Accounting Conservatism and the Information Efficiency of Stock Prices*

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Area Tematica B) Valoración y Finanzas: *conditional conservatism, equity overvaluation, abnormal short interest, short sale constraints, price information efficiency*

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Abstract

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Keywords: *conditional conservatism, equity overvaluation, abnormal short interest, short sale constraints, price information efficiency*

JEL: G30, M41

1 Introduction

Prior work provides overwhelming evidence on the benefits of conditional conservatism for debt holders (e.g., Beatty et al. 2008; Zhang 2008; Li 2013; Haw et al. 2014). However, there is limited evidence on the positive effects of conservatism for shareholders (e.g., Francis and Martin 2010; Garcia Lara et al. 2011; Biddle et al. 2016). In this paper, we provide additional evidence on the equity market benefits of conservatism. In particular, we study whether conditional conservatism ameliorates equity overvaluation, reduces abnormal short interest, and limits the penalties associated with missing earnings targets.

Conditional conservatism imposes more stringent verification requirements for the recognition of economic gains than losses, which results in earnings that capture unfavourable economic events more quickly and completely than favourable ones (Basu 1997). We argue that this results in two key positive outcomes that lead to more efficient prices. First, conditional conservatism offsets managerial tendency to strategically reveal good news while hiding or delaying bad news disclosure (Basu 1997; Watts 2003). As a result, bad news flows into the market more quickly than unverifiable good news, reducing the risk that bad news will be hidden (LaFond and Watts 2008; Kim and Zhang 2016). Second, conditional conservatism enhances the confirmatory role of accounting. It sets a 'hard' benchmark against which 'softer,' unverifiable, disclosures can be compared *ex post*. This disciplines managerial voluntary disclosure of good news, increasing its credibility (Ball 2001; Garcia Osma et al. 2018). Jointly, these effects lead to full disclosure of information, as shown in Guay and Verrecchia (2007), where no information about firm value is withheld.

We build on this prior literature and argue that conditional conservatism improves overall market efficiency and has a positive impact on equity market performance. In particular, we study three capital market outcomes. First, we posit that conservatism helps to assess the company's equity underlying value, reducing the probability of equity overvaluation that arises when stock price is higher than underlying value (Jensen 2005), and

importantly, we expect that conditional conservatism accelerates the reversal of overvalued equity back to underlying value, limiting the duration of sustained overvaluation. Given that unsophisticated investors are more likely to value firms over-optimistically and take accounting numbers at face value, conditional conservatism, by disciplining good news disclosure and recognition, is expected to result in rational equity prices reflecting intrinsic value. Conditional conservatism is also expected to reduce equity overvaluation through better earnings quality (e.g., Chen et al. 2007; Gao 2013) and lower information asymmetry (e.g., LaFond and Watts 2008, Suijs 2008).[1] Second, if conservatism decreases equity overvaluation, it should reduce short-sellers interest. In particular, through timelier recognition of losses relative to gains, conservatism should promptly signal unprofitable projects and decrease bad news hoarding (Kim and Zhang 2016), decreasing the probability that firms have hidden, unrealized losses that short-sellers could uncover and benefit from. Third, taking into consideration the benefits associated with conservative reporting, we expect that equity market participants will apply a lower discount for uncertainty when valuing conditional conservative firms (Guay and Verrecchia 2007), leading to higher prices and lower discounts for missing earnings targets.

We test our predictions on a large sample of U.S. firms over the period 1996 to 2015. We use two firm-year proxies for conditional conservatism: Khan and Watts (2009) and a modified firm-year version of Ball and Shivakumar (2005). We measure equity overvaluation using the residual income valuation model (Peasnell 1982; Ohlson 1995). Specifically, we identify firms in the highest quintile of our overvaluation proxy, and estimate sustained duration of equity overvaluation. Next, we estimate abnormal short-selling interest following Karpoff and Lou (2010). Specifically, we assign firms into different portfolios based on firm-specific characteristics and estimate fitted values of cross sectional regressions. Finally, we study whether firms that just beat (miss) analyst forecasts with low *versus* high levels of

1. The extant prior literature provides mounting evidence confirming that greater conditional conservatism leads to high quality information useful to monitor management (Beekes et al. 2004; Ahmed and Duellman 2007, 2011; Garcia Lara et al. 2009; Louis et al. 2012).

conservatism have differences in stock performance over long- and short-term periods.

We report the following key findings. First, we find that conservatism reduces sustained duration of equity overvaluation. High conservatism results in lower likelihood of being a firm with overvalued equity. This negative effect increases with the number of consecutive years of equity overvaluation. This suggests that reversals of overvaluation back to underlying value accrue faster to more conditionally conservative firms. Second, we document that conservatism reduces abnormal short interest. Finally, we provide evidence of different valuation consequences of missing earnings forecasts both in the short-run and (partially) in the long-run for high vs. low conservative firms. In particular, over the 3-month (36-month) horizon equal-weighted and value-weighted CARs of missers with high conservatism outperform missers with low conservatism by 1.95% an 1.99% (9.16% and 8.78%). Additionally, we show that in the short-run (from 1 to 6 months after earnings announcement date) the portfolio of long missers with high conservatism and short missers with low conservatism, both on equal- and value-weighted basis, results in 0.56 and 0.86 basis points per month.

We contribute to the prior literature by providing evidence that conditional conservatism leads to more efficient equity markets. In particular, we contribute to the literature analyzing the positive effect of conditional conservatism for shareholders (Suijs 2008; Garcia Lara et al. 2011; Kim et al. 2013; Biddle et al. 2016; Kim and Zhang 2016). Additionally, we contribute to the literature analyzing the information content of conditionally conservative reporting (LaFond and Watts 2008; Suijs 2008; Garcia Lara et al. 2014) by presenting additional evidence of efficiency-increasing information diffusion of conservative reporting.

2 Literature Review and Hypothesis Development

2.1 Conservatism and equity overvaluation

When investors (both naive and sophisticated) hold heterogeneous beliefs about firm value (Miller 1977), securities held by well-informed investors are expected to avoid undervalua-

tion. However, if those informed investors are unwilling to short-sell there might be a case of overvaluation (Malkiel 1985). Divergence of opinions regarding the security's return is expected to worsen overvaluation (Miller 1977; Boehme et al. 2006). Jensen (2005) notes that in the presence of substantial equity overvaluation, there is a threat of organizational forces deterioration that might destroy core value of the firm. To satisfy growth expectations that are far above "true" firm value, managers may engage in short-run value-increasing activities at the expense of long-run performance.

We argue that conditional conservatism decreases the probability of equity overvaluation and importantly, that it leads to a faster reversal of overvalued stock back to underlying equity values. These benefits of conservatism accrue to equity investors at least through two channels. First, bidding up by uninformed investors who take firm disclosed information at face value may explain overvaluation. Under aggressive accounting (reporting and disclosure), unsophisticated investors are more likely to value the firm over-optimistically. In line with this view, Badertscher (2011) documents a positive association between total earnings management and the duration of firm overvaluation. In contrast, under conservative accounting, timely and complete recognition of poor realizations offsets managerial tendency to strategically disclose good news and withhold bad news,[2] and thus, the firm's intrinsic value is unlikely to be overstated, resulting in more rational equity prices. Prior work supports this view that conservatism reduces information asymmetry (LaFond and Watts 2008; Suijs 2008; Garcia Lara et al. 2014), improving the firm information environment and allowing investors to better assess firm performance. This should result in more informed capital markets.

Second, conditional conservatism directly reduces the incentives for earnings management (Basu 1997; Watts 2003; Guay and Verrecchia 2006; Chen et al. 2007; Gao 2013). This limits managerial attempts to artificially inflate earnings, improving accounting quality and therefore, the ability of outsiders to assess underlying trends in revenues and earnings growth,

2. See, for example, the work of Kothari et al. (2009) on managerial disclosure of good and bad news.

making over-optimism less likely. Importantly, in the presence of temporary overvaluation, which as noted in Jensen (2005) may happen for various reasons in both inefficient and semi-efficient markets, conditional conservatism leads to faster reversal to efficient prices. This is because it prevents the activation of the organizational forces that sustain overvaluation, and reduces the likelihood that managers get caught in a game of meeting expectations. Mechanisms such as using overvalued equity to make acquisitions (Moeller et al. 2005; Shleifer and Vishny 2003) are constrained by conditional conservatism, as shown by recent research that suggests conditional conservatism reduces inefficient investment and accelerates the abandonment of poor projects (Francis and Martin 2010; Ahmed and Duellman 2011).

Our argumentation is in line with the work of Mashruwala and Mashruwala (2018) who find that accounting conservatism under high shorting constraints and investors' disagreement reduces equity overvaluation. We add to their work by predicting that conditional conservatism not only reduces the likelihood of over-valuation but also, that it leads to a quicker reversal of overvaluation by imposing timely disclosure of negative realizations and disciplining good news disclosure, thereby reducing the likelihood of sustained duration of equity overvaluation. Therefore, our first hypothesis is:

> ***H1:*** *Conditional conservatism is associated with lower sustained duration of equity overvaluation*

2.2 Conservatism and abnormal short interest

Building on the above argumentation that more conditionally conservative firms are less likely to be overvalued, it follows that short sellers are less likely to target them. Short sellers are informed investors (Boehmer et al. 2008) who trade based on information rather than liquidity needs (Diamond and Verrecchia 1987). Prior research shows that they are able to identify analyst downgrades, (Christophe et al. 2010) earnings restatements (Desai et al. 2006) and financial misconduct significantly before it is publicly revealed (Karpoff and Lou 2010). Overall, this literature indicates that short sellers target firms that are suspect of

having hidden bad news, tracking their accounting accruals to uncover misreporting (Fang et al. 2016). In this manner, they can take positions in anticipation of stock price decreases (i.e., bad news realizations). Short sellers scrutiny is therefore associated to instances where managers withhold or delay the disclosure of negative firm information.

As noted, managers have incentives to strategically disclose good news and to delay or withhold the release of bad news (Kothari et al. 2009). This behaviour intensifies with the firms' opaqueness and complex tax planning (Hutton et al. 2009; Kim et al. 2011). Conditional conservatism offsets this behaviour, by imposing timely and complete loss recognition (Basu 1997; Watts 2003), via the lower verification requirements for the recognition of negative news (possible economic losses) relative to positive news. This serves as a signal that no negative information is withheld. Consistent with this view, LaFond and Watts (2008) argue that conditional conservatism mitigates concerns of managerial tendencies to delay recognition of bad news in hope of an economic condition reversal. Additionally, through timelier recognition of economic losses relative to gains, conditional conservatism ensures prompt identification and termination of unprofitable projects. Prior work relates conservatism to higher investment efficiency *ex ante* and to quicker *ex post* termination of poorly performing projects (Francis and Martin 2010; Ahmed and Duellman 2011; Garcia Lara et al. 2016). This prevents bad news hoarding and lowers the probability of stock price crash risk (Kim and Zhang 2016).

Given the above discussion, our second hypothesis is as follows:

H2: *Conditional conservatism is associated with lower abnormal short interest*

2.3 Conservatism and the valuation of earnings surprises

Prior research provides growing evidence that conditional conservatism benefits equity holders: it lowers the volatility of future stock price and results in efficient risk sharing (Suijs 2008); decreases cost of equity capital (Garcia Lara et al. 2011); results in smaller price drops at SEO announcements (Kim et al. 2013); lowers the probability of stock price crashes (Kim

and Zhang 2016); and reduces bankruptcy risk (Biddle et al. 2016). Additionally, Francis et al. (2013) document that more conservative firms have less negative stock returns during the recent financial crisis. Overall, this literature suggests that conservative reporting is a mechanism that protects shareholders' value. This effect is magnified for firms with poorer corporate governance and higher information asymmetry.

Given the above, market participants may reward conditionally conservative firms, and apply a lower penalty in the presence of earnings disappointments. More generally, as argued in Guay and Verrecchia (2007) market participants may apply conservative firms a lower discount for uncertainty. This is because by imposing timely and complete recognition of losses, bad news are recognized in the financial statements. This coupled with managerial strategic disclosure of good news (Kothari et al. 2009) means all value relevant information is communicated in a timely manner. In addition, conservatism enhances the confirmatory role of accounting, acting as a 'hard' benchmark to evaluate the credibility of alternative sources of information (LaFond and Watts 2008), such as unverifiable good news disclosures and management forecasts. Conservatism disciplines good news disclosure through *ex post* accountability (Ball 2001), allowing 'softer' sources of information to flourish (LaFond and Watts 2008), and lending credibility to good news disclosure, permitting attaining full disclosure, where no information about firm value is withheld (Guay and Verrecchia 2007).

It is amply accepted that capital markets punish (reward) firms for missing (beating) analyst forecasts even by a single penny (Bhojraj et al. 2009). Unsurprisingly, managers are reluctant to miss earnings forecasts (Graham et al. 2005), and may engage in sub-optimal decision-making in an attempt to beat simple earnings targets. The earnings management literature suggests there is a greater penalty associated with earnings disappointments relative to the reward for positive earnings surprises (Skinner and Sloan 2002). A possible explanation for this imbalance is that earnings management is an equilibrium outcome (Dye 1988), where markets apply a discount for earnings management, which, in turn, induces earnings management. If markets apply this discount, in the expectation that earnings will

be managed and targets met, it may act as a buffer in the presence of earnings surprises, and thus, the observed rewards and penalties would differ in the absence of this discount.

Given the aforementioned benefits of conservative reporting and the fact that conservatism improves earnings quality (e.g., Chen et al. 2007; Gao 2013), lowers information asymmetry (e.g. LaFond and Watts 2008) and serves as a corporate governance mechanism (e.g. Ahmed and Duellman 2007), we expect that shareholders will apply a lower "penalty" to conditionally conservative firms for missing earnings forecasts. Our third hypothesis is:

> ***H3:*** *Conditional conservatism is associated with lower penalties for missing earnings forecasts*

3 Research Design

3.1 Measurement of accounting conservatism

We use two measures of conditional conservatism. First, we use the approach suggested by Khan and Watts (2009), and that permits calculating a firm-year measure of conditional conservatism. Augmenting the Basu (1997) model, Khan and Watts (2009) relate timeliness of good news (referred as G_Score) and incremental timeliness of bad news (referred as C_Score) to firm-specific characteristics (size, market-to-book ratio, and leverage) as follows:

$$G\_Score_{i,t} = B_3 = \mu_0 + \mu_1 Size_{i,t} + \mu_2 M/B_{i,t} + \mu_3 Lev_{i,t} \tag{1}$$

$$C\_Score_{i,t} = B_4 = \lambda_0 + \lambda_1 Size_{i,t} + \lambda_2 M/B_{i,t} + \lambda_3 Lev_{i,t} \tag{2}$$

The values of C_Score and G_Score vary across firm-years through different firm characteristics (size, market-to-book ratio, and leverage), while the coefficients (μ_i and λ_i) are fixed at the industry-year level. The total bad news timeliness is the sum of C_Score and G_Score. C_Score measures the asymmetric timeliness of bad news recognition, our con-

struct of interest. To obtain the coefficients that we use in $Eq.(1)$ and $Eq.(2)$ to calculate C_Score and G_Score, we run the following annual cross-section model:

$$\begin{aligned} E_{i,t}/P_{i,t-1} &= \beta_0 + \beta_1 D_i + R_i(\mu_0 + \mu_1 Size_i + \mu_2 M/B_i + \mu_3 Lev_i) \\ &+ D_i R_i(\lambda_1 Size_i + \lambda_2 M/B_i + \lambda_3 Lev_i) + (\sigma_1 Size_i + \sigma_2 M/B_i \\ &+ \sigma_3 Lev_i + \sigma_4 D_i Size_{i,t} + \sigma_5 D_i M/B_{i,t} + \sigma_6 D_i Lev_i) + \epsilon_i, \end{aligned} \tag{3}$$

where $E_{i,t}/P_{i,t-1}$ is earnings in year t scaled by market value of equity at the beginning of the fiscal year. R is compounded market-adjusted CRSP stock return over the fiscal year t. D is a dummy variable that equals one if R is negative (i.e., in the case of bad news) and zero otherwise (i.e., good news). Our firm-year measure of conditional conservatism following Khan and Watts (2009) ($CSCORE\_khan$) is the three-year average of the sum of C_Score (e.g., for year t, $CSCORE\_khan$ is the average over years t, $t-1$, and $t-2$).[3] A greater value of $CSCORE\_khan$ represents a higher degree of conditional conservatism.

In Table 1, Panel A, we report descriptive statistics of C_Score_khan (G_Score_khan), which have a mean of 0.107 (0.000) and median of 0.152 (0.060). Conservatism is present, as expected, throughout the sample (Q1 of C_Score_khan is positive). In unreported results, Spearman (-0.41) and Pearson (-0.49) correlations between C_score_khan and G_Score_khan suggest a negative and significant correlation. Overall, the results are in line with the ones of Khan and Watts (2009) *Table* 4. This validates our calculations.

Our second measure of conditional conservatism follows Ball and Shivakumar (2005). This measure is accounting-based and does not rely on market measures, which reduces concerns associated with market inefficiency and circularity in our proxies. Ball and Shivakumar (2005) note that asymmetric treatment of economic gains relative to losses results in an asymmetry of accruals. The recognition of economic losses is realized on a timely basis through unrealized accruals. In contrast, the recognition of economic gains occurs when the associated cash flows are realized as it is accounted for on a cash basis. To calculate our sec-

3. Given lagged values we estimate $Eq.(3)$ over the sample from 1994 until 2015 to preserve sample size.

ond proxy, we augment Ball and Shivakumar (2005) following the logic of Khan and Watts (2009) to arrive at a firm-year measure of conditional conservatism. As before, we allow for *C_Score* and *G_Score* to vary across firm-years through different firm characteristics (size, market-to-book ratio, and leverage). We run the following annual cross-section model:

$$\begin{aligned} Accruals_i = {} & \beta_0 + \beta_1 DCFO_i + CFO_i(\mu_0 + \mu_1 Size_i + \mu_2 M/B_i + \mu_3 Lev_i) \\ & + DCFO_i CFO_i(\lambda_1 Size_i + \lambda_2 M/B_i + \lambda_3 Lev_i) + (\sigma_1 Size_i + \sigma_2 M/B_i \\ & + \sigma_3 Lev_i + \sigma_4 DCFO_i Size_{i,t} + \sigma_5 DCFO_i M/B_{i,t} + \sigma_6 DCFO_i Lev_i) + \epsilon_i, \end{aligned} \tag{4}$$

where *Accruals* is annual total accruals, defined as income before extraordinary items minus cash flow from operations and where both variables are extracted from the statement of cash flows. Both *Accruals* and *CFO* are scaled by average total assets. *DCFO* is a dummy variable equal to one in the case of negative CFO and zero otherwise. We calculate relative timeliness of good news (*G_Score_ball*) and our main coefficient of interest: the incremental timeliness of bad news (*C_Score_ball*) as in *Eq.*(1) and (*Eq.*(2). Our firm-year measure of conditional conservatism following Ball and Shivakumar (2005) (*CSCORE_ball*) is the three-year average of the sum of *C_Score_ball* (e.g., for year t, *CSCORE_ball* is the average over years t, $t-1$, and $t-2$).[4] A greater value of *CSCORE_ball* represents a higher degree of conditional conservatism.

3.2 Measurement of overvaluation

A stock is overvalued when its price is higher than its underlying value (Jensen 2005). To measure overvaluation, we follow the residual income approah as in Edwards and Bell (1965), Ohlson (1995), Frankel and Lee (1998) as follows:

$$V_{i,t} = \frac{FROE_{i,t} - r_e}{(1+r_e)} B_{i,t} + \frac{FROE_{i,t+1} - r_e}{(1+r_e)^2} B_{i,t+1} + \frac{FROE_{i,t+2} - r_e}{(1+r_e)^2 r_e} B_{i,t+2} + \epsilon_{i,t}, \tag{5}$$

4. Given lagged values we estimate *Eq.*(4) over the sample from 1994 until 2015 to preserve sample size.

where B is the book value of equity and $FROE$ is the future return on equity from I/B/E/S consensus earnings-per-share (EPS) estimates. To account for the dependence of year-end book value from current-year return on equity (ROE), we follow Frankel and Lee (1998) in sequential estimation process of future ROE. r_e is annualized cost of capital derived from the CAPM. The predictive ability of P/V is robust to the capital model used (Lee et al. 1999) and to whether the discount factor is allowed to vary across firms (D'mello and Shroff 2000). V is a forward-looking measure of fundamental value derived from the residual income model of Ohlson (1995). P/V is an indicator of mispricing and better return predictor than M/B (Frankel and Lee 1998; Lee et al. 1999). V filters earnings growth prospects from market price, except when such prospects are associated with misvaluation rather than just growth.

We follow Badertscher (2011) and form annual porfolios on June 1 by ranking firms based on the P/V ratio, where firms in the highest quintile rank of P/V are considered to be overvalued. Sustained duration of overvaluation is captured by identifying the number of consecutive years that a firm has been in the top quintile of P/V from one to a maximum of five years, where our last portfolio contains firms that have had a sustained overvaluation of five years or longer.

To estimate whether accounting conservatism decreases the probability of a firm's stock overvaluation, we estimate the following logistic regression model:

$$Prob(Overvaluation_{i,t}, \in \Phi) = log(\beta_0 + \beta_1 CSCORE_{i,t} + \sum_{a=1}^{n} \gamma_{a,t} X_{a,t} + \epsilon_{i,t}), \qquad (6)$$

where $Overvaluation$ is a benchmark (equals to 1) if a firm is in the top quintile of P/V for *(i)* consecutive years and zero otherwise. Φ is one of the 5 consecutive overvaluation benchmarks discussed above. $CSCORE$ is a firm-year proxy of conditional conservatism following Khan and Watts (2009) or Ball and Shivakumar (2005), one at a time. A positive (negative) coefficient on $CSCORE$ implies that this factor increases (decreases) the probability of stock overvaluation for a certain consecutive duration. $X_{a,t}$ is a set of control variables. In

particular, we control for the size and leverage of a firm, analyst coverage and fiscal year buy-and-hold returns. Finally, we control for short-sale constraints and investment disagreement that lead to stock overvaluation (Miller 1977) following Boehme et al. (2006). In particular, we estimate SSC. Every month, firms are sorted independently into terciles on short interest (demand side of shares to loan) and institutional ownership (supply side of shares to lend). We then form three SSC portfolios: SSC = 2 (highest) for firms with the highest short interest and the lowest institutional ownership, SSC = 0 (lowest) for firms with the lowest short interest and the highest institutional ownership, and SSC = 1 for all other firms. To control for investment disagreement we estimate share $Turnover$, $IVOL$ and inverse of AGE. All variables are as described in Appendix A. Additionally, we include firm- and year-fixed effects to control for the firm-specific contracting environment and economy-wide temporal shocks. Standard errors are clustered at the firm-year level (Petersen 2009).

3.3 Measurement of abnormal short-selling interest

To estimate abnormal short interest we follow Karpoff and Lou (2010). Specifically, for each firm i in month t, abnormal short interest in defined as follows:

$$ABSI(j)_{i,t} = SI_{i,t} - E(SI(j)_{i,t}), j = 1, 2, 3 \tag{7}$$

where $SI_{i,t}$ is raw short interest and $E(SI(j)_{i,t})$ is the expected short interest based on j firm-specific characteristics. The first benchmark, $E(SI(1)_{i,t})$, controls for the firm's market capitalization, book-to-market ratio, past stock returns, and industry (Dechow et al. 2001; Asquith et al. 2005; Duarte et al. 2006). The second benchmark, $E(SI(2)_{i,t})$, additionally controls for share turnover and institutional ownership (D'avolio 2002). Finally, the third benchmark, $E(SI(3)_{i,t})$, adds accruals (Healy 1985; Dechow et al. 2011) and insider selling (Agrawal and Cooper 2015). However, we do not include insider selling in calculation of $E(SI(3)_{i,t})$ as it significantly reduces the sample that does not allow us to draw statistically

significant conclusions.

At the beginning of each month, each stock is assigned to 27 portfolios constructed by independently sorting stocks by size, book-to-market, and momentum (for $E(SI(1)_{i,t})$), all measured at the end of the prior month. Additionally, these 27 portfolios are partitioned into two-digit SIC industry codes. $E(SI(1)_{i,t})$ is the fitted value from a monthly cross-sectional regression:

$$SI_{i,t} = \sum_{g=low}^{medium} s_{gt} Size_{igt} + \sum_{g=low}^{medium} b_{gt} BM_{igt} + \sum_{g=low}^{medium} m_{gt} Mom_{igt} + \sum_{k=1}^{K} \phi_{kt} Ind_{ikt} + u_{it}, \quad (8)$$

where the first three sets of variables are dummy variables that define 27 size-, book-to-market-, and momentum- based portfolios. The portfolio with the highest market capitalization, book-to-market ratio, and momentum for each industry are the base portfolios. The coefficients from $Eq.(8)$ should be interpreted as the difference between the short interest of the given portfolio in relation to the base one.

To study whether there is a negative effect of conditional conservatism on abnormal short selling, our main regression under consideration is as follows:

$$ABSI(j)_{i,t+1} = \beta_0 + \beta_1 CSCORE_{i,t} + \sum_{a=1}^{n} \gamma_{a,t} X_{a,t} + \epsilon_{i,t+1}, \quad (9)$$

where $ABSI(j)$ is one of the three proxies for abnormal short interest. $CSCORE$ is a firm-year proxy of conditional conservatism following Khan and Watts (2009) or Ball and Shivakumar (2005), one at a time. A positive (negative) regression coefficient of $CSCORE$ implies that this factor increases (decreases) the abnormal short interest. $X_{a,t}$ is the set of control variables. In particular, we control for firm size, share turnover and dividend yield (Jain et al. 2013; twelve months buy-and-hold returns (Jain et al. 2012); institutional ownership (Asquith et al. 2005); stock return volatility (Diether et al. 2009); leverage and analysts' coverage. As before, we include firm- and year-fixed effects to control for the firm-specific contracting environment and economy-wide temporal shocks. Standard errors

clustered at the firm-year level (Petersen 2009).

4 Sample and Descriptive Statistics

We study U.S. firms for the period 1996 to 2015. We exclude financial firms (Standard Industrial Classification (SIC) between 6000 and 6999) and utilities (SIC between 4800 and 5000) because their accrual calculation procedures are not comparable to other firms. We follow Frankel and Lee (1998) and Badertscher (2011) and require that firms have both one- and two-year-ahead EPS forecasts from I/B/E/S. Additionally, we restrict our sample to firms with fiscal year-ends between June and December (inclusively). We use yearly earnings forecast issued in May to guarantee that those forecasts belong to the correct fiscal year. We restrict the sample to firms with positive book-to-market ratio and eliminate observations where return on equity and dividend payout ratio are greater than 100 percent. Finally, we drop observations with stock price lower than \$1 as of June in year t.

Accounting information and the data on short interest come from Compustat annual and Compustat Supplemental Short Interest File. Data on daily share prices and returns comes from CRSP. The data on Institutional ownership is from Thomson Reuters 13F Holdings database. Analyst coverage and earnings forecast data is from the I/B/E/S database. All continuous variables are winsorized at the 99% and 1% levels, while our main proxy for stock overvaluation (P/V) is winsorized at the 95% and 5% levels due to large outliers in the tails. We guarantee that there are non-missing observations for the P/V proxy. However, we do not impose this restriction to the rest of the variables to preserve sample size.

Table 1 presents descriptive statistics of the variables used in the tests studying the effect of conditional conservatism on equity market. Panel B contains variables used in the model of Khan and Watts (2009) and the modified Ball and Shivakumar (2005) model. Overall, the evidence reported in Table 1 is consistent with prior research. On average, sample firms are overvalued (mean of P/V is 1.694), consistent with Badertscher (2011).

There are around 4% of stock being shorted ($ShortInterest$ is 0.036). The average firm in the sample is 17 years old and is followed by 8 analysts.

5 Empirical Results

5.1 Conditional conservatism and the duration of overvaluation

Tables 2 and 3 present the results of testing $H1$. Under $H1$, we predict that conditional conservatism reduces the duration of equity overvaluation. The evidence supports the hypothesis. Table 2 presents the effect of conditional conservatism (measured following Khan and Watts (2009)) on equity overvaluation duration. The results in columns (1) to (5) present the change in log odds of consecutive equity overvaluation for a unit change in conservatism. As seen from the table $CSCORE\_khan$ is negative and statistically significant (-5.167, t-stat=-9.794; -5.234, t-stat=-6.439; -6.625, t-stat=-6.389; -4.818, t-stat=-4.525; -9.373, t-stat=-7.666). The negative effect of conservatism almost monotonically increases with the duration of the equity overvaluation. Similar conclusions can be drawn from Table 3 where conditional conservatism is measured following Ball and Shivakumar (2005).

[Insert Tables 2 and 3 about here]

Firm size and analyst following systematically negatively affect the log odds of equity overvaluation. This is consistent with larger firms with better information environments being less likely to be overvalued. Short sale constraints (SSC) and cumulative returns have a positive effect on log odds of equity overvaluation. This is consistent with prior research and as expected.

[Insert Tables 4 and 5 about here]

As a robustness test, we estimate $Eq.(6)$ with the dependent variable equal to 1 for firms with i consecutive years of equity overvaluation. For instance, the dependent dummy

variable is equal to 1 for firms with 2-year consecutive equity overvaluation. The same for 1, 3, 4, 5 and more years. As before, β_1 is expected to be negative and statistically significant signifying that conditional conservatism reduces likelihood of being a firm with overvalued equity for 1, 2, 3, 4, or 5 (and more) years. Tables 4 and 5 present the results. Except for the firms with one year of overvaluation the effect is negative and statistically significant. This is consistent with our prediction of quick reversal to fundamental value after overvaluation in more conditionally conservative firms. Additionally, the negative effect increases monotonically with the number of consecutive years of equity overvaluation. Overall, we can conclude that conditional conservatism reduces the likelihood of equity overvaluation.

5.2 Conditional conservatism and abnormal short interest

Table 6 presents the results of testing $H2$ that conditional conservatism reduces abnormal short interest. The results consistently present that the effect of conservatism is negative and statistically significant for all proxies of abnormal short interest. As seen from the table, the coefficient of $CSCORE\_khan$ is negative and statistically significant (-0.030, t-stat=-4.478; -0.026, t-stat=-3.079; -0.028, t-stat=-2.871). We obtain the same statistical results if we use $CSCORE\_ball$ (-0.010, t-stat=-4.315; -0.012, t-stat=-4.044; -0.010, t-stat=-3.476).

[Insert Table 6]

We document that certain firm characteristics affect abnormal short interest. In particular, in line with D'avolio (2002) and Asquith et al. (2005) we find that higher institutional ownership (that serves as a supplier of shares to be loaned) positively affects abnormal short interest. Additionally, we document that shares turnover (stock return) increases abnormal short interest in line with Jain et al. (2012, 2013). Additionally, we find that greater leverage and analysts' coverage is associated with greater abnormal short interest.

5.3 Conditional conservatism, earnings surprises and future stock performance

Under $H3$, we predict that the penalties associated with earnings disappointments vary with conditional conservatism. Table 7 reports 5-day cumulative abnormal returns (CAR) surrounding the earnings announcement (from 2 days before to 2 days after), for firms with high (low) conditional conservatism, as measured by whether they are above (below) median conservatism. To ensure that we capture persistence in conservative reporting we rank firms according to the three-year average of $CSCORE$ proxy. Firms are ranked as "high" in conditional conservatism if firm-year $CSCORE\_khan$ is above the median level of $CSCORE\_khan$ for all firms in the same fiscal year.

[Insert Table 7]

Table 7 reports CARs separately for firms that narrowly meet the target by one cent (+1), that just meet the target (0), or that narrowly miss the target by one cent (-1). As expected, we find significantly higher CARs when firms just beat analyst forecasts compared to firms that just miss (t-stat = 6.26). Interestingly, we observe a higher earnings response to firms with low conservatism (t-stat = -1.90). We do not find any statistical significance of 5-day CARs for firms with low *versus* high conservatism that beat (meet) earnings targets. In the superscripted diagonal cells ("a" and "b"), we see a statistically significant difference between firms that beat consensus forecast, but have low level of conservatism, and firms that miss consensus forecast, but have high level of conservatism. Firms that miss the consensus forecast despite having high level of conservatism underperform firms that beat the forecast, but have low levels of conservatism (t-stat = 4.66).

Next, we examine the future performance of firms with high (low) conditional conservatism that miss (beat) consensus forecast. First, we calculate portfolio-matched buy-and-hold abnormal returns (BHARs) and cumulative abnormal returns (CARs) for 3, 6, 12, and

36 months after the earnings announcement date. We calculate BHAR and CAR for each firm i as follows:

$$BHAR_i = \prod_{i=1}^{T}(1 + R_{i,t}) - \prod_{i=1}^{T}(1 + R_{benchmark_t}), \tag{10}$$

$$CAR_i = \sum_{i=1}^{T}(R_{i,t} - R_{benchmark_t}), \tag{11}$$

where $R_{benchmark_t}$ is the return to the corresponding value-weighted size/book-to-market (BM) portfolio constructed by Fama and French (1993). We match each firm to one of the 25 corresponding size/BM portfolios at the beginning of the announcement year using the size/BM breakpoints from Ken French's website. We include the delisting return an re-invest the proceeds in the matching size/BM portfolio in case a stock stops trading prior to the end of the cumulation window. We report both equal-weighted and value-weighted average BHARs for firms with high (low) quality of conservatism that miss (beat) the forecast. We obtain weights scaling firm's value of equity at the beginning of the announcement year by the CRSP value-weighted market index on this date (Mitchell and Stafford 2000).

[Insert Table 8]

Table 8, Panel A summarizes the BHAR results. There is evidence that high conservatism missers outperform low conservatism missers throughout the whole time intervals, except within 36 months window on the value-weighted basis (p-value = 0.47).

We follow Fama and French (1993) and Mitchell and Stafford (2000) and use CARs (involving summing abnormal returns) instead of BHARs as the later ones can magnify a single period abnormal performance due to compounding. Additionally, there is better statistical behavior of sums compared to compounded returns, that leads to fewer inference problems. Table 8, Panel B summarizes the CAR results. As before, we document that missers with high level of conservatism outperform those with low level of conservatism throughout all windows under consideration.

Overall, we report that there is a statistically significant difference between firms with high and low conservatism that miss earnings forecast both in the short-run and in the long-run (except on the value-weighted basis within 36-month period). Overall, there is a significant reward from equity market for firms with higher conservatism.

5.3.1 Calendar-time regressions

Both BHARs and CARs suffer from lack of independence that might lead to biased tests as a result of any cross-correlation in event-time returns that are not accounted by the model (Fama and French 1993; Brav 2000). We overcome this by forming portfolios in calendar time (Fama 1998). The effect of cross-correlations on the variance of abnormal returns is accurately captured by the time-series variation in portfolio returns. We form portfolios every calendar month over the sample period of beaters with low conservatism and missers with high conservatism. Additionally, we construct a zero-investment hedge portfolio that goes long in beaters and short in missers. The short-term (long-term) performance differences between beaters and missers are captured within 6 (12 to 36) months prior to the calendar date.

We form both value-weighted and equal-weighted portfolios, where weights are based on market value of equity of the firm at the beginning of the announcement year. To obtain average abnormal monthly returns we estimate 3-factor Fama and French (1993) model. We ensure that there are at least 10 observations per month to form portfolios.

[Insert Table 9]

Table 9, Panel A presents short-term results. On an equal-weighted basis, missers with high conservatism outperform missers with low conservatism by 0.56 basis points per month (p-value = 0.07). On a value-weighted basis, the difference is 0.86 basis point per month (p-value = 0.03). In contrast, when we perform the analysis over the long-term window (Table 9, Panel B), we do not find any support for the difference in performance between high and low conservatism missers and beaters.

In summary, the results present evidence that missing analysts' expectation with high level of conservatism outperforms missing analysts' expectation with low level of conservatism over a short-term window after the earnings announcement date.

6 Summary and Conclusion

We predict that accounting conservatism assists in equity market performance and improves market efficiency. We test whether high conditional conservatism reduces sustained duration of equity overvaluation. Next, we examine whether better information quality and corporate governance mechanisms that are associated with conservatism reduce abnormal short interest. Finally, we check whether equity market does value conditionally conservative firms.

We find strong statistical support to our hypotheses. In particular, we document that firms with high conditional conservatism have negative odds of consecutive duration of equity overvaluation. Additionally, it decreases a likelihood of being an overvalued firm. Moreover, we find that conditionally conservative firms are less likely to be targets of abnormal short-selling. Finally, we find that equity markets reward firms for being conservative. Overall, our results shed additional light on a positive effect of conditional conservatism to equity market. These findings may be of particular interest for regulators, given the ongoing debate on the desirable properties of accounting information.

A Variable Definitions

Variable	Definition of main variables
Panel A: Variables associated with accounting conservatism	
CSCORE_khan	A firm-year measure of conditional conservatism following Khan and Watts (2009). To mitigate the measurement error a three year average of *C_Score_khan* is considered (e.g. for year t the average consists of t, t-1, t-2).
CSCORE_ball	A firm-year measure of conditional conservatism following Ball and Shivakumar (2005). To mitigate the measurement error a three year average of *C_Score_ball* is considered (e.g. for year t the average consists of t, t-1, t-2).
Panel B: Main Control Variables	
P/V	Equity overvaluation proxy following Edwards and Bell (1965), Ohlson (1995), Frankel and Lee (1998)
ABSI(j)	Abnormal short interest following Karpoff and Lou (2010)
Panel C: Control variables	
Log(*Size*)	A firm size measured as natural logarithm of total assets
Leverage	Long-term debt issue plus current liabilities scaled by total assets
Inst. Ownership	Institutional ownership represented as the percentage of common shares outstanding owned by institutional shareholders
$log(1 + analyst)$	Natural logarithm of the number of analysts following a firm
Cumulat.Return	12-month cumulative returns
IVOL	Yearly standard deviation of the error term in a Fama and French (1993) 3-factor model
Turnover	Average number of shares traded over the 100 trading days ending one month prior to the portfolio formation month, divided by shares outstanding on the last day. Following Gao and Ritter (2010), we adjust turnover for NASDAQ firms as follows: Prior to February 1, 2001, we divide NASDAQ volume by 2. For February 1, 2001, to December 31, 2001, we divide NASDAQ volume by 1.8. For 2002?2003, we divide NASDAQ volume by 1.6. For 2004 and beyond, we do not adjust NASDAQ volume
AGE	Number of years the firm has been covered by CRSP. INVAGE is the inverse of firm age
SSC	Short sales constraints proxy. Every month, firms are sorted independently into terciles on short interest (SI) and institutional ownership (IO). We then form three SSC portfolios: SSC = 2 (highest) for firms with the highest short interest and the lowest institutional ownership, SSC = 0 (lowest) for firms with the lowest short interest and the highest institutional ownership, and SSC = 1 for all other firms
Dividend yield	Dividend per share divided by price per share
Return volatility	Annual return volatility of a stock

B Internet Appendix

B.1 Conditional conservatism, earnings surprises and future stock performance

For completeness, we repeat the analyses reported in Tables 8 and 9, but instead of focusing on comparing firms according to their level of conservatism, we now compare firms according to whether they miss or beat the targets. Appendix Table 1, Panel A summarizes the BHAR results. There is some evidence that high conservatism missers outperform low conservatism beaters at the 3-month interval (standard p-value = 0.09). However, on the value-weighted basis, the difference is insignificant (standard p-value = 0.28). In the longer windows under consideration we document statistically significant differences between high and low conservatism missers and beaters on the value-weighted basis for 6- and 36-month (-2.62, p-value = 0.03 and -16.81, p-value = 0.00).

[Insert Appendix Table 1]

Table 1, Panel B summarizes the CAR results. As before, there is some evidence of a difference in performance. We report that over 36-month horizon, both equal-weighted and value-weighted CARs of missers with high conservatism overperform beaters with low conservatism (standard p-value = 0.02 and 0.00). Additionally, we document that on the value-weighted basis firms with high conservatism that miss earnings forecast outperform beaters with low conservatism (p-value = 0.02). Overall, we report that in the short-run there is some statistically significant difference between firms with high/low conservatism that miss/beat earnings forecast. However, there is a significant reward from equity market for firms with higher conservatism in the long-run.

Next, we repeat the analyses of Table 9, where we now compare missers to beaters. Table 2, Panel A presents short-term results. We do not find any support for the difference in

performance between high and low conservatism missers and beaters. On an equal-weighted basis, missers with high conservatism outperform beaters with low conservatism by 0.18 basis points per month, but this difference is insignificant(p-value = 0.52). On a value-weighted basis, the difference is 0.13 basis point per month and also statistically insignificant. In contrast, when we perform the analysis over the long-term window (Table 2, Panel B), the results are statistically significant. In particular, both on equal-weighted and value-weighted basis beaters with low conservatism underperform missers with high conservatism. On an equal-weighted basis the difference is 0.31 basis point per month (p-value = 0.05) and on a value-weighted basis the difference is 0.38 basis points per month (p-value = 0.08).

[Insert Appndix Table 2]

In summary, the results present evidence that missing analysts' expectation with high level of conservatism outperforms beating analysts' expectation with low level of conservatism over a 36-month window after the earnings announcement date. These findings are consistent with the findings that more conservative firms are associated with better corporate governance and less myopic decisions from the side of the managers. This, in turn, results in a better long-term performance that is valued by the equity market participants.

Table 1: Future Stock performance based on the level of Conservatism and Earnings missing/beating

Panel A: Buy-and-Hold Abnormal Returns (BHARs)					
		Equal-Weighted		Value-Weighted	
Month		BHAR	Standard p-value	BHAR	Standard p-value
3	Beaters	1.87	0.00	1.76	0.00
	Missers	3.53	0.00	2.62	0.00
	Difference	-1.67	0.09	-0.86	0.28
6	Beaters	3.41	0.00	1.83	0.00
	Missers	5.19	0.00	4.44	0.00
	Difference	-1.79	0.24	-2.62	0.03
12	Beaters	7.76	0.00	3.20	0.00
	Missers	8.64	0.01	7.10	0.00
	Difference	-0.89	0.79	-3.90	0.13
36	Beaters	16.88	0.00	2.55	0.10
	Missers	24.65	0.00	19.35	0.00
	Difference	-7.78	0.20	-16.81	0.00
Panel B: Cumulative Abnormal Returns (CARs)					
		Equal-Weighted		Value-Weighted	
Month		CAR	Standard p-value	CAR	Standard p-value
3	Beaters	2.13	0.00	2.03	0.00
	Missers	3.52	0.00	2.79	0.00
	Difference	-1.39	0.12	-0.77	0.29
6	Beaters	3.23	0.00	2.37	0.00
	Missers	5.01	0.00	4.76	0.00
	Difference	-1.78	0.17	-2.39	0.02
12	Beaters	6.50	0.00	4.15	0.00
	Missers	5.74	0.00	6.15	0.00
	Difference	0.76	0.69	-2.00	0.20
36	Beaters	15.44	0.00	6.68	0.00
	Missers	22.43	0.00	20.53	0.00
	Difference	-6.99	0.02	-13.86	0.00

This table reports buy-and-hold (BHAR) and cumulative abnormal returns (CAR) for firms with high (low) level of conditional conservatism that miss (beat) consensus forecast by as much as one penny. Returns are compounded 3, 6, 12, 36 months after the announcement of earnings. ***, **, * denote statistical significance at 1%, 5% and 10% levels.

Table 2: Calendar-Time Regressions of Portfolios Formed on firms with high/low conservatism that miss/beat analysts' consensus forecast

	Beater		Missers		Hedge	
	Estimate	p-Value	Estimate	p-Value	Estimate	p-Value
Panel A: Short-Term Calender-Time Regressions (Months 1 through 6)						
			Equal-Weighted			
Alpha	0.61	0.00	0.79	0.00	-0.18	0.52
Mktret	1.08	0.00	1.22	0.00	-0.14	0.07
Smb	0.40	0.00	0.84	0.00	-0.44	0.00
Hml	0.17	0.01	0.34	0.00	-0.16	0.15
R^2	0.88		0.80			0.20
			Value-Weighted			
Alpha	0.67	0.01	0.80	0.01	-0.13	0.73
Mktret	1.00	0.00	1.21	0.00	-0.21	0.02
Smb	-0.12	0.15	0.72	0.00	-0.84	0.00
Hml	-0.21	0.05	0.07	0.57	-0.27	0.08
R^2	0.69		0.75			0.31
Panel B: Long-Term Calender-Time Regressions (Months 12 through 36)						
			Equal-Weighted			
Alpha	0.47	0.00	0.78	0.00	-0.31	0.05
Mktret	1.03	0.00	1.03	0.00	-0.00	0.98
Smb	0.34	0.00	0.88	0.00	-0.54	0.00
Hml	0.11	0.03	0.30	0.00	-0.19	0.00
R^2	0.91		0.87			0.37
			Value-Weighted			
Alpha	0.19	0.10	0.57	0.00	-0.38	0.08
Mktret	1.00	0.00	1.13	0.00	-0.13	0.02
Smb	-0.20	0.00	0.74	0.00	-0.94	0.00
Hml	-0.02	0.74	0.26	0.00	-0.28	0.00
R^2	0.87		0.83			0.51

This table reports calendar-time regressions of portfolios formed on firms with low (high) conservatism that beat (miss) analysts' consensus forecasts. The short-term (long-term) performance differences between beaters and missers are captured within (12 to 36) months prior to the calendar date. p-values are reported using White (1980)-adjusted standard errors. ***, **, * denote statistical significance at 1%, 5% and 10% levels.

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Table 1: Descriptive statistics of main variables

	N	Mean	Std.dev	Q1	Median	Q3
Panel A: Descriptive statistics of *C_Score_khan* and *G_Score_khan*						
C_Score	33,150	0.107	0.152	0.023	0.108	0.191
G_Score	33,150	0.000	0.060	-0.033	-0.000	0.030
Panel B: Variables used in the main analysis						
CSCORE_khan	30,858	0.099	0.127	0.025	0.104	0.176
CSCORE_ball	31,339	0.685	0.187	0.582	0.665	0.776
P/V	33,333	1.694	1.322	0.853	1.321	2.055
ABSI(1)	24,636	0.041	0.018	0.027	0.041	0.053
ABSI(2)	24,636	0.044	0.026	0.023	0.042	0.062
ABSI(3)	21,543	0.044	0.026	0.023	0.042	0.063
Leverage	33,152	0.357	0.690	0.006	0.125	0.368
Log(Size)	33,333	6.517	1.834	5.171	6.393	7.728
Analyst	33,333	7.937	6.916	3.000	6.000	11.000
Cumulat. return	33,333	0.141	0.637	-0.253	0.048	0.370
SSC	16,346	0.982	0.465	1.000	1.000	1.000
IVOL	29,031	0.410	0.185	0.270	0.374	0.513
AGE	33,328	16.516	13.897	6.000	12.000	23.000
Turnover	33,328	0.184	0.170	0.067	0.135	0.242
Inst. Ownership	26,894	0.608	0.276	0.402	0.654	0.838
Short Interest	33,333	0.036	0.048	0.002	0.019	0.050
Return volatility	33,333	0.456	0.221	0.287	0.411	0.585
Dividend yield	33,323	0.006	0.011	0.000	0.000	0.008

Panel A presents descriptive statistics of *C_score* and *G_score* as in Khan and Watts (2009). Panel B contains variables used in the main analysis. All continuous variables are winsorized at the 99% and 1% levels.

Table 2: Estimation of the effect of conditional conservatism (based on Khan and Watts (2009)) on the duration of equity overvaluation

VARIABLES	1YR_Over	2YR_Over	3YR_Over	4YR_Overh	5YR_Over
	(1)	(2)	(3)	(4)	(5)
CSCORE_khan	**-5.167*** **	**-5.234*** **	**-6.625*** **	**-4.818*** **	**-9.373*** **
	(-9.794)	(-6.439)	(-6.389)	(-4.525)	(-7.666)
Leverage	-0.118	-0.327	-0.815	-1.973***	-1.634***
	(-1.318)	(-1.628)	(-1.540)	(-3.728)	(-3.275)
Log(Size)	-0.283***	-0.382***	-0.475***	-0.340***	-0.527***
	(-6.847)	(-6.553)	(-5.465)	(-3.965)	(-5.473)
Log(1+analyst)	-0.376***	0.002	0.137	0.282**	0.511***
	(-6.399)	(0.022)	(1.295)	(2.259)	(4.043)
Cumulat. Return	0.702***	0.237***	0.169*	0.128	0.295***
	(14.587)	(3.435)	(1.755)	(1.041)	(3.914)
SSC	0.245***	0.199**	0.018	0.268*	0.308*
	(3.302)	(1.980)	(0.131)	(1.817)	(1.899)
IVOL	0.924***	0.635**	-0.362	-0.855*	-2.313***
	(4.293)	(2.231)	(-0.907)	(-1.797)	(-3.394)
Constant	-0.251	-1.766*	-0.023	-1.036	-0.156
	(-0.382)	(-1.651)	(-0.029)	(-1.072)	(-0.149)
Observations	13,959	13,802	13,220	12,241	13,359
Area under ROC curve	0.73	0.72	0.77	0.78	0.84
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Clust. St. Err	Yes	Yes	Yes	Yes	Yes
Pseudo R2	0.0885	0.0729	0.0965	0.104	0.195

This table reports the results for the estimation of *Eq.*(6). All the variables are as described in Table A. All continuous variables are winsorized at the 99% and 1% levels. ***, **, * denote statistical significance at 1%, 5% and 10% levels. P-values are derived based on robust standard errors clustered at the firm level.

Table 3: Estimation of the effect of conditional conservatism (based on Ball and Shivakumar (2005)) on the duration of equity overvaluation

VARIABLES	1YR_Over	2YR_Over	3YR_Over	4YR_Overh	5YR_Over
	(1)	(2)	(3)	(4)	(5)
CSCORE_ball	**-2.279*** **	**-3.411*** **	**-3.424*** **	**-2.461*** **	**-4.230*** **
	(-6.814)	(-8.177)	(-6.832)	(-4.207)	(-7.850)
Leverage	-0.170	-0.251	-0.961*	-2.124***	-2.184***
	(-1.511)	(-1.158)	(-1.692)	(-3.852)	(-4.063)
Log(Size)	-0.042	-0.150***	-0.157**	-0.110	-0.046
	(-1.402)	(-3.582)	(-2.488)	(-1.617)	(-0.670)
Log(1+analyst)	-0.306***	0.057	0.226**	0.353***	0.595***
	(-5.174)	(0.695)	(1.995)	(2.635)	(4.582)
Cumulat. Return	0.702***	0.251***	0.180*	0.130	0.323***
	(14.428)	(3.468)	(1.809)	(1.020)	(4.212)
SSC	0.252***	0.189*	-0.036	0.241	0.215
	(3.440)	(1.894)	(-0.262)	(1.589)	(1.284)
IVOL	0.946***	0.615**	-0.389	-0.874*	-2.388***
	(4.379)	(2.167)	(-0.949)	(-1.787)	(-3.376)
Constant	-0.126	-0.491	0.786	-0.454	0.622
	(-0.182)	(-0.460)	(0.986)	(-0.447)	(0.582)
Observations	13,951	13,795	13,211	12,223	13,349
Area under ROC curve	0.72	0.73	0.76	0.79	0.83
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Clust. St. Err	Yes	Yes	Yes	Yes	Yes
Pseudo R2	0.0846	0.0763	0.0945	0.105	0.190

This table reports the results for the estimation of *Eq.*(6). All the variables are as described in Table A. All continuous variables are winsorized at the 99% and 1% levels. ***, **, * denote statistical significance at 1%, 5% and 10% levels. P-values are derived based on robust standard errors clustered at the firm level.

Table 4: Estimation of the effect of conditional conservatism (based on Khan and Watts (2009)) on the log odds of being an overvalued firm

VARIABLES	One	Two	Three	Four	Five
CSCORE_khan	**1.018***	**-1.577****	**-3.656*****	**-6.506*****	**-11.100*****
	(1.938)	(-2.182)	(-3.474)	(-5.336)	(-10.692)
Leverage	-0.160**	-0.213**	-0.397	-0.324	-0.989**
	(-2.187)	(-2.102)	(-1.266)	(-1.107)	(-2.079)
Log(Size)	0.008	-0.106*	-0.190**	-0.391***	-0.490***
	(0.161)	(-1.660)	(-1.969)	(-3.114)	(-5.737)
Log(1+analyst)	-0.057	0.148	0.410**	0.146	0.418***
	(-0.674)	(1.461)	(2.569)	(0.850)	(3.494)
Cumulat. Return	-0.007	0.083*	0.025	0.046	0.205***
	(-0.197)	(1.889)	(0.405)	(0.602)	(3.740)
SSC	0.045	0.145	0.042	0.274	0.135
	(0.541)	(1.470)	(0.290)	(1.551)	(1.023)
IVOL	0.534*	0.883***	0.309	-0.401	-2.616***
	(1.859)	(2.617)	(0.637)	(-0.616)	(-4.634)
Constant	-2.067**	-0.374	-1.944**	-1.319	1.600
	(-2.415)	(-0.433)	(-1.973)	(-0.910)	(1.343)
Observations	13,946	13,586	13,658	12,358	13,556
Area under ROC curve	0.62	0.65	0.70	0.75	0.83
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Clust. St. Err	Yes	Yes	Yes	Yes	Yes
Pseudo R2	0.0311	0.0418	0.0670	0.0930	0.237

This table reports the results for the estimation of *Eq.*(6), where the dependent variable is 1 for firms with i consecutive overvaluation years. All the variables are as described in Table A. All continuous variables are winsorized at the 99% and 1% levels. ***, **, * denote statistical significance at 1%, 5% and 10% levels. P-values are derived based on robust standard errors clustered at the firm level.

Table 5: Estimation of the effect of conditional conservatism (based on Khan and Watts (2009)) on the log odds of being an overvalued firm

VARIABLES	One	Two	Three	Four	Five
CSCORE_ball	**0.364**	**-1.624*** **	**-2.081*** **	**-1.754*** **	**-3.484*** **
	(1.570)	(-4.573)	(-3.799)	(-2.837)	(-7.283)
Leverage	-0.151**	-0.084	-0.393	-0.615	-1.723***
	(-2.067)	(-0.866)	(-1.144)	(-1.550)	(-2.897)
Log(Size)	-0.040	-0.037	-0.020	-0.073	0.069
	(-0.910)	(-0.675)	(-0.240)	(-0.703)	(1.086)
Log(1+analyst)	-0.079	0.137	0.442***	0.288	0.557***
	(-0.940)	(1.377)	(2.745)	(1.547)	(4.779)
Cumulat. Return	-0.004	0.103**	0.013	0.030	0.204***
	(-0.109)	(2.349)	(0.199)	(0.367)	(3.744)
SSC	0.048	0.121	0.010	0.269	0.089
	(0.576)	(1.226)	(0.070)	(1.481)	(0.659)
IVOL	0.548*	0.885***	0.308	-0.322	-2.575***
	(1.911)	(2.618)	(0.630)	(-0.489)	(-4.489)
Constant	-1.981**	0.593	-1.273	-2.053	1.125
	(-2.297)	(0.664)	(-1.271)	(-1.368)	(0.963)
Observations	13,938	13,579	13,652	12,344	13,547
Area under ROC curve	0.62	0.65	0.70	0.73	0.82
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Clust. St. Err	Yes	Yes	Yes	Yes	Yes
Pseudo R2	0.0308	0.0440	0.0660	0.0808	0.213

This table reports the results for the estimation of *Eq.*(6), where the dependent variable is 1 for firms with i consecutive overvaluation years. All the variables are as described in Table A. All continuous variables are winsorized at the 99% and 1% levels. ***, **, * denote statistical significance at 1%, 5% and 10% levels. P-values are derived based on robust standard errors clustered at the firm level.

Table 6: Estimation of the effect of conditional conservatism (based on Ball and Shivakumar (2005) and Khan and Watts (2009)) on abnormal short interest

VARIABLES	ABSI(1)	ABSI(1)	ABSI(2)	ABSI(2)	ABSI(3)	ABSI(3)
CSCORE_khan	**-0.030*** **		**-0.026*** **		**-0.028** **	
	(-4.478)		(-3.079)		(-2.871)	
CSCORE_ball		**-0.010*** **		**-0.012*** **		**-0.010*** **
		(-4.315)		(-4.044)		(-3.476)
Inst. Ownership	0.011***	0.010***	0.034***	0.033***	0.036***	0.035***
	(4.801)	(4.416)	(10.892)	(10.683)	(10.154)	(10.069)
Log(Size)	0.001	0.002***	0.000	0.001*	-0.001	0.000
	(1.664)	(3.806)	(0.279)	(1.982)	(-1.134)	(0.636)
Turnover	0.013***	0.013***	0.043***	0.043***	0.044***	0.045***
	(7.337)	(7.312)	(11.201)	(11.922)	(11.760)	(12.513)
Cumulat. Return	0.001	0.001	0.003***	0.003***	0.003***	0.003***
	(1.292)	(1.361)	(4.893)	(5.430)	(5.528)	(5.894)
Dividend yield	0.049*	0.071**	0.049	0.070*	0.028	0.050
	(1.958)	(2.683)	(1.290)	(1.779)	(0.870)	(1.498)
Return volatility	0.001	0.001	0.003	0.003	0.002	0.002
	(0.796)	(0.853)	(1.422)	(1.453)	(0.873)	(0.847)
Leverage	0.001**	0.001**	0.001	0.001	0.002**	0.001**
	(2.830)	(2.398)	(1.582)	(1.717)	(2.396)	(2.381)
Log(1+analyst)	0.001	0.001*	0.002**	0.002***	0.003***	0.003***
	(1.101)	(1.867)	(2.699)	(3.357)	(2.977)	(3.595)
Observations	15,906	16,030	15,906	16,030	13,959	14,084
Adjusted R-squared	0.792	0.789	0.782	0.782	0.769	0.767
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Clust. St. Err (firm-year)	Yes	Yes	Yes	Yes	Yes	Yes

This table reports the results for the estimation of *Eq.*(9). All the variables are as described in Table A. All continuous variables are winsorized at the 99% and 1% levels. ***, **, * denote statistical significance at 1%, 5% and 10% levels. P-values are derived based on robust standard errors clustered at the firm-year level.

Table 7: Three-day cumulative abnormal return surrounding earnings announcement

	Earnings Surprise				
VARIABLES	-1	0	1	t-Stat 1 minus (-1)	All firms
Low Conservatism	-0.009	-0.008	0.005^{a}	4.72***	0.004
High Conservatism	-0.010^{b}	-0.007	0.005	3.87***	0.002
Total	-0.009	-0.007	0.006	6.26***	
t-stat High - low	-0.38		-0.01		-1.90*
t-stat a - b	4.66***				

Table values are cumulative abnormal returns for firms with high or low conditional conservatism as defined by the three year average of $CSCORE\_khan$. ***, **, * denote statistical significance at 1%, 5% and 10% levels.

Table 8: Future Stock performance based on the level of Conservatism and Earnings missing/beating

Panel A: Buy-and-Hold Abnormal Returns (BHARs)					
		Equal-Weighted		Value-Weighted	
Month		BHAR	Standard p-value	BHAR	Standard p-value
3	Low	1.54	0.01	0.79	0.00
	High	3.53	0.00	2.62	0.00
	Difference	-2.00	0.06	-1.83	0.04
6	Low	1.23	0.14	0.83	0.00
	High	5.19	0.00	4.44	0.00
	Difference	-3.97	0.01	-3.61	0.01
12	Low	1.14	0.36	-2.52	0.00
	High	8.64	0.01	7.10	0.00
	Difference	-7.50	0.03	-3.90	0.00
36	Low	13.02	0.00	15.73	0.00
	High	24.65	0.00	19.35	0.00
	Difference	-11.63	0.06	-3.63	0.47
Panel B: Cumulative Abnormal Returns (CARs)					
		Equal-Weighted		Value-Weighted	
Month		CAR	Standard p-value	CAR	Standard p-value
3	Low	1.56	0.00	0.80	0.00
	High	3.52	0.00	2.79	0.00
	Difference	-1.95	0.06	-1.99	0.01
6	Low	1.49	0.00	1.31	0.00
	High	5.01	0.00	4.76	0.00
	Difference	-3.52	0.01	-3.45	0.00
12	Low	2.19	0.00	-1.19	0.00
	High	5.74	0.00	6.15	0.00
	Difference	-3.55	0.08	-7.34	0.00
36	Low	13.27	0.00	11.75	0.00
	High	22.43	0.00	20.53	0.00
	Difference	-9.16	0.00	-8.78	0.00

This table reports buy-and-hold (BHAR) and cumulative abnormal returns (CAR) for firms with high and low levels of conditional conservatism that miss consensus forecast by as much as one penny. Returns are compounded 3, 6, 12, 36 months after the announcement of earnings. ***, **, * denote statistical significance at 1%, 5% and 10% levels.

Table 9: Calendar-Time Regressions of Portfolios Formed on firms with high and low conservatism that miss analysts' consensus forecast

	Low Cons.		High Cons.		Hedge	
	Estimate	p-Value	Estimate	p-Value	Estimate	p-Value
Panel A: Short-Term Calender-Time Regressions (Months 1 through 6)						
			Equal-Weighted			
Alpha	0.13	0.57	0.72	0.01	-0.56	0.07
Mktret	1.00	0.00	1.23	0.00	-0.24	0.00
Smb	0.31	0.005	0.79	0.00	-0.48	0.00
Hml	0.28	0.00	0.31	0.00	-0.02	0.82
R^2	0.64		0.74			0.37
			Value-Weighted			
Alpha	-0.03	0.91	0.83	0.01	-0.86	0.03
Mktret	0.96	0.00	1.20	0.00	-0.24	0.03
Smb	-0.18	0.01	0.69	0.00	-0.87	0.00
Hml	0.01	0.89	0.01	0.93	0.00	0.98
R^2	0.72		0.79			0.24
Panel B: Long-Term Calender-Time Regressions (Months 12 through 36)						
			Equal-Weighted			
Alpha	0.50	0.00	0.78	0.00	-0.28	0.11
Mktret	1.03	0.00	1.03	0.00	-0.00	0.97
Smb	0.33	0.00	0.88	0.00	-0.55	0.00
Hml	0.29	0.00	0.30	0.00	-0.01	0.85
R^2	0.74		0.82			0.46
			Value-Weighted			
Alpha	0.53	0.00	0.57	0.00	-0.04	0.88
Mktret	0.89	0.00	1.13	0.00	-0.24	0.00
Smb	-0.09	0.19	0.74	0.00	-0.84	0.00
Hml	0.24	0.00	0.26	0.00	-0.03	0.77
R^2	0.86		0.86			0.33

This table reports calendar-time regressions of portfolios formed on firms with high and low levels of conditional conservatism that miss analysts' consensus forecasts. The short-term (long-term) performance differences between beaters and missers are captured within (12 to 36) months prior to the calendar date. p-values are reported using White (1980)-adjusted standard errors. ***, **, * denote statistical significance at 1%, 5% and 10% levels.