuance measure for each firm is computed as:

$$issue_{t,\,t-60} = \log(shares_t) - \log(shares_{t-60}),$$

where $shares_t$ equals the shares outstanding at time t adjusted by a factor to account for distribution events such as stock splits and stock dividends.

2.5. Measures of Firm Investment

To test the role of corporate investment and asset growth in the return predictability of measures of intangible information, I compute the following two measures.

2.5.1. Growth in Capital Expenditures (capex)

For each firm i, I compute the growth in capital expenditures for fiscal year ending anywhere in calendar year n-1 as follows:

$$capex_{i,n-1} = \frac{ce_{i,n-1}}{(ce_{i,n-2} + ce_{i,n-3} + ce_{i,n-4} + ce_{i,n-5} + ce_{i,n-6})/5} - 1$$

where $ce_{i,n-1}$ is the firm's capital expenditures (Compustat data 128) in year n-1, scaled by its sales (Compustat data 12) in year n-1. This measure of growth in capital expenditures is similar to that in Titman, Wei, and Xie (2004), except that they use the average of three year lagged capital expenditures, instead of the five year average I use. My results are robust if I use three-year average, and also when I use five year total growth in capital expenditures ($(ce_{i,n-1} - ce_{i,n-6}) / ce_{i,n-6}$). Based on this measure of growth in capital expenditures, firms are assigned to capex winner and loser portfolios from July of year n to June of year n+1.

2.5.2. Growth in Assets (ag)

Similar to Cooper, Gulen, and Schill (2007), for each firm i, I compute the growth in assets for fiscal year ending anywhere in calendar year n-1 as follows:

$$ag_{i,n-1} = \frac{ta_{i,n-1}}{ta_{i,n-2}} - 1$$

where $ta_{i,n-1}$ is the total assets (Compustat data 6) of the firm in year n-1. Based on asset growth, firms are assigned to asset growth winner and loser portfolios from July of year n to June of year n+1.

For each of the measures described above, I obtain winner and loser indicator variables as I did for the five year cumulative return. Again, for most of my analysis I use 30% cutoffs. That is, winners are top 30% of the firms and losers are bottom 30% of the firms based on each of the measure. The winner (loser) indicator variable is denoted by the abbreviated measure name with a suffix W (L). For example, five year low winner is labeled fylW. Similarly, indicator variable representing 30% of the firms with lowest asset growth is labeled agL.

Table I provides preliminary evidence on the predictive ability of each of the above measures by examining their relationship with future stock returns. Additionally, I also include results for tangible return component to confirm that it does not predict stock returns. I form decile portfolios based on each of the measures and examine the equal-weighted raw average portfolio returns for each measure for five years after the portfolio formation. For fyl, ewgo, and issue measures, the portfolios are formed at the June of each year n. For tan_ret, intan_ret, capex, and ag, portfolios are formed at the end of fiscal year ending in calendar year n-1. The Year 1 returns on all portfolios are computed over July of year n to June of year n+1, the Year 2 returns are computed over July of year n+1 to June of year n+2, and so on. Given the evidence of strong January seasonality in return reversals, I also report the results after excluding January returns. Consistent with the prior literature, all measures except tangible return are negatively correlated with stocks returns. As in Daniel and Titman (2006), the tangible return measure has no forecasting ability overall, although there is some evidence of positive association with future returns when January returns are excluded. The return predictability of measures of embedded capital gains seems weaker as compared to other measures. For example, for the fyl measure, the return spread between extreme decile portfolios is -0.47% (t-statistic = -1.67) in the first year and declines over time. Similar evidence can be observed for the ewgo measure as well. However, the weak predictability may be driven by the fact that under the capital gains lock-in hypothesis, the predictability of these measures is asymmetric: only the winners are expected to have negative future abnormal returns, but the losers do not contribute to the return spread. Both the intan_ret and issue measures seem to have strong and persistent ability to predict returns. Similarly, capex and ag measures also forecast returns, but the evidence is strongest for the first year after portfolio formation. The predictability through asset growth measure is particularly strong in the first year, with the return spread of -1.41% (t-statistic = -6.18).

3. Methodology

My main goal in this paper is to examine whether the measures of locked-in capital gains proposed in George and Hwang (2007) explain the intangible return reversals. Accordingly, in order that my results are comparable, I follow the Fama and MacBeth (1973) style cross-sectional regression approach of George and Hwang. To confirm the presence of returns reversals in cumulative return winner and loser portfolios, I estimate 60 cross-sectional regressions of the following form each month (for k = 1, …, 60):

$$R_{i,t} = \beta_{0kt} + \beta_{1kt} R_{i,t-1} + \beta_{2kt} ME_{i,t-1} + \beta_{3kt} 52wkL_{i,t-k} + \beta_{4kt} 52wkW_{i,t-k} + \beta_{5kt} cumretL_{i,t-k} + \beta_{6kt} cumretW_{i,t-k} + \varepsilon_{ikt}, \quad (1)$$

where $R_{i,t}$ is the return on stock i in month t, $ME_{i,t-1}$ is the market capitalization (price × shares outstanding) of stock i at end of month t-1, and $cumretW_{i,t-k}$ and $cumretwkL_{i,t-k}$ are the month t-k five-year cumulative return winner and loser dummy variables as defined earlier. Lagged firm size and lagged return are included in the all regressions to mitigate microstructure biases. In addition, to control for stock return momentum, I also include $52wkW_{i,t-k}$ and $52wkL_{i,t-k}$ dummy variables in all regressions. $52wkW_{i,t-k}$ ($52wkL_{i,t-k}$) is an indicator variable that equals 1 if the stock i is ranked in top (bottom) 30 percent of the stocks based on the 52-week high measure of George and Hwang (2004) in month t-k. The 52-high measure captures the nearness of stock's price to its 52-week high price. George and Hwang (2004) document that a momentum strategy based on 52-week high measure dominates the individual stock return momentum strategy of Jegadeesh and Titman (1993) and the industry momentum strategy of Moskowitz and Grinblatt (1999).

Since cumretL (cumretW) is a dummy variable, the coefficient β_{5kt} (β_{6kt}) is the return in excess of the intercept (β_{0kt}) on a portfolio long in cumulative return losers (winners) formed in month t-k after hedging out the effect of other independent variables in the regression. Thus, the month t return on this portfolio after hedging out the effect of other independent variables is β_{0kt} + β_{5kt} (or β_{0kt} + β_{6kt} for losers). If an investor assumes a long position in a portfolio of winner stocks each month and holds the portfolio for 60 months, then each month's return is the average of returns on portfolios formed in months t-k, for k = 1, …, 60. Thus, the average return (in excess of β_{0kt}) of these 60 portfolios in month t can be ascertained by taking the average of β_{6kt} coefficients from 60 cross-sectional regressions (for k = 1, …, 60). Throughout the paper, I report average coefficients for each separate year during the five year holding period. Therefore, I obtain average regressions coefficients for k = 1, …, 12 to capture the first year return following the portfolio formation and report the time-series means of these cross-sectional averages as the first year return. Similarly, second year, third year, fourth year, and fifth year returns are obtained each month by averaging coefficients over k = 13, …, 24, k = 25, …, 36, k = 37, …, 48, and k = 49, …, 60, respectively and then taking their time-series average.

In order to examine the role of various measures introduced in Section I, I include the corresponding indicator variables in the regression equation and report the corresponding coefficient estimates. For example, to examine the role of fyl measure in reversals of cumulative return winners and losers, I estimate 60 regressions of the following form each month (for k = 1, …, 60):

$$R_{i,t} = \beta_{0kt} + \beta_{1kt}R_{i,t-1} + \beta_{2kt}ME_{i,t-1} + \beta_{3kt}52wkL_{i,t-k} + \beta_{4kt}52wkW_{i,t-k} + \beta_{5kt}cumretL_{i,t-k} + \beta_{6kt}cumretW_{i,t-k} + \beta_{7kt}fylL_{i,t-k} + \beta_{8kt}fylW_{i,t-k} + \varepsilon_{ikt}$$

The average coefficient estimates are obtained as before for each year following the portfolio formation.

Since my sample period begins in 1972, the measures that require five year lagged Compustat accounting data are first computed in 1977, and the first month when portfolios based on these measures are formed is July, 1978. Hence, the first month when the regression is estimated is August, 1978.

4. Results

4.1. Evidence of Return Reversals

I begin my examination of return reversals by first confirming the presence of return reversals for in my sample. Table II reports the average coefficients from the baseline regression specification (1). Note that five year return winner minus loser portfolio has significantly negative returns over each of the 12-month subperiods and when January returns are included in the analysis. However, outside January, the overall reversals are quite weak. The winner reversals are significant for all months and also when January returns are excluded, except in the first year, where the reversals seem to be dominated by 52-week high momentum strategy of George and Hwang (2004). The 52-week high loser (winner) portfolios have significantly negative (positive) returns over months 1 to 12. The statistically significant loser reversals are entirely due to their positive January returns; the loser portfolio returns after excluding January returns are insignificant. This evidence of seasonality in loser returns is consistent with George and Hwang (2007) and suggests that loser reversals are potentially due to year-end tax loss selling.

4.2. The Role of Locked-in Capital Gains

I next replicate the results in George and Hwang (2007) for my sample. In Panel A of Table III, I include the five year low winner and loser indicator variables in the basic regression specification of Table II. Consistent with the evidence in George and Hwang, I find that winner reversals are subsumed by the five-year low winner variable. Over each of the 12-month subperiods, there is no evidence of statistically significant winner reversals. The five year low winner portfolio itself has negative returns in some periods, which are especially strong after excluding January returns. In Panel B, I repeat the analysis with equally-weighted gain loss measure instead of the five year low measure. The results are largely similar to those in Panel A. After controlling for ewgo winner variable, there are no significant winner reversals, except over months 25 to 36. Again, there is evidence of negative returns on ewgo winner portfolio over some subperiods. Overall, the locked-in capital gains measures seem to largely subsume winner reversals, while loser reversals are primarily concentrated in January. This evidence seems to suggest that capital gains taxes explain the long-term reversals in stock returns.

4.3. Control for Composite Share Issuance

Next, I focus on examining the role of share issuance in return reversals and whether capital gains taxes or share issuance better explains the return reversals. In Table IV, I include the winners and losers based on composite share issuance in my baseline regression specification (1). In other words, in this table, I simply replace the winners and losers based on measures of embedded capital gains from Table IV with winners and losers based on composite share issuance. Looking at returns on five year winner portfolio, I find no evidence of return reversals when I control for share issuance. Over all 12-month subperiods, the returns on five year return winner portfolio are statistically insignificant at the 5% level. The only evidence of significant five year return winner reversals is over months 49 to 60, when January returns are excluded. On the other hand, the coefficient on composite share issuance winner is negative and statistically significant for all subperiods except over months 49 to 60, and the effect is stronger when January returns are excluded. Also note that return on five year loser portfolio is also statistically insignificant over all subperiods. Thus, the composite share issuance winner seems to largely subsume the reversals in five year winner returns.

The evidence in Table IV indicates that similar to the measures of locked-in capital gains, the composite share issuance measure also independently explains the reversals in five year winner portfolio returns. Moreover, the share issuance measure seems to have stronger ability to predict future strong returns as compared with the measures of embedded capital gains. In the next analyses, I formally examine which of these measures better explains the return reversals. Note, however, that loser returns are largely concentrated in January and hence, I cannot rule out the role of capital gains taxes in loser reversals.

In Table V, I include both measures of embedded gains and composite share issuance in the regression specification. Specifically, in Panel A of Table V, I estimate the following regression:

$$R_{i,t} = \beta_{0kt} + \beta_{1kt} R_{i,t\text{-}1} + \beta_{2kt} ME_{i,t\text{-}1} + \beta_{3kt} 52wkL_{i,t-k} + \beta_{4kt} 52wkW_{i,t-k} + \beta_{5kt} issueL_{i,t-k} + \beta_{6kt} issueW_{i,t-k} + \beta_{7kt} fylL_{i,t-k} + \beta_{8kt} fylW_{i,t-k} + \varepsilon_{ikt}$$

The five year return winner and loser dummies are not included, since the coefficients on them are not significant. Including these variables in the regression does not alter the inferences. I find that the return on share issuance winner portfolio is negative and statistically significant over all subperiods. Moreover, the return on five year low winner portfolio itself is significantly weaker and is statistically insignificant at the 5% level for most periods. Panel B repeats the analysis with ewgo winner and loser dummies instead of the fyl variables. The results are very similar to those in Panel A. The evidence in Table V suggests that share issuance, and not locked-in capital gains taxes, seems to have stronger ability to forecast stock returns.

4.4. Tax Regimes and Long-Term Return Reversals

Since investors have greater incentive to defer payment of capital gains taxes during periods of high taxes, an empirical implication of the George and Hwang tax hypothesis is that returns reversals among winners should be stronger during periods of high capital gains taxes. To examine whether there is a difference in winner return reversals over different tax regimes, I divide my sample period into a "high tax" period and a "low tax" period. The high tax period is when the top capital gains tax rate at the beginning of portfolio holding period is greater than or equal to 28%. The high tax period corresponds to years 1977 to 1980, and 1987 to 1996 in my sample. The low tax period is when the top capital gains tax rate at the beginning of portfolio holding period is less than or equal to 20%. The low tax period corresponds to years 1982 to 1985, and 1997 to 2006 in my sample. I exclude the years 1981 and 1986 from my analysis, since they correspond to mid-year changes in the tax rates.

I repeat the analysis in Table II over high and low tax periods separately to examine if reversals are stronger during the high tax period. The results are shown in Table VI. I find that reversals are not stronger during the high tax period. On the contrary, the results actually suggest that reversals are slightly stronger during low tax period as compared to high tax period. This finding provides further evidence that capital gains taxes are not a source of reversals in returns of winner firms.

4.5. Intangible Information and Pontiff and Woodgate Share Issuance Measure

As discussed earlier, Daniel and Titman (2006) propose an accounting based measure of intangible information in addition to the composite share issuance, which I refer to as intangible return. In this section, I examine if inferences based on intangible return are similar to those based on composite share issuance. Table VII repeats the analysis in Table IV, with share issuance winners and losers being replaced with winners and losers based on intangible return, respectively. Looking at returns on five year winner portfolio, I find no evidence of return reversals when I control for intan_ret. Over all 12-month subperiods, the returns on five year return winner portfolio are statistically insignificant at the 5% level. On the other hand, the coefficient on intangible return winner variable is negative and statistically significant for all subperiods except over months 49 to 60. Also note that the return on five year loser portfolio is statistically insignificant over all subperiods, while there is weak evidence of positive returns on intangible return loser portfolio. Again, however, these positive returns are insignificant when January returns are excluded.

In Table VIII, I include the measures of embedded gains along with intangible return in the regression specification. Specifically, in Panel A of Table VIII, I estimate the following regression:

$$R_{i,t} = \beta_{0kt} + \beta_{1kt}R_{i,t-1} + \beta_{2kt}ME_{i,t-1} + \beta_{3kt}52wkL_{i,t-k} + \beta_{4kt}52wkW_{i,t-k} + \beta_{5kt}intan\_retL_{i,t-k} + \beta_{6kt}intan\_retW_{i,t-k} + \beta_{7kt}fylL_{i,t-k} + \beta_{8kt}fylW_{i,t-k} + \varepsilon_{ikt}$$

The five year return winner and loser dummies are not included, since the coefficients on them are not significant. Including these variables in the regression does not alter the inferences. I find that the return on intangible return winner portfolio is negative and statistically significant over all subperiods. Moreover, the return on five year low winner portfolio itself is significantly weaker and is statistically significant at 5% level only over months 13 to 24 when January returns are excluded. Panel B repeats the analysis with ewgo winner and loser dummies instead of the fyl variables. The results are very similar to those in Panel A.

Note that Daniel and Titman (2006) argue that firms' issuance and repurchase decisions reflect the realization of intangible information that is not reflected in accounting based measures. In Fama-MacBeth cross-sectional regressions of stocks returns on intangible returns and composite share issuance, they find that both intangible returns and composite share issuance have negative and statistically significant coefficients. Based on this evidence, in Table IX, I include both intangible return and composite share issuance variables as explanatory variables in regression along with the measures of locked-in capital gains. Consistent with Daniel and Titman (2006), I find that both measures of intangible information have significantly negative coefficients. To hedge out the exposure to Fama-French market, size and book-to-market factors, I regress each of the monthly coefficient estimates from the above cross-sectional regression on contemporaneous Fama-French factors. The intercepts from this second-pass time-series regressions are reported as Fama-French alphas in Panel B of Table IX. While Fama-French factors explain the returns on intangible return winner portfolio, the returns on composite share issuance winner portfolio continue to be statistically significant. In raw returns, the coefficients on measures of embedded gains are further weakened; however, the coefficients become significant after hedging out exposure to Fama-French factors. Nonetheless, the composite share issuance measure seems to have stronger ability to predict returns compared to embedded gains measures, even after controlling for Fama-French factors.

I also conduct similar analyses using the Pontiff and Woodgate (2008) share issuance variable. In Table X, I examine if this alternative measure of share issuance produces similar results as the composite share issuance. The inferences using this share issuance measure are similar: when I control for share issuance, the measures of embedded capital gains largely lose their ability to forecast stock returns.

4.6. Control for Measures of Firm Investment

My findings suggest that reversals in intangible returns are not explained by locked-in capital gains measures. If intangible information predicts returns because investors overreact to intangible information, then my results suggest that mispricing and not taxes drive the long-term return reversals. However, a risk-based explanation of the return predictability of intangible information measures cannot be ruled out. To disentangle risk and mispricing explanations, I examine the role of growth in capital expenditures and growth in assets in explaining the return predictability of the composite share issuance and intangible return.

In Panel A of Table XI, I present the results from estimation of following regression:

$$R_{i,t} = \beta_{0kt} + \beta_{1kt}R_{i,t\text{-}1} + \beta_{2kt}ME_{i,t\text{-}1} + \beta_{3kt}52wkL_{i,t-k} + \beta_{4kt}52wkW_{i,t-k} + \beta_{5kt}intan\_retL_{i,t-k} + \beta_{6kt}intan\_retW_{i,t-k} + \beta_{7kt}issueL_{i,t-k} + \beta_{8kt}issueW_{i,t-k} + \beta_{9kt}capexL_{i,t-k} + \beta_{10kt}capexW_{i,t-k} + \varepsilon_{ikt}$$

I find that both measures of intangible information have negative and significant winner returns. On the other hand, capex loser and winner dummies do not have strongly negative coefficient estimates. The only evidence of statistically significant returns is on capex winner portfolio over months 37 to 48. As shown in Panel B, these results hold after controlling for Fama-French factors. In additional unreported tests, I find similar results when I identify capex winners and losers based on five year growth in capital expenditures.

In Table XII, I replace the capex winner and loser dummies with winners and losers based on asset growth. My motivation for control of asset growth comes from recent evidence in Cooper, Gulen, and Schill (2007) which suggests that year-by-year growth in firms' assets is strongly negatively associated with stock returns. I find the measures of intangible information, especially the composite share issuance, continue to predict returns after hedging out the effect of asset growth. The coefficient on asset growth winner is also significant in first year, but its predictive ability weakens in subsequent years.

5. Conclusion

Daniel and Titman (2006) document that share issuance and an accounting based measure of intangible information have strong ability to predict future stock returns. They find that while the intangible return component reverses in the long run, the tangible return component does not predict stock returns. In this paper, I examine if measures of locked-in capital gains proposed in George and Hwang (2007) explain the reversals in intangible returns. I find that they do not. In cross-sectional sectional regressions of stock returns that include both the measures of intangible information and the measures of locked-in gains as explanatory variables, the intangible information measures come out as stronger predictors of stock returns and largely subsume the predictive ability of locked-in capital gains measures. If the return predictability of intangible information measures stems from investors' overreaction to intangible information, then my evidence suggests that long-term reversals in US stock returns are driven by overreaction rather than taxes. However, a rational explanation of return predictability of intangible information measures cannot be ruled out. Whether risk or mispricing drives the relationship between intangible information and stock returns is a fruitful area for future research that can shed light on the causes of long-term return reversals.

Appendix I: Analysis with Equally Weighted Gain and Loss (ewgl) Measure

In addition to the five year low measure and the equally weighted gain only measure, George and Hwang (2007) also propose an equally weighted gain and loss measure to capture locked-in capital gains. The ewgl measure treats gains and losses symmetrically. George and Hwang thesis is that since the incentive to defer payment of capital gains taxes exists only for winners and not losers, the ewgl measure should have weaker ability to explain reversals as compared with equally-weighted gain only measure. Nonetheless, for completeness, I repeat the analysis of Table VII using ewgl measure. The results are in Table A.I. I find no evidence of statistically significant returns on ewgl winner portfolio. Both intangible return winner and composite issuance winner portfolios continue to have negative and significant returns over the entire five year holding period.

Appendix II: Analysis With 10% Cutoffs

In the analysis in main part of the paper, the winners and losers based on various measures are identified using 30% cutoffs. The 30% cutoffs are used so that my results are comparable with George and Hwang (2007) who also use 30% cutoffs. In this Appendix, I re-examine my main finding using the more stringent and more commonly employed 10% cutoffs. Appendix B.I repeats the analysis in Table VIII with loser and winner dummies for all explanatory variables identified based on 10% cutoffs. Only raw portfolio returns are shown in the Table. The results are largely similar to those in Table VIII. The embedded gain measures have, at best, a weak ability to predict returns. For measures of intangible information, and especially composite share issuance, the negative relationship with stock returns is significantly stronger as compared with those documented in Table VIII.

I also repeat the analyses in Table XI and XII using 10% cutoffs. The results with capex winners and losers are in Table B.II and those with asset growth winners and losers are in Table B.III. Note that asset growth winners have strong negative returns in first year, but the composite issuance winner returns continue to be significantly negative over the entire five year period. Overall, the results are robust to choice of cutoffs used to identify winners and losers.

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Table I – Stock Return Predictability of Various Measures

The Table shows the raw returns (in percent per month) on equally-weighted decile portfolios of various measures that can potentially explain the long-term return reversals. The details of the construction of these variables are provided in the text. All variables except tangible and intangible returns, growth in capital expenditures and growth in assets are computed in June of each year t, and their portfolio returns are computed from July of year t to June of year t+1 (Year 1), July of year t+1 to June of year t+2 (Year 2), and so on. Tangible and intangible returns, growth in capital expenditures and growth in assets are computed for the fiscal year ending in calendar year t-1, and the portfolio returns are computed from July of year t to June of year t+1 (Year 1), July of year t+1 to June of year t+2 (Year 2), and so on. The sample period is from July 1978 to December 2006.

Five Year Low (fyl) Measure

Decile	Year 1		Year 2		Year 3		Year 4		Year 5	
	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec
1	1.57	0.74	1.69	0.99	1.59	1.04	1.60	1.12	1.68	1.28
2	1.50	1.05	1.59	1.18	1.58	1.17	1.67	1.34	1.60	1.36
3	1.49	1.14	1.55	1.20	1.57	1.25	1.56	1.25	1.53	1.30
4	1.42	1.11	1.60	1.32	1.60	1.30	1.44	1.16	1.55	1.33
5	1.58	1.27	1.58	1.28	1.58	1.33	1.55	1.32	1.51	1.22
6	1.54	1.26	1.58	1.32	1.52	1.29	1.56	1.30	1.50	1.21
7	1.58	1.29	1.51	1.22	1.51	1.22	1.50	1.22	1.51	1.23
8	1.48	1.19	1.46	1.17	1.47	1.22	1.45	1.15	1.44	1.13
9	1.43	1.18	1.29	1.02	1.45	1.15	1.42	1.11	1.33	1.01
10	1.10	0.80	1.07	0.72	1.26	0.86	1.33	0.92	1.30	0.88
Spread (10-1)	-0.47	0.05	-0.62	-0.27	-0.33	-0.18	-0.27	-0.20	-0.38	-0.40
t-stat	(-1.67)	(0.20)	(-2.58)	(-1.16)	(-1.73)	(-0.94)	(-1.55)	(-1.13)	(-2.17)	(-2.24)

Equally-Weighted Gain Only (ewgo) Measure

Decile	Year 1		Year 2		Year 3		Year 4		Year 5	
	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec
1	1.53	0.76	1.64	1.00	1.57	1.05	1.60	1.17	1.67	1.31
2	1.42	1.05	1.56	1.17	1.57	1.17	1.57	1.23	1.55	1.31
3	1.48	1.10	1.58	1.21	1.52	1.16	1.54	1.21	1.50	1.23
4	1.47	1.13	1.60	1.27	1.64	1.34	1.49	1.22	1.50	1.26
5	1.60	1.28	1.58	1.28	1.56	1.29	1.59	1.28	1.56	1.28
6	1.59	1.28	1.59	1.30	1.57	1.31	1.58	1.33	1.59	1.30
7	1.52	1.18	1.59	1.29	1.56	1.28	1.51	1.23	1.55	1.26
8	1.51	1.24	1.39	1.10	1.45	1.19	1.55	1.27	1.43	1.12
9	1.41	1.15	1.35	1.08	1.43	1.14	1.32	1.02	1.34	1.01
10	1.14	0.87	1.05	0.72	1.26	0.89	1.34	0.92	1.25	0.85
Spread (10-1)	-0.39	0.10	-0.59	-0.27	-0.31	-0.17	-0.26	-0.25	-0.42	-0.46
t-stat	(-1.40)	(0.39)	(-2.53)	(-1.23)	(-1.62)	(-0.89)	(-1.51)	(-1.43)	(-2.32)	(-2.53)

Tangible Return (tan_ret)										
Decile	Year 1		Year 2		Year 3		Year 4		Year 5	
	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec
1	1.61	0.96	1.45	0.85	1.33	0.81	1.39	0.91	1.45	0.99
2	1.41	1.11	1.46	1.18	1.55	1.31	1.47	1.17	1.56	1.28
3	1.45	1.22	1.37	1.17	1.46	1.24	1.40	1.20	1.62	1.43
4	1.47	1.32	1.49	1.33	1.46	1.27	1.41	1.28	1.56	1.35
5	1.46	1.32	1.41	1.27	1.47	1.37	1.31	1.13	1.50	1.34
6	1.42	1.32	1.51	1.39	1.40	1.27	1.36	1.20	1.37	1.23
7	1.59	1.47	1.51	1.36	1.41	1.30	1.32	1.18	1.42	1.29
8	1.55	1.41	1.45	1.30	1.36	1.23	1.44	1.30	1.35	1.20
9	1.54	1.38	1.50	1.36	1.51	1.37	1.26	1.14	1.38	1.23
10	1.54	1.30	1.49	1.26	1.43	1.22	1.29	1.06	1.40	1.15
Spread (10-1)	-0.07	0.34	0.05	0.41	0.10	0.41	-0.10	0.14	-0.04	0.15
t-stat	(-0.33)	(1.75)	(0.25)	(2.46)	(0.64)	(2.69)	(-0.61)	(0.92)	(-0.24)	(0.92)

Intangible Return (intan_ret)										
Decile	Year 1		Year 2		Year 3		Year 4		Year 5	
	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec
1	1.93	1.27	1.64	1.15	1.66	1.20	1.65	1.24	1.72	1.30
2	1.56	1.22	1.58	1.25	1.61	1.36	1.46	1.19	1.73	1.50
3	1.55	1.29	1.53	1.32	1.53	1.33	1.49	1.27	1.60	1.43
4	1.62	1.45	1.46	1.28	1.44	1.28	1.36	1.21	1.49	1.30
5	1.51	1.34	1.46	1.32	1.48	1.35	1.33	1.21	1.45	1.29
6	1.45	1.34	1.46	1.36	1.42	1.29	1.34	1.22	1.39	1.24
7	1.46	1.37	1.55	1.39	1.42	1.31	1.39	1.23	1.35	1.22
8	1.44	1.33	1.40	1.27	1.35	1.23	1.26	1.11	1.38	1.26
9	1.38	1.25	1.34	1.16	1.31	1.16	1.22	1.06	1.33	1.13
10	1.13	0.94	1.22	0.96	1.15	0.89	1.13	0.85	1.13	0.82
Spread (10-1)	-0.80	-0.33	-0.42	-0.19	-0.51	-0.31	-0.52	-0.40	-0.59	-0.48
t-stat	(-3.34)	(-1.54)	(-2.25)	(-1.07)	(-2.83)	(-1.73)	(-2.57)	(-1.98)	(-3.20)	(-2.58)

Composite Share Issuance (issue)										
Decile	Year 1		Year 2		Year 3		Year 4		Year 5	
	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec
1	1.60	1.44	1.57	1.42	1.44	1.30	1.36	1.23	1.32	1.21
2	1.60	1.49	1.49	1.39	1.51	1.43	1.47	1.40	1.40	1.34
3	1.48	1.36	1.48	1.35	1.46	1.36	1.51	1.44	1.38	1.28
4	1.43	1.27	1.45	1.31	1.47	1.33	1.40	1.28	1.42	1.29
5	1.48	1.28	1.48	1.28	1.46	1.28	1.46	1.30	1.36	1.19
6	1.51	1.25	1.44	1.20	1.39	1.17	1.46	1.26	1.48	1.21
7	1.51	1.17	1.58	1.23	1.52	1.21	1.51	1.23	1.41	1.13
8	1.56	1.19	1.54	1.20	1.54	1.21	1.46	1.19	1.33	1.06
9	1.40	1.04	1.32	0.98	1.35	1.00	1.29	0.95	1.30	0.93
10	1.03	0.49	1.13	0.63	1.11	0.67	1.27	0.89	1.16	0.79
Spread (10-1)	-0.57	-0.95	-0.44	-0.79	-0.33	-0.63	-0.09	-0.35	-0.15	-0.41
t-stat	(-2.65)	(-5.16)	(-2.33)	(-4.52)	(-1.82)	(-3.75)	(-0.51)	(-1.98)	(-0.85)	(-2.42)

Growth in Capital Expenditures (capex)										
Decile	Year 1		Year 2		Year 3		Year 4		Year 5	
	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec
1	1.76	1.12	1.52	0.91	1.67	1.12	1.47	0.93	1.57	1.09
2	1.62	1.17	1.62	1.21	1.49	1.13	1.43	1.11	1.57	1.24
3	1.61	1.27	1.50	1.19	1.50	1.21	1.44	1.13	1.50	1.16
4	1.59	1.30	1.44	1.18	1.53	1.32	1.34	1.12	1.45	1.19
5	1.52	1.29	1.53	1.30	1.39	1.18	1.35	1.13	1.48	1.26
6	1.55	1.32	1.50	1.26	1.52	1.33	1.32	1.11	1.46	1.28
7	1.47	1.23	1.44	1.23	1.39	1.21	1.33	1.13	1.53	1.31
8	1.47	1.23	1.48	1.26	1.51	1.28	1.31	1.13	1.36	1.12
9	1.40	1.15	1.48	1.23	1.35	1.12	1.36	1.08	1.43	1.17
10	1.28	0.86	1.39	0.99	1.33	0.96	1.22	0.81	1.42	0.97
Spread (10-1)	-0.48	-0.26	-0.12	0.07	-0.35	-0.16	-0.25	-0.12	-0.15	-0.13
t-stat	(-3.32)	(-1.94)	(-0.98)	(0.64)	(-2.88)	(-1.44)	(-1.99)	(-1.08)	(-1.20)	(-1.13)

Growth in Assets (ag)										
Decile	Year 1		Year 2		Year 3		Year 4		Year 5	
	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec	All Months	Feb-Dec
1	1.84	0.93	1.62	0.83	1.56	0.88	1.62	1.02	1.63	1.04
2	1.83	1.28	1.62	1.13	1.72	1.27	1.69	1.30	1.65	1.28
3	1.73	1.36	1.65	1.32	1.50	1.21	1.61	1.28	1.65	1.36
4	1.62	1.35	1.51	1.27	1.53	1.28	1.51	1.26	1.48	1.26
5	1.51	1.27	1.51	1.27	1.49	1.26	1.51	1.28	1.50	1.26
6	1.53	1.31	1.51	1.26	1.47	1.24	1.48	1.23	1.48	1.27
7	1.46	1.21	1.52	1.26	1.46	1.20	1.43	1.17	1.48	1.23
8	1.43	1.17	1.45	1.18	1.41	1.09	1.39	1.11	1.41	1.11
9	1.12	0.73	1.39	0.98	1.34	0.96	1.42	1.02	1.46	1.10
10	0.43	-0.08	0.90	0.40	1.28	0.72	1.30	0.80	1.39	0.90
Spread (10-1)	-1.41	-1.01	-0.72	-0.43	-0.28	-0.15	-0.31	-0.22	-0.23	-0.14
t-stat	(-6.18)	(-4.77)	(-3.79)	(-2.34)	(-2.09)	(-1.18)	(-2.51)	(-1.76)	(-1.82)	(-1.12)

Table II – Evidence of Long Term Return Reversals

Each month between August 1978 and December 2006, I estimate 60 (k = 1,…,60) cross-sectional regressions of the following form:

$$R_{i,t} = \beta_{0kt} + \beta_{1kt} R_{i,t-1} + \beta_{2kt} ME_{i,t-1} + \beta_{3kt} 52wkL_{i,t-k} + \beta_{4kt} 52wkW_{i,t-k} + \beta_{5kt} cumretL_{i,t-k} + \beta_{6kt} cumretW_{i,t-k} + \varepsilon_{ikt},$$

where $R_{i,t}$ is the return on stock i in month t, $ME_{i,t-1}$ is the market capitalization (price × shares outstanding) of stock i at end of month t-1 (in million \$), $52wkW_{i,t-k}$ ($52wkL_{i,t-k}$) is dummy variable that equals 1 if the stock i is ranked in top (bottom) 30 percent of the stocks based on their 52-week high measure in month t-k, and $cumretW_{i,t-k}$ ($cumretwkL_{i,t-k}$) is a dummy variable that equal 1 if stock i is ranked in top (bottom) 30% of the stocks based on their five year cumulative return in month t-k. The coefficient estimates are averaged over k = 1,…,12 (for column labeled 1 to 12), k = 13,…24 (for column labeled 13 to 24), and so on. The Table reports the time-series means of each of these averages. The t-statistics in parentheses are computed from time-series. The returns are in percent per month.

	1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec
Intercept	1.47	1.26	1.53	1.31	1.53	1.30	1.48	1.23	1.57	1.33
	(5.95)	(4.96)	(6.14)	(5.12)	(6.24)	(5.21)	(5.92)	(4.91)	(6.21)	(5.18)
$R_{i,t-1}$	-4.98	-4.04	-4.64	-3.55	-4.41	-3.22	-4.43	-3.23	-4.45	-3.21
	(-11.24)	(-10.27)	(-9.47)	(-8.42)	(-8.57)	(-7.35)	(-8.50)	(-7.17)	(-7.99)	(-6.62)
ME	-0.02	-0.01	-0.01	0.00	-0.01	0.00	0.00	0.00	0.00	0.00
	(-1.84)	(-1.18)	(-1.00)	(-0.34)	(-0.83)	(-0.07)	(-0.09)	(0.65)	(-0.22)	(0.55)
52-week high loser	-0.36	-0.76	0.09	-0.26	0.09	-0.20	-0.06	-0.32	-0.06	-0.29
	(-2.12)	(-5.08)	(0.58)	(-1.85)	(0.58)	(-1.45)	(-0.44)	(-2.41)	(-0.48)	(-2.67)
52-week high winner	0.28	0.37	0.00	0.10	-0.04	0.06	0.01	0.10	0.00	0.06
	(4.33)	(5.82)	(0.04)	(1.70)	(-0.67)	(1.01)	(0.11)	(1.59)	(-0.01)	(1.14)
Five year return loser	0.34	0.03	0.24	0.01	0.15	-0.03	0.17	0.03	0.23	0.10
	(2.64)	(0.26)	(2.24)	(0.10)	(1.65)	(-0.30)	(2.01)	(0.33)	(2.80)	(1.25)
Five year return winner	-0.09	-0.06	-0.18	-0.16	-0.17	-0.17	-0.12	-0.14	-0.15	-0.18
	(-1.19)	(-0.76)	(-2.54)	(-2.27)	(-2.47)	(-2.45)	(-1.73)	(-2.03)	(-2.03)	(-2.55)
Five year return winner -	-0.43	-0.09	-0.42	-0.17	-0.32	-0.14	-0.29	-0.17	-0.38	-0.28
Five year return loser	(-2.77)	(-0.65)	(-3.14)	(-1.40)	(-2.95)	(-1.38)	(-2.97)	(-1.72)	(-3.91)	(-2.85)

Table III – Control for Measures of Embedded Capital Gains

For results in Panel A, I estimate 60 (k = 1,…,60) cross-sectional regressions of the following form in each month between August 1978 and December 2006:

$$R_{i,t} = \beta_{0kt} + \beta_{1kt}R_{i,t-1} + \beta_{2kt}ME_{i,t-1} + \beta_{3kt}52wkL_{i,t-k} + \beta_{4kt}52wkW_{i,t-k} + \beta_{5kt}cumretL_{i,t-k} + \beta_{6kt}cumretW_{i,t-k} + \beta_{7kt}fylL_{i,t-k} + \beta_{8kt}fylW_{i,t-k} + \varepsilon_{ikt},$$

where $fylW_{i,t-k}$ ($fylL_{i,t-k}$) is dummy variable that equals 1 if the stock i is ranked in top (bottom) 30 percent of the stocks based on their five year low measure in month t-k. Other regression variables are defined in Table 2. For results in Panel B, the fylL and fylW dummy variables are replaced by ewgoL and ewgoW dummy variables, respectively, where $ewgoW_{i,t-k}$ ($ewgoL_{i,t-k}$) is dummy variable that equals 1 if the stock i is ranked in top (bottom) 30 percent of the stocks based on their equally-weighted gain only measure in month t-k. The coefficient estimates are averaged over k = 1,…,12 (for column labeled 1 to 12), k = 13,…24 (for column labeled 13 to 24), and so on. The Table reports the time-series means of each of these averages. Coefficients on control variables are not shown. The t-statistics in parentheses are computed from time-series. The returns are in percent per month.

Panel A: Control for Five Year Low Measure

	1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec
Five year return loser	0.36	0.04	0.22	-0.02	0.12	-0.07	0.12	-0.05	0.20	0.02
	(2.64)	(0.35)	(1.80)	(-0.22)	(1.11)	(-0.72)	(1.23)	(-0.46)	(1.99)	(0.21)
Five year return winner	-0.03	0.05	-0.03	0.07	-0.06	0.02	-0.10	-0.02	-0.07	0.01
	(-0.52)	(0.86)	(-0.39)	(1.10)	(-1.02)	(0.38)	(-1.54)	(-0.26)	(-1.04)	(0.14)
Five year low loser	-0.05	-0.03	-0.01	0.01	0.01	0.03	0.03	0.08	0.00	0.11
	(-0.64)	(-0.34)	(-0.14)	(0.17)	(0.14)	(0.38)	(0.37)	(1.07)	(0.05)	(1.37)
Five year low winner	-0.12	-0.20	-0.25	-0.36	-0.15	-0.27	-0.04	-0.17	-0.09	-0.22
	(-0.99)	(-1.60)	(-2.31)	(-3.31)	(-1.41)	(-2.52)	(-0.36)	(-1.57)	(-0.81)	(-2.02)

Panel B: Control for Equally-Weighted Gain Only Measure

	1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec
Five year return loser	0.37	0.05	0.23	-0.01	0.12	-0.07	0.14	-0.03	0.21	0.04
	(2.74)	(0.45)	(1.93)	(-0.12)	(1.17)	(-0.68)	(1.37)	(-0.34)	(2.11)	(0.37)
Five year return winner	-0.07	0.00	-0.05	0.02	-0.11	-0.04	-0.10	-0.04	-0.09	-0.03
	(-1.33)	(0.02)	(-0.91)	(0.40)	(-2.03)	(-0.81)	(-1.80)	(-0.78)	(-1.59)	(-0.59)
Equally-weighted gain only loser	-0.09	-0.05	-0.04	-0.01	0.00	0.02	0.00	0.06	-0.03	0.07
	(-1.24)	(-0.66)	(-0.56)	(-0.08)	(-0.03)	(0.36)	(-0.03)	(0.83)	(-0.32)	(0.97)
Equally-weighted gain only winner	-0.07	-0.13	-0.23	-0.31	-0.10	-0.19	-0.04	-0.14	-0.09	-0.20
	(-0.63)	(-1.12)	(-2.41)	(-3.16)	(-1.13)	(-2.07)	(-0.45)	(-1.50)	(-0.85)	(-1.98)

Table IV – Control for Composite Share Issuance

I estimate 60 (k = 1,…,60) cross-sectional regressions of the following form in each month between August 1978 and December 2006:

$$R_{i,t} = \beta_{0kt} + \beta_{1kt}R_{i,t-1} + \beta_{2kt}ME_{i,t-1} + \beta_{3kt}52wkL_{i,t-k} + \beta_{4kt}52wkW_{i,t-k} + \beta_{5kt}cumretL_{i,t-k} + \beta_{6kt}cumretW_{i,t-k} + \beta_{7kt}issueL_{i,t-k} + \beta_{8kt}issueW_{i,t-k} + \varepsilon_{ikt},$$

where $issueW_{i,t-k}$ ($issueL_{i,t-k}$) is dummy variable that equals 1 if the stock i is ranked in top (bottom) 30 percent of the stocks based on their composite share issuance in month t-k. Other regression variables are defined in Table 2. The coefficient estimates are averaged over k = 1,…,12 (for column labeled 1 to 12), k = 13,…24 (for column labeled 13 to 24), and so on. The Table reports the time-series means of each of these averages. Coefficients on control variables are not shown. The t-statistics in parentheses are computed from time-series. The returns are in percent per month.

Five year return loser	0.20	-0.10	0.15	-0.06	0.08	-0.08	0.11	-0.02	0.18	0.06
	(1.66)	(-0.97)	(1.49)	(-0.70)	(0.89)	(-0.93)	(1.29)	(-0.22)	(2.06)	(0.73)
Five year return winner	0.01	0.05	-0.06	-0.04	-0.09	-0.08	-0.09	-0.09	-0.13	-0.14
	(0.08)	(0.72)	(-0.90)	(-0.52)	(-1.43)	(-1.23)	(-1.38)	(-1.47)	(-1.87)	(-2.00)
Composite issuance loser	0.03	0.07	0.02	0.07	-0.01	0.05	-0.04	0.03	-0.06	0.02
	(0.54)	(1.27)	(0.39)	(1.26)	(-0.18)	(0.96)	(-0.68)	(0.56)	(-0.95)	(0.43)
Composite issuance winner	-0.17	-0.27	-0.20	-0.30	-0.20	-0.29	-0.14	-0.23	-0.15	-0.24
	(-2.09)	(-3.37)	(-2.39)	(-3.77)	(-2.31)	(-3.54)	(-1.62)	(-2.80)	(-1.80)	(-2.86)

Table V – Measures of Embedded Capital Gains and Composite Share Issuance

For results in Panel A, I estimate 60 (k = 1,…,60) cross-sectional regressions of the following form in each month between August 1978 and December 2006:

$$R_{i,t} = \beta_{0kt} + \beta_{1kt}R_{i,t-1} + \beta_{2kt}ME_{i,t-1} + \beta_{3kt}52wkL_{i,t-k} + \beta_{4kt}52wkW_{i,t-k} + \beta_{5kt}issueL_{i,t-k} + \beta_{6kt}issueW_{i,t-k} + \beta_{7kt}fylL_{i,t-k} + \beta_{8kt}fylW_{i,t-k} + \varepsilon_{ikt}.$$

The regression variables are defined in previous tables. For results in Panel B, the fylL and fylW dummy variables from above equation are replaced by ewgoL and ewgoW dummy variables, respectively. The coefficient estimates are averaged over k = 1,…,12 (for column labeled 1 to 12), k = 13,…24 (for column labeled 13 to 24), and so on. The Table reports the time-series means of each of these averages. Coefficients on control variables are not shown. The t-statistics in parentheses are computed from time-series. The returns are in percent per month.

Panel A – Composite Share Issuance and Five Year Low Measure

	1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec
Composite issuance loser	0.01	0.08	0.00	0.06	-0.01	0.06	-0.03	0.04	-0.07	0.01
	(0.28)	(1.53)	(0.05)	(1.23)	(-0.18)	(1.23)	(-0.54)	(0.91)	(-1.33)	(0.16)
Composite issuance winner	-0.16	-0.27	-0.18	-0.29	-0.19	-0.29	-0.14	-0.23	-0.14	-0.22
	(-2.05)	(-3.53)	(-2.24)	(-3.77)	(-2.32)	(-3.66)	(-1.69)	(-2.93)	(-1.70)	(-2.73)
Five year low loser	-0.06	-0.14	-0.03	-0.10	-0.02	-0.09	0.03	-0.02	0.05	0.04
	(-0.81)	(-2.08)	(-0.57)	(-1.63)	(-0.28)	(-1.60)	(0.47)	(-0.35)	(0.76)	(0.61)
Five year low winner	-0.07	-0.05	-0.15	-0.16	-0.06	-0.10	-0.04	-0.10	-0.11	-0.16
	(-0.76)	(-0.57)	(-1.97)	(-1.97)	(-0.87)	(-1.37)	(-0.54)	(-1.33)	(-1.28)	(-1.96)

Panel B – Composite Share Issuance and Equally-Weighted Gain Only Measure

	1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec
Composite issuance loser	0.02	0.08	0.00	0.06	-0.01	0.06	-0.03	0.04	-0.07	0.01
	(0.32)	(1.53)	(0.02)	(1.20)	(-0.20)	(1.19)	(-0.58)	(0.85)	(-1.27)	(0.22)
Composite issuance winner	-0.17	-0.27	-0.19	-0.29	-0.19	-0.29	-0.14	-0.23	-0.14	-0.22
	(-2.10)	(-3.55)	(-2.25)	(-3.79)	(-2.28)	(-3.61)	(-1.69)	(-2.93)	(-1.72)	(-2.77)
Equally-weighted gain only loser	-0.09	-0.15	-0.06	-0.11	-0.04	-0.10	0.01	-0.02	0.05	0.04
	(-1.35)	(-2.29)	(-1.02)	(-1.87)	(-0.71)	(-1.83)	(0.21)	(-0.38)	(0.78)	(0.58)
Equally-weighted gain only winner	-0.05	-0.02	-0.17	-0.16	-0.08	-0.11	-0.03	-0.08	-0.10	-0.14
	(-0.54)	(-0.19)	(-2.17)	(-1.99)	(-1.10)	(-1.47)	(-0.47)	(-1.12)	(-1.14)	(-1.65)

Table VI – Tax Regimes and Long-Term Return Reversals

Each month between August 1978 and December 2006, I estimate 60 (k = 1,…,60) cross-sectional regressions of the following form:

$$R_{i,t} = \beta_{0kt} + \beta_{1kt} R_{i,t-1} + \beta_{2kt} ME_{i,t-1} + \beta_{3kt} 52wkL_{i,t-k} + \beta_{4kt} 52wkW_{i,t-k} + \beta_{5kt} cumretL_{i,t-k} + \beta_{6kt} cumretW_{i,t-k} + \varepsilon_{ikt},$$

where $R_{i,t}$ is the return on stock i in month t, $ME_{i,t-1}$ is the market capitalization (price × shares outstanding) of stock i at end of month t-1 (in million $), $52wkW_{i,t-k}$ ($52wkL_{i,t-k}$) is dummy variable that equals 1 if the stock i is ranked in top (bottom) 30 percent of the stocks based on their 52-week high measure in month t-k, and $cumretW_{i,t-k}$ ($cumretwkL_{i,t-k}$) is a dummy variable that equal 1 if stock i is ranked in top (bottom) 30% of the stocks based on their five year cumulative return in month t-k. The high tax period is when the top capital gains tax rate at the beginning of portfolio holding period is greater than or equal to 28%. The high tax regime corresponds to years 1977 to 1980, and 1987 to 1996 in our sample. The low tax period is when the top capital gains tax rate at the beginning of portfolio holding period is less than or equal to 20%. The low tax period corresponds to years 1982 to 1985, and 1997 to 2006 in our sample. The coefficient estimates are averaged over k = 1,…,12 (for column labeled 1 to 12), k = 13,…24 (for column labeled 13 to 24), and so on. The Table reports the time-series means of each of these averages. The t-statistics in parentheses are computed from time-series. The returns are in percent per month.

Panel A: Low Tax Regime

	1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec
Five year return loser	0.15	-0.34	0.16	-0.22	0.05	-0.27	0.05	-0.23	0.18	-0.07
	(0.54)	(-1.42)	(0.68)	(-1.03)	(0.24)	(-1.44)	(0.28)	(-1.37)	(1.02)	(-0.45)
Five year return winner	-0.16	-0.15	-0.27	-0.29	-0.19	-0.25	-0.08	-0.16	-0.12	-0.20
	(-1.31)	(-1.20)	(-2.40)	(-2.53)	(-1.69)	(-2.21)	(-0.71)	(-1.51)	(-1.03)	(-1.83)
Five year return winner -	-0.30	0.19	-0.43	-0.07	-0.24	0.02	-0.13	0.07	-0.29	-0.13
Five year return loser	(-1.08)	(0.77)	(-1.72)	(-0.30)	(-1.19)	(0.11)	(-0.81)	(0.43)	(-1.96)	(-0.87)

Panel B: High Tax Regime

	1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec
Five year return loser	0.35	-0.11	0.52	0.15	0.51	0.24	0.36	0.17	0.30	0.13
	(1.33)	(-0.52)	(2.26)	(0.77)	(2.58)	(1.39)	(2.03)	(1.00)	(1.84)	(0.89)
Five year return winner	0.09	0.19	-0.03	0.08	-0.12	0.01	-0.14	-0.03	-0.14	-0.09
	(0.83)	(1.68)	(-0.26)	(0.80)	(-1.34)	(0.07)	(-1.51)	(-0.30)	(-1.64)	(-1.02)
Five year return winner -	-0.26	0.30	-0.55	-0.07	-0.64	-0.23	-0.50	-0.19	-0.43	-0.22
Five year return loser	(-0.81)	(1.13)	(-1.85)	(-0.28)	(-2.44)	(-1.07)	(-2.19)	(-0.97)	(-2.19)	(-1.16)

Table VII – Control for Intangible Return Measure

I estimate 60 (k = 1,…60) cross-sectional regressions of the following form in each month between August 1978 and December 2006:

$$R_{i,t} = \beta_{0kt} + \beta_{1kt}R_{i,t-1} + \beta_{2kt}ME_{i,t-1} + \beta_{3kt}52wkL_{i,t-k} + \beta_{4kt}52wkW_{i,t-k} + \beta_{5kt}cumretL_{i,t-k} + \beta_{6kt}cumretW_{i,t-k} + \beta_{7kt}intan\_retL_{i,t-k} + \beta_{8kt}intan\_retW_{i,t-k} + \varepsilon_{ikt},$$

where $intan\_retW_{i,t-k}$ ($intan\_retL_{i,t-k}$) is dummy variable that equals 1 if the stock i is ranked in top (bottom) 30 percent of the stocks based on their intangible return in month t-k. Other regression variables are defined in Table 2. The coefficient estimates are averaged over k = 1,…,12 (for column labeled 1 to 12), k = 13,…24 (for column labeled 13 to 24), and so on. The Table reports the time-series means of each of these averages. Coefficients on control variables are not shown. The t-statistics in parentheses are computed from time-series. The returns are in percent per month.

	1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec
Five year return loser	0.10	-0.15	0.07	-0.13	0.00	-0.14	0.04	-0.08	0.10	-0.03
	(0.98)	(-1.64)	(0.73)	(-1.48)	(0.04)	(-1.66)	(0.49)	(-0.95)	(1.10)	(-0.34)
Five year return winner	0.08	0.10	0.01	0.01	-0.01	-0.02	-0.03	-0.05	-0.12	-0.15
	(1.13)	(1.25)	(0.08)	(0.16)	(-0.22)	(-0.37)	(-0.42)	(-0.75)	(-1.58)	(-1.96)
Intangible return loser	0.13	0.04	0.08	0.02	0.13	0.07	0.16	0.10	0.11	0.07
	(1.80)	(0.54)	(1.23)	(0.36)	(2.06)	(1.00)	(2.39)	(1.46)	(1.54)	(0.89)
Intangible return winner	-0.16	-0.18	-0.18	-0.22	-0.14	-0.17	-0.12	-0.15	-0.09	-0.11
	(-2.69)	(-2.88)	(-2.86)	(-3.45)	(-2.18)	(-2.58)	(-1.78)	(-2.17)	(-1.44)	(-1.64)

Table VIII - Measures of Embedded Capital Gains and Intangible Return Measure

For results in Panel A, I estimate 60 (k = 1,…60) cross-sectional regressions of the following form in each month between August 1978 and December 2006:

$$R_{i,t} = \beta_{0kt} + \beta_{1kt}R_{i,t-1} + \beta_{2kt}ME_{i,t-1} + \beta_{3kt}52wkL_{i,t-k} + \beta_{4kt}52wkW_{i,t-k} + \beta_{5kt}intan\_retL_{i,t-k} + \beta_{6kt}intan\_retW_{i,t-k} + \beta_{7kt}fylL_{i,t-k} + \beta_{8kt}fylW_{i,t-k} + \varepsilon_{ikt}.$$

The regression variables are defined in previous tables. For results in Panel B, the fylL and fylW dummy variables from above equation are replaced by ewgoL and ewgoW dummy variables, respectively. The coefficient estimates are averaged over k = 1,…,12 (for column labeled 1 to 12), k = 13,…24 (for column labeled 13 to 24), and so on. The Table reports the time-series means of each of these averages. Coefficients on control variables are not shown. The t-statistics in parentheses are computed from time-series. The returns are in percent per month.

Panel A – Intangible Return and Five Year Low Measure

	1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec
Intangible return loser	0.18	0.02	0.11	-0.01	0.13	0.02	0.17	0.06	0.14	0.05
	(2.19)	(0.27)	(1.37)	(-0.10)	(1.86)	(0.32)	(2.31)	(0.87)	(1.83)	(0.64)
Intangible return winner	-0.17	-0.16	-0.14	-0.15	-0.14	-0.14	-0.14	-0.14	-0.11	-0.09
	(-3.08)	(-2.79)	(-2.67)	(-2.78)	(-2.66)	(-2.53)	(-2.53)	(-2.37)	(-1.84)	(-1.41)
Five year low loser	-0.13	-0.17	-0.08	-0.12	-0.05	-0.09	-0.02	-0.04	0.01	0.03
	(-1.85)	(-2.28)	(-1.33)	(-1.98)	(-0.85)	(-1.61)	(-0.37)	(-0.56)	(0.10)	(0.40)
Five year low winner	0.00	-0.03	-0.14	-0.19	-0.01	-0.09	0.02	-0.07	-0.08	-0.19
	(0.02)	(-0.32)	(-1.62)	(-2.14)	(-0.13)	(-1.06)	(0.28)	(-0.84)	(-0.81)	(-1.83)

Panel B – Intangible Return and Equally-Weighted Gain Only Measure

	1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec
Intangible return loser	0.19	0.03	0.11	-0.01	0.14	0.03	0.17	0.07	0.15	0.06
	(2.27)	(0.34)	(1.38)	(-0.10)	(1.96)	(0.41)	(2.35)	(0.91)	(1.87)	(0.72)
Intangible return winner	-0.19	-0.18	-0.15	-0.16	-0.15	-0.15	-0.15	-0.15	-0.12	-0.11
	(-3.35)	(-3.10)	(-2.71)	(-2.95)	(-2.61)	(-2.58)	(-2.57)	(-2.56)	(-2.06)	(-1.76)
Equally-weighted gain only loser	-0.17	-0.18	-0.10	-0.12	-0.07	-0.11	-0.05	-0.04	0.00	0.02
	(-2.40)	(-2.54)	(-1.62)	(-2.06)	(-1.30)	(-1.86)	(-0.70)	(-0.67)	(-0.01)	(0.28)
Equally-weighted gain only winner	0.03	0.02	-0.14	-0.17	-0.03	-0.09	0.02	-0.05	-0.06	-0.14
	(0.32)	(0.15)	(-1.70)	(-1.98)	(-0.35)	(-1.15)	(0.29)	(-0.63)	(-0.62)	(-1.42)

Table IX – Measures of Embedded Capital Gains and Combined Effect of Intangible Return and Composite Share Issuance

For results in Panel A, I estimate 60 (k = 1,…,60) cross-sectional regressions of the following form in each month between August 1978 and December 2006:

$$R_{i,t} = \beta_{0kt} + \beta_{1kt}R_{i,t\text{-}1} + \beta_{2kt}ME_{i,t\text{-}1} + \beta_{3kt}52wkL_{i,t-k} + \beta_{4kt}52wkW_{i,t-k} + \beta_{5kt}intan\_retL_{i,t-k} + \beta_{6kt}intan\_retW_{i,t-k} + \beta_{7kt}issueL_{i,t-k} + \beta_{8kt}issueW_{i,t-k} + \beta_{9kt}fylL_{i,t-k} + \beta_{10kt}fylW_{i,t-k} + \varepsilon_{ikt}$$

The regression variables are defined in previous tables. For results in Panel B, the fylL and fylW dummy variables from above equation are replaced by ewgoL and ewgoW dummy variables, respectively. The coefficient estimates are averaged over k = 1,…,12 (for column labeled 1 to 12), k = 13,…24 (for column labeled 13 to 24), and so on. Panels A.1 and B.1 report the time-series means of each of these averages. The t-statistics in parentheses are computed from time-series. The intercepts from time-series regressions of these averages on contemporaneous Fama-French factors are reported as Fama-French alphas along with the corresponding t-statistics in the parentheses in Panels A.2 and B.2. Coefficients on control variables are not shown. The returns are in percent per month.

Panel A.1: Five Year Low Measure – Raw Returns

	1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec
Intangible return loser	0.17	0.02	0.10	-0.01	0.12	0.01	0.16	0.06	0.13	0.03
	(2.14)	(0.24)	(1.26)	(-0.20)	(1.75)	(0.20)	(2.25)	(0.80)	(1.63)	(0.43)
Intangible return winner	-0.15	-0.13	-0.12	-0.12	-0.11	-0.10	-0.12	-0.11	-0.10	-0.06
	(-2.69)	(-2.26)	(-2.18)	(-2.14)	(-2.15)	(-1.86)	(-2.14)	(-1.83)	(-1.58)	(-1.04)
Composite issuance loser	0.04	0.10	0.02	0.08	0.01	0.08	-0.03	0.05	-0.10	-0.02
	(0.72)	(1.89)	(0.39)	(1.56)	(0.28)	(1.60)	(-0.53)	(0.92)	(-1.85)	(-0.47)
Composite issuance winner	-0.16	-0.25	-0.18	-0.28	-0.15	-0.24	-0.12	-0.21	-0.17	-0.25
	(-2.11)	(-3.43)	(-2.27)	(-3.56)	(-1.91)	(-3.06)	(-1.48)	(-2.72)	(-2.00)	(-3.11)
Five year low loser	-0.12	-0.16	-0.07	-0.12	-0.04	-0.10	-0.02	-0.04	0.02	0.04
	(-1.71)	(-2.30)	(-1.14)	(-1.97)	(-0.80)	(-1.71)	(-0.29)	(-0.57)	(0.30)	(0.51)
Five year low winner	0.02	0.00	-0.13	-0.16	-0.01	-0.07	0.02	-0.05	-0.08	-0.16
	(0.17)	(0.00)	(-1.63)	(-1.94)	(-0.13)	(-0.89)	(0.27)	(-0.69)	(-0.82)	(-1.69)

Panel A.2: Five Year Low Measure – Fama-French Alphas

Intangible return loser	0.08	-0.03	0.03	-0.05	0.09	0.00	0.15	0.05	0.14	0.05
	(1.03)	(-0.41)	(0.42)	(-0.68)	(1.28)	(0.05)	(2.04)	(0.74)	(1.93)	(0.70)
Intangible return winner	-0.09	-0.09	-0.07	-0.07	-0.04	-0.04	-0.03	-0.02	0.00	0.02
	(-1.77)	(-1.66)	(-1.28)	(-1.39)	(-0.88)	(-0.80)	(-0.56)	(-0.43)	(0.05)	(0.40)
Composite issuance loser	0.06	0.11	0.04	0.09	0.04	0.09	-0.01	0.06	-0.07	-0.01
	(1.43)	(2.58)	(0.87)	(2.11)	(0.76)	(2.03)	(-0.13)	(1.21)	(-1.47)	(-0.23)
Composite issuance winner	-0.20	-0.28	-0.24	-0.32	-0.24	-0.31	-0.23	-0.29	-0.29	-0.35
	(-3.16)	(-4.71)	(-3.49)	(-4.72)	(-3.39)	(-4.43)	(-3.09)	(-4.21)	(-3.66)	(-4.64)
Five year low loser	-0.08	-0.14	-0.05	-0.10	-0.04	-0.08	0.02	0.00	0.08	0.10
	(-1.27)	(-2.20)	(-0.96)	(-1.80)	(-0.65)	(-1.48)	(0.37)	(0.07)	(1.33)	(1.53)
Five year low winner	0.01	0.01	-0.17	-0.19	-0.06	-0.11	-0.01	-0.08	-0.14	-0.19
	(0.15)	(0.21)	(-2.83)	(-3.08)	(-1.04)	(-1.84)	(-0.22)	(-1.29)	(-1.94)	(-2.80)

Panel B.1: Equally-Weighted Gain Only Measure – Raw Returns

	1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec
Intangible return loser	0.18	0.02	0.10	-0.02	0.13	0.02	0.17	0.06	0.13	0.04
	(2.20)	(0.30)	(1.26)	(-0.22)	(1.82)	(0.27)	(2.28)	(0.82)	(1.65)	(0.51)
Intangible return winner	-0.16	-0.14	-0.11	-0.12	-0.11	-0.10	-0.13	-0.12	-0.11	-0.08
	(-2.93)	(-2.51)	(-2.18)	(-2.22)	(-2.10)	(-1.87)	(-2.22)	(-2.00)	(-1.77)	(-1.31)
Composite issuance loser	0.04	0.10	0.02	0.08	0.01	0.08	-0.03	0.04	-0.10	-0.02
	(0.74)	(1.89)	(0.34)	(1.50)	(0.19)	(1.50)	(-0.59)	(0.85)	(-1.79)	(-0.39)
Composite issuance winner	-0.16	-0.26	-0.18	-0.28	-0.15	-0.24	-0.12	-0.21	-0.17	-0.26
	(-2.13)	(-3.44)	(-2.27)	(-3.57)	(-1.86)	(-3.00)	(-1.48)	(-2.74)	(-1.98)	(-3.11)
Equally-weighted gain only loser	-0.15	-0.18	-0.08	-0.12	-0.06	-0.10	-0.03	-0.04	0.02	0.03
	(-2.25)	(-2.58)	(-1.43)	(-2.07)	(-1.18)	(-1.93)	(-0.54)	(-0.64)	(0.29)	(0.47)
Equally-weighted gain only winner	0.04	0.04	-0.14	-0.15	-0.03	-0.08	0.02	-0.04	-0.06	-0.12
	(0.45)	(0.41)	(-1.76)	(-1.89)	(-0.43)	(-1.10)	(0.30)	(-0.49)	(-0.61)	(-1.29)

Panel B.2: Equally-Weighted Gain Only Measure – Fama-French Alphas

Intangible return loser	0.09	-0.02	0.03	-0.05	0.09	0.01	0.15	0.06	0.15	0.06
	(1.15)	(-0.30)	(0.42)	(-0.69)	(1.37)	(0.15)	(2.11)	(0.79)	(2.04)	(0.85)
Intangible return winner	-0.11	-0.11	-0.06	-0.08	-0.04	-0.04	-0.04	-0.04	-0.03	-0.01
	(-2.05)	(-1.96)	(-1.27)	(-1.47)	(-0.90)	(-0.86)	(-0.80)	(-0.73)	(-0.43)	(-0.13)
Composite issuance loser	0.07	0.11	0.04	0.09	0.03	0.09	-0.01	0.06	-0.07	0.00
	(1.50)	(2.66)	(0.83)	(2.09)	(0.69)	(1.97)	(-0.19)	(1.17)	(-1.32)	(-0.03)
Composite issuance winner	-0.20	-0.29	-0.25	-0.32	-0.24	-0.30	-0.23	-0.29	-0.29	-0.35
	(-3.19)	(-4.74)	(-3.52)	(-4.77)	(-3.35)	(-4.40)	(-3.09)	(-4.24)	(-3.66)	(-4.69)
Equally-weighted gain only loser	-0.12	-0.16	-0.07	-0.10	-0.07	-0.10	-0.01	-0.01	0.05	0.07
	(-1.87)	(-2.54)	(-1.26)	(-1.90)	(-1.23)	(-1.96)	(-0.16)	(-0.21)	(0.87)	(1.12)
Equally-weighted gain only winner	0.03	0.05	-0.18	-0.18	-0.09	-0.13	-0.01	-0.05	-0.09	-0.14
	(0.50)	(0.74)	(-2.91)	(-2.88)	(-1.39)	(-2.07)	(-0.17)	(-0.95)	(-1.36)	(-1.93)

Table X - Measures of Embedded Capital Gains and Pontiff and Woodgate (2008) Share Issuance Measure

For results in Panel A, I estimate 60 (k = 1,…,60) cross-sectional regressions of the following form in each month between August 1978 and December 2006:

$$R_{i,t} = \beta_{0kt} + \beta_{1kt}R_{i,t-1} + \beta_{2kt}ME_{i,t-1} + \beta_{3kt}52wkL_{i,t-k} + \beta_{4kt}52wkW_{i,t-k} + \beta_{5kt}issueL_{i,t-k} + \beta_{6kt}issueW_{i,t-k} + \beta_{7kt}fylL_{i,t-k} + \beta_{8kt}fylW_{i,t-k} + \varepsilon_{ikt}.$$

The regression variables are defined in previous tables. For results in Panel B, the fylL and fylW dummy variables from above equation are replaced by ewgoL and ewgoW dummy variables, respectively. The coefficient estimates are averaged over k = 1,…,12 (for column labeled 1 to 12), k = 13,…24 (for column labeled 13 to 24), and so on. The Table reports the time-series means of each of these averages. Coefficients on control variables are not shown. The t-statistics in parentheses are computed from time-series. The returns are in percent per month.

Panel A – Share Issuance and Five Year Low Measure

	1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec
Share issuance loser	0.04	0.04	0.07	0.06	0.12	0.10	0.05	0.02	0.07	0.04
	(0.67)	(0.74)	(1.19)	(0.98)	(1.96)	(1.73)	(0.84)	(0.34)	(1.33)	(0.75)
Share issuance winner	-0.22	-0.23	-0.16	-0.28	-0.14	-0.16	-0.10	-0.14	-0.04	0.02
	(-3.20)	(-2.89)	(-2.42)	(-2.22)	(-2.07)	(-1.95)	(-1.42)	(-1.56)	(-0.58)	(0.30)
Five year low loser	-0.09	-0.15	-0.05	-0.09	-0.04	-0.09	0.02	-0.02	0.04	0.04
	(-1.25)	(-2.13)	(-0.88)	(-1.51)	(-0.61)	(-1.51)	(0.25)	(-0.24)	(0.53)	(0.65)
Five year low winner	-0.04	-0.07	-0.14	-0.18	-0.06	-0.14	-0.04	-0.14	-0.12	-0.22
	(-0.44)	(-0.65)	(-1.64)	(-2.09)	(-0.76)	(-1.65)	(-0.50)	(-1.61)	(-1.25)	(-2.26)

Panel B – Share Issuance and Equally-Weighted Gain Only Measure

Share issuance loser	0.04	0.04	0.07	0.06	0.12	0.10	0.05	0.02	0.07	0.05
	(0.71)	(0.76)	(1.20)	(1.00)	(1.96)	(1.73)	(0.84)	(0.35)	(1.35)	(0.81)
Share issuance winner	-0.23	-0.24	-0.17	-0.19	-0.15	-0.18	-0.10	-0.15	-0.05	0.01
	(-3.24)	(-2.93)	(-2.47)	(-2.30)	(-2.25)	(-2.15)	(-1.50)	(-1.66)	(-0.67)	(0.15)
Equally-weighted gain only loser	-0.12	-0.15	-0.08	-0.10	-0.06	-0.10	0.00	-0.02	0.03	0.04
	(-1.76)	(-2.28)	(-1.28)	(-1.69)	(-1.04)	(-1.70)	(-0.07)	(-0.31)	(0.46)	(0.57)
Equally-weighted gain only winner	-0.02	-0.02	-0.15	-0.17	-0.07	-0.13	-0.04	-0.11	-0.11	-0.18
	(-0.20)	(-0.23)	(-1.80)	(-2.03)	(-0.87)	(-1.60)	(-0.44)	(-1.39)	(-1.13)	(-1.92)

Table XI – Growth in Capital Expenditures and Measures of Intangible Information

Each month between August 1978 and December 2006, I estimate 60 (k = 1,…,60) cross-sectional regressions of the following form:

$$R_{i,t} = \beta_{0kt} + \beta_{1kt}R_{i,t\text{-}1} + \beta_{2kt}ME_{i,t\text{-}1} + \beta_{3kt}52wkL_{i,t-k} + \beta_{4kt}52wkW_{i,t-k} + \beta_{5kt}intan\_retL_{i,t-k} + \beta_{6kt}intan\_retW_{i,t-k} + \beta_{7kt}issueL_{i,t-k} + \beta_{8kt}issueW_{i,t-k} + \beta_{9kt}capexL_{i,t-k} + \beta_{10kt}capexW_{i,t-k} + \varepsilon_{ikt},$$

where $capexW_{i,t\text{-}k}$ ($capexL_{i,t\text{-}k}$) is dummy variable that equals 1 if the stock i is ranked in top (bottom) 30 percent of the stocks in month t-k based on their growth in capital expenditures. Other regression variables are defined in previous tables. The coefficient estimates are averaged over k = 1,…,12 (for column labeled 1 to 12), k = 13,…24 (for column labeled 13 to 24), and so on. Panel A reports the time-series means of each of these averages. The t-statistics in parentheses are computed from time-series. The intercepts from time-series regressions of these averages on contemporaneous Fama-French factors are reported as Fama-French alphas along with the corresponding t-statistics in the parentheses in Panel B. Coefficients on control variables are not shown. The returns are in percent per month.

Panel A: Raw Returns

	1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec
Intangible return loser	0.14	-0.02	0.11	0.01	0.13	0.03	0.17	0.08	0.12	0.05
	(1.76)	(-0.24)	(1.46)	(0.09)	(1.89)	(0.49)	(2.32)	(1.16)	(1.57)	(0.63)
Intangible return winner	-0.14	-0.12	-0.18	-0.18	-0.10	-0.11	-0.10	-0.11	-0.15	-0.15
	(-2.14)	(-1.69)	(-2.69)	(-2.74)	(-1.52)	(-1.56)	(-1.52)	(-1.61)	(-2.20)	(-2.16)
Composite issuance loser	0.03	0.10	0.02	0.09	0.00	0.08	-0.05	0.04	-0.11	-0.01
	(0.53)	(1.58)	(0.32)	(1.51)	(-0.05)	(1.28)	(-0.80)	(0.72)	(-1.66)	(-0.21)
Composite issuance winner	-0.17	-0.27	-0.20	-0.30	-0.17	-0.26	-0.13	-0.23	-0.17	-0.26
	(-1.87)	(-3.00)	(-2.16)	(-3.25)	(-1.87)	(-2.79)	(-1.44)	(-2.54)	(-1.77)	(-2.76)
Capex loser	-0.01	-0.08	0.03	-0.04	0.06	0.00	0.02	-0.04	0.06	0.01
	(-0.11)	(-1.36)	(0.52)	(-0.74)	(1.11)	(-0.05)	(0.27)	(-0.55)	(0.91)	(0.15)
Capex winner	-0.03	-0.03	0.02	0.01	0.00	-0.02	-0.10	-0.11	-0.02	-0.03
	(-0.82)	(-0.72)	(0.55)	(0.20)	(-0.05)	(-0.55)	(-2.31)	(-2.51)	(-0.42)	(-0.56)

Panel B: Fama-French Alphas

Intangible return loser	0.06	-0.06	0.05	-0.02	0.10	0.02	0.17	0.09	0.17	0.08
	(0.78)	(-0.77)	(0.71)	(-0.31)	(1.43)	(0.33)	(2.28)	(1.18)	(2.12)	(1.07)
Intangible return winner	-0.08	-0.06	-0.14	-0.15	-0.07	-0.08	-0.05	-0.06	-0.10	-0.10
	(-1.56)	(-1.18)	(-2.67)	(-2.84)	(-1.20)	(-1.35)	(-0.86)	(-1.00)	(-1.58)	(-1.52)
Composite issuance loser	0.05	0.10	0.04	0.10	0.02	0.09	-0.03	0.05	-0.08	0.00
	(0.96)	(2.09)	(0.75)	(2.16)	(0.36)	(1.77)	(-0.53)	(0.99)	(-1.42)	(-0.03)
Composite issuance winner	-0.21	-0.29	-0.27	-0.34	-0.26	-0.32	-0.24	-0.30	-0.29	-0.35
	(-3.03)	(-4.41)	(-3.56)	(-4.59)	(-3.35)	(-4.14)	(-3.00)	(-3.99)	(-3.35)	(-4.26)
Capex loser	-0.01	-0.07	0.05	-0.02	0.09	0.03	-0.01	-0.05	0.07	0.05
	(-0.20)	(-1.31)	(0.94)	(-0.32)	(1.65)	(0.55)	(-0.20)	(-0.72)	(1.06)	(0.66)
Capex winner	-0.07	-0.05	0.01	0.00	0.02	-0.01	-0.11	-0.13	-0.03	-0.04
	(-1.58)	(-1.29)	(0.25)	(-0.03)	(0.37)	(-0.17)	(-2.63)	(-2.81)	(-0.59)	(-0.66)

Table XII – Growth in Assets and Measures of Intangible Information

Each month between August 1978 and December 2006, I estimate 60 (k = 1,…,60) cross-sectional regressions of the following form:

$$R_{i,t} = \beta_{0kt} + \beta_{1kt}R_{i,t\text{-}1} + \beta_{2kt}ME_{i,t\text{-}1} + \beta_{3kt}52wkL_{i,t-k} + \beta_{4kt}52wkW_{i,t-k} + \beta_{5kt}intan\_retL_{i,t-k} + \beta_{6kt}intan\_retW_{i,t-k} + \beta_{7kt}issueL_{i,t-k} + \beta_{8kt}issueW_{i,t-k}$$
$$+ \beta_{9kt}agL_{i,t-k} + \beta_{10kt}agW_{i,t-k} + \varepsilon_{ikt},$$

where $agW_{i,t\text{-}k}$ ($agL_{i,t\text{-}k}$) is dummy variable that equals 1 if the stock i is ranked in top (bottom) 30 percent of the stocks in month t-k based on their growth in assets. Other regression variables are defined in previous tables. The coefficient estimates are averaged over k = 1,…,12 (for column labeled 1 to 12), k = 13,…24 (for column labeled 13 to 24), and so on. Panel A reports the time-series means of each of these averages. The t-statistics in parentheses are computed from time-series. The intercepts from time-series regressions of these averages on contemporaneous Fama-French factors are reported as Fama-French alphas along with the corresponding t-statistics in the parentheses in Panel B. Coefficients on control variables are not shown. The returns are in percent per month.

Panel A: Raw Returns

	1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec
Intangible return loser	0.10	-0.04	0.07	-0.03	0.10	0.00	0.15	0.06	0.13	0.05
	(1.40)	(-0.59)	(0.92)	(-0.47)	(1.49)	(-0.06)	(2.24)	(0.90)	(1.73)	(0.70)
Intangible return winner	-0.10	-0.08	-0.14	-0.14	-0.10	-0.11	-0.10	-0.11	-0.13	-0.12
	(-1.60)	(-1.24)	(-2.23)	(-2.30)	(-1.54)	(-1.61)	(-1.55)	(-1.63)	(-1.93)	(-1.82)
Composite issuance loser	0.02	0.08	0.01	0.08	0.00	0.07	-0.06	0.03	-0.12	-0.03
	(0.29)	(1.42)	(0.24)	(1.43)	(-0.08)	(1.27)	(-0.95)	(0.53)	(-1.87)	(-0.49)
Composite issuance winner	-0.14	-0.23	-0.19	-0.28	-0.15	-0.24	-0.11	-0.21	-0.16	-0.25
	(-1.77)	(-3.04)	(-2.32)	(-3.53)	(-1.87)	(-3.03)	(-1.38)	(-2.64)	(-1.88)	(-3.04)
Asset growth loser	0.15	0.02	0.06	-0.04	0.11	0.03	0.12	0.05	0.07	0.01
	(2.08)	(0.28)	(0.96)	(-0.55)	(1.66)	(0.51)	(1.66)	(0.67)	(0.98)	(0.12)
Asset growth winner	-0.11	-0.12	-0.04	-0.07	0.02	0.00	0.02	-0.01	-0.04	-0.08
	(-2.02)	(-2.21)	(-0.82)	(-1.30)	(0.30)	(0.00)	(0.42)	(-0.16)	(-0.80)	(-1.52)

Panel B: Fama-French Alphas

Intangible return loser	0.02	-0.09	0.00	-0.07	0.06	-0.02	0.15	0.06	0.16	0.08
	(0.23)	(-1.29)	(-0.01)	(-1.03)	(0.90)	(-0.27)	(2.09)	(0.90)	(2.12)	(1.05)
Intangible return winner	-0.05	-0.03	-0.09	-0.11	-0.04	-0.06	-0.03	-0.05	-0.06	-0.06
	(-0.93)	(-0.67)	(-1.90)	(-2.10)	(-0.85)	(-1.09)	(-0.65)	(-0.81)	(-1.08)	(-0.99)
Composite issuance loser	0.04	0.09	0.03	0.09	0.02	0.08	-0.03	0.04	-0.09	-0.01
	(0.77)	(1.93)	(0.69)	(2.04)	(0.41)	(1.81)	(-0.62)	(0.84)	(-1.61)	(-0.28)
Composite issuance winner	-0.17	-0.25	-0.24	-0.31	-0.24	-0.31	-0.22	-0.29	-0.27	-0.34
	(-2.64)	(-4.15)	(-3.51)	(-4.68)	(-3.33)	(-4.41)	(-3.01)	(-4.19)	(-3.44)	(-4.55)
Asset growth loser	0.11	0.01	0.08	0.00	0.12	0.05	0.09	0.04	0.05	0.01
	(1.69)	(0.17)	(1.35)	(-0.06)	(1.84)	(0.77)	(1.34)	(0.56)	(0.79)	(0.09)
Asset growth winner	-0.17	-0.17	-0.10	-0.11	-0.03	-0.03	0.00	-0.02	-0.10	-0.12
	(-3.57)	(-3.46)	(-2.09)	(-2.36)	(-0.54)	(-0.67)	(0.05)	(-0.33)	(-2.05)	(-2.50)

Table A.I – Equally-Weighted Gain/Loss Measure and Combined Effect of Intangible Return and Composite Share Issuance

Each month between August 1978 and December 2006, I estimate 60 (k = 1,…,60) cross-sectional regressions of the following form:

$$R_{i,t} = \beta_{0kt} + \beta_{1kt}R_{i,t-1} + \beta_{2kt}ME_{i,t-1} + \beta_{3kt}52wkL_{i,t-k} + \beta_{4kt}52wkW_{i,t-k} + \beta_{5kt}intan\_retL_{i,t-k} + \beta_{6kt}intan\_retW_{i,t-k} + \beta_{7kt}issueL_{i,t-k} + \beta_{8kt}issueW_{i,t-k}$$
$$+ \beta_{9kt}ewglL_{i,t-k} + \beta_{10kt}ewglW_{i,t-k} + \varepsilon_{ikt}$$

where $ewglW_{i,t-k}$ ($ewglL_{i,t-k}$) is dummy variable that equals 1 if the stock i is ranked in top (bottom) 30 percent of the stocks based on their equally-weighted gain/loss measure in month t-k. Other regression variables are defined in previous Tables. The coefficient estimates are averaged over k = 1,…,12 (for column labeled 1 to 12), k = 13,…24 (for column labeled 13 to 24), and so on. The Table reports the time-series means of each of these averages. The t-statistics in parentheses are computed from time-series. Coefficients on control variables are not shown. The returns are in percent per month.

	1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec
Intangible return loser	0.13	0.01	0.07	-0.01	0.13	0.04	0.16	0.07	0.13	0.05
	(1.76)	(0.11)	(1.02)	(-0.21)	(1.95)	(0.57)	(2.35)	(1.01)	(1.65)	(0.58)
Intangible return winner	-0.14	-0.14	-0.12	-0.14	-0.11	-0.11	-0.11	-0.11	-0.11	-0.09
	(-2.56)	(-2.44)	(-2.20)	(-2.46)	(-1.90)	(-1.88)	(-1.92)	(-1.84)	(-1.88)	(-1.54)
Composite issuance loser	0.04	0.09	0.02	0.08	0.00	0.07	-0.04	0.04	-0.10	-0.02
	(0.66)	(1.74)	(0.27)	(1.39)	(0.08)	(1.34)	(-0.71)	(0.71)	(-1.78)	(-0.37)
Composite issuance winner	-0.16	-0.25	-0.18	-0.28	-0.15	-0.23	-0.11	-0.20	-0.17	-0.26
	(-2.07)	(-3.34)	(-2.25)	(-3.48)	(-1.79)	(-2.88)	(-1.38)	(-2.59)	(-2.00)	(-3.13)
Equally-weighted gain/loss loser	0.10	-0.10	0.05	-0.11	-0.03	-0.17	-0.01	-0.09	0.06	0.02
	(1.03)	(-1.16)	(0.64)	(-1.49)	(-0.33)	(-2.26)	(-0.13)	(-1.11)	(0.73)	(0.26)
Equally-weighted gain/loss winner	0.12	0.12	-0.06	-0.07	-0.03	-0.08	0.01	-0.05	-0.05	-0.11
	(1.26)	(1.27)	(-0.86)	(-0.88)	(-0.44)	(-1.07)	(0.08)	(-0.74)	(-0.63)	(-1.28)

Table B.I – Measures of Embedded Capital Gains and Combined Effect of Intangible Return and Composite Share Issuance – 10% Cutoff

For results in Panel A, I estimate 60 (k = 1,…,60) cross-sectional regressions of the following form in each month between August 1978 and December 2006:

$$R_{i,t} = \beta_{0kt} + \beta_{1kt}R_{i,t\text{-}1} + \beta_{2kt}ME_{i,t\text{-}1} + \beta_{3kt}52wkL_{i,t-k} + \beta_{4kt}52wkW_{i,t-k} + \beta_{5kt}intan\_retL_{i,t-k} + \beta_{6kt}intan\_retW_{i,t-k} + \beta_{7kt}issueL_{i,t-k} + \beta_{8kt}issueW_{i,t-k} + \beta_{9kt}fylL_{i,t-k} + \beta_{10kt}fylW_{i,t-k} + \varepsilon_{ikt}$$

where $fylW_{i,t\text{-}k}$ ($fylL_{i,t\text{-}k}$) is dummy variable that equals 1 if the stock i is ranked in top (bottom) 10 percent of the stocks based on their five year low measure in month t-k. Other independent variables are defined as in previous Tables, with the exception that 10% cutoffs are used to identify winners and losers. For results in Panel B, the fylL and fylW dummy variables from above equation are replaced by ewgoL and ewgoW dummy variables, respectively. The coefficient estimates are averaged over k = 1,…,12 (for column labeled 1 to 12), k = 13,…24 (for column labeled 13 to 24), and so on. The Table reports the time-series means of each of these averages. The t-statistics in parentheses are computed from time-series. Coefficients on control variables are not shown. The returns are in percent per month.

Panel A: Five Year Low Measure

	1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec
Intangible return loser	0.37	0.10	0.19	-0.02	0.26	0.06	0.27	0.09	0.11	-0.06
	(2.68)	(0.75)	(1.57)	(-0.20)	(2.29)	(0.57)	(2.17)	(0.73)	(0.91)	(-0.47)
Intangible return winner	-0.21	-0.22	-0.13	-0.18	-0.16	-0.19	-0.32	-0.38	-0.30	-0.36
	(-2.23)	(-2.30)	(-1.26)	(-1.69)	(-1.53)	(-1.74)	(-2.93)	(-3.34)	(-2.98)	(-3.50)
Composite issuance loser	0.11	0.19	0.07	0.13	-0.04	0.04	-0.12	-0.06	-0.13	-0.04
	(1.50)	(2.51)	(0.91)	(1.80)	(-0.47)	(0.48)	(-1.64)	(-0.78)	(-1.72)	(-0.56)
Composite issuance winner	-0.57	-0.72	-0.38	-0.55	-0.30	-0.45	-0.29	-0.40	-0.24	-0.35
	(-5.19)	(-6.89)	(-3.38)	(-5.10)	(-2.65)	(-4.01)	(-2.44)	(-3.36)	(-1.85)	(-2.71)
Five year low loser	-0.14	-0.32	0.08	-0.15	0.01	-0.20	-0.04	-0.18	0.15	0.09
	(-1.31)	(-3.13)	(0.70)	(-1.60)	(0.06)	(-2.15)	(-0.44)	(-2.01)	(1.49)	(0.85)
Five year low winner	-0.10	-0.12	-0.21	-0.27	-0.14	-0.23	0.03	-0.05	-0.13	-0.24
	(-0.58)	(-0.72)	(-1.56)	(-1.96)	(-1.03)	(-1.65)	(0.22)	(-0.35)	(-0.84)	(-1.52)

Panel B: Equally-Weighted Gain Only Measure

	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec
Intangible return loser	0.37	0.09	0.19	-0.03	0.27	0.06	0.26	0.08	0.11	-0.06
	(2.65)	(0.71)	(1.56)	(-0.24)	(2.28)	(0.54)	(2.11)	(0.65)	(0.90)	(-0.49)
Intangible return winner	-0.21	-0.23	-0.13	-0.18	-0.18	-0.21	-0.33	-0.39	-0.31	-0.37
	(-2.25)	(-2.35)	(-1.19)	(-1.67)	(-1.67)	(-1.91)	(-3.02)	(-3.45)	(-3.05)	(-3.61)
Composite issuance loser	0.11	0.19	0.07	0.13	-0.03	0.04	-0.12	-0.05	-0.13	-0.04
	(1.53)	(2.54)	(0.91)	(1.80)	(-0.44)	(0.52)	(-1.60)	(-0.74)	(-1.72)	(-0.55)
Composite issuance winner	-0.58	-0.72	-0.38	-0.56	-0.31	-0.45	-0.29	-0.41	-0.24	-0.36
	(-5.17)	(-6.87)	(-3.36)	(-5.09)	(-2.65)	(-4.04)	(-2.43)	(-3.37)	(-1.86)	(-2.74)
Equally-weighted gain only loser	-0.14	-0.29	0.04	-0.15	-0.01	-0.18	-0.02	-0.12	0.15	0.10
	(-1.43)	(-3.02)	(0.36)	(-1.78)	(-0.12)	(-2.17)	(-0.17)	(-1.53)	(1.58)	(1.07)
Equally-weighted gain only winner	-0.08	-0.09	-0.25	-0.28	-0.09	-0.17	0.05	-0.03	-0.13	-0.23
	(-0.48)	(-0.53)	(-1.92)	(-2.11)	(-0.66)	(-1.22)	(0.35)	(-0.24)	(-0.87)	(-1.48)

Table B.II – Growth in Capital Expenditures and Measures of Intangible Information – 10% Cutoff

Each month between August 1978 and December 2006, I estimate 60 (k = 1,…,60) cross-sectional regressions of the following form:

$$R_{i,t} = \beta_{0kt} + \beta_{1kt}R_{i,t-1} + \beta_{2kt}ME_{i,t-1} + \beta_{3kt}52wkL_{i,t-k} + \beta_{4kt}52wkW_{i,t-k} + \beta_{5kt}intan\_retL_{i,t-k} + \beta_{6kt}intan\_retW_{i,t-k} + \beta_{7kt}issueL_{i,t-k} + \beta_{8kt}issueW_{i,t-k}$$
$$+ \beta_{9kt}capexL_{i,t-k} + \beta_{10kt}capexW_{i,t-k} + \varepsilon_{ikt},$$

where $capexW_{i,t-k}$ ($capexL_{i,t-k}$) is dummy variable that equals 1 if the stock i is ranked in top (bottom) 10 percent of the stocks in month t-k based on their growth in capital expenditures. Other regression variables are defined in previous Tables, with the exception that 10% cutoffs are used to identify winners and losers. The coefficient estimates are averaged over k = 1,…,12 (for column labeled 1 to 12), k = 13,…24 (for column labeled 13 to 24), and so on. The Table reports the time-series means of each of these averages. The t-statistics in parentheses are computed from time-series. Coefficients on control variables are not shown. The returns are in percent per month.

	1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec
Intangible return loser	0.37	0.11	0.20	0.01	0.26	0.08	0.28	0.14	0.15	0.01
	(2.79)	(0.90)	(1.76)	(0.09)	(2.28)	(0.68)	(2.29)	(1.10)	(1.19)	(0.06)
Intangible return winner	-0.20	-0.20	-0.21	-0.26	-0.18	-0.22	-0.30	-0.37	-0.34	-0.42
	(-1.80)	(-1.67)	(-1.70)	(-2.06)	(-1.41)	(-1.68)	(-2.29)	(-2.73)	(-2.79)	(-3.42)
Composite issuance loser	0.13	0.21	0.08	0.15	-0.01	0.06	-0.11	-0.03	-0.13	-0.03
	(1.56)	(2.50)	(0.95)	(1.86)	(-0.14)	(0.78)	(-1.28)	(-0.41)	(-1.55)	(-0.34)
Composite issuance winner	-0.64	-0.80	-0.42	-0.60	-0.34	-0.50	-0.30	-0.42	-0.23	-0.34
	(-5.09)	(-6.71)	(-3.28)	(-4.98)	(-2.59)	(-4.05)	(-2.25)	(-3.18)	(-1.60)	(-2.38)
Capex loser	0.19	0.01	0.20	0.01	0.12	-0.06	-0.03	-0.22	0.03	-0.13
	(1.55)	(0.06)	(1.66)	(0.11)	(1.00)	(-0.48)	(-0.26)	(-1.62)	(0.21)	(-1.00)
Capex winner	-0.13	-0.18	-0.05	-0.12	-0.07	-0.16	-0.13	-0.25	-0.04	-0.12
	(-1.50)	(-2.14)	(-0.55)	(-1.45)	(-0.78)	(-2.04)	(-1.51)	(-3.07)	(-0.45)	(-1.23)

Table B.III – Growth in Assets and Measures of Intangible Information – 10% Cutoff

Each month between August 1978 and December 2006, I estimate 60 (k = 1,…,60) cross-sectional regressions of the following form:

$$R_{i,t} = \beta_{0kt} + \beta_{1kt}R_{i,t-1} + \beta_{2kt}ME_{i,t-1} + \beta_{3kt}52wkL_{i,t-k} + \beta_{4kt}52wkW_{i,t-k} + \beta_{5kt}intan\_retL_{i,t-k} + \beta_{6kt}intan\_retW_{i,t-k} + \beta_{7kt}issueL_{i,t-k} + \beta_{8kt}issueW_{i,t-k} + \beta_{9kt}agL_{i,t-k} + \beta_{10kt}agW_{i,t-k} + \varepsilon_{ikt},$$

where $agW_{i,t-k}$ ($agL_{i,t-k}$) is dummy variable that equals 1 if the stock i is ranked in top (bottom) 10 percent of the stocks in month t-k based on their growth in assets. Other regression variables are defined in previous Tables, with the exception that 10% cutoffs are used to identify winners and losers. The coefficient estimates are averaged over k = 1,…,12 (for column labeled 1 to 12), k = 13,…24 (for column labeled 13 to 24), and so on. The Table reports the time-series means of each of these averages. The t-statistics in parentheses are computed from time-series. Coefficients on control variables are not shown. The returns are in percent per month.

	1 to 12		13 to 24		25 to 36		37 to 48		49 to 60	
	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec	All months	Feb-Dec
Intangible return loser	0.33	0.07	0.18	-0.03	0.27	0.07	0.26	0.08	0.12	-0.04
	(2.50)	(0.56)	(1.56)	(-0.25)	(2.37)	(0.63)	(2.12)	(0.70)	(1.01)	(-0.30)
Intangible return winner	-0.21	-0.21	-0.20	-0.25	-0.19	-0.24	-0.31	-0.39	-0.35	-0.43
	(-1.86)	(-1.79)	(-1.69)	(-2.06)	(-1.54)	(-1.91)	(-2.42)	(-2.95)	(-2.90)	(-3.57)
Composite issuance loser	0.11	0.20	0.07	0.15	-0.04	0.05	-0.14	-0.07	-0.15	-0.05
	(1.32)	(2.44)	(0.88)	(1.89)	(-0.46)	(0.58)	(-1.78)	(-0.86)	(-1.80)	(-0.60)
Composite issuance winner	-0.53	-0.67	-0.36	-0.53	-0.29	-0.43	-0.28	-0.38	-0.25	-0.35
	(-4.88)	(-6.48)	(-3.32)	(-4.99)	(-2.56)	(-3.92)	(-2.35)	(-3.22)	(-1.99)	(-2.79)
Asset growth loser	0.13	-0.14	0.01	-0.21	-0.07	-0.25	0.11	-0.08	0.16	-0.05
	(0.85)	(-0.93)	(0.08)	(-1.48)	(-0.51)	(-1.97)	(0.80)	(-0.62)	(1.01)	(-0.30)
Asset growth winner	-0.31	-0.34	-0.15	-0.21	-0.05	-0.08	-0.11	-0.17	-0.13	-0.23
	(-3.14)	(-3.42)	(-1.47)	(-2.11)	(-0.50)	(-0.71)	(-1.00)	(-1.45)	(-1.09)	(-1.88)