

Available online at www.sciencedirect.com**SciVerse ScienceDirect**

Procedia Economics and Finance 2 (2012) 91 – 100

Procedia

Economics and Finance

www.elsevier.com/locate/procedia

2nd Annual International Conference on Accounting and Finance (AF 2012)

Overvalued equity and the accruals anomaly:

Evidence from insider trades

Julia Sawicki^a and Keshab Shrestha^b^a *Dalhousie University, 6100 University Ave, Halifax B3H 3J5, Canada*^b *NUS Risk Management Institute, 21 Heng Mui Keng Terrace, 119613 Singapore*

Abstract

This paper examines the accruals anomaly in an agency context where managers of overvalued firms have incentives to sustain overvaluation. We hypothesize that managers anticipate the ultimate share price reversals and use high accruals to temporarily sustain overvaluation, while at the same time sell their shares. There is no incentive to deflate earnings of undervalued firms, leading to the prediction of an asymmetric relationship between trading and accruals. Our results support an agency explanation. Quadratic and binary regressions confirm that relationship between trades and accruals is concentrated on the selling side. The relationship between accruals and trading is only significant within the overvalued, low book-to-market (BM) firms. There is also evidence that low BM firms manage their earnings upward compared to high BM firms.

© 2012 The Authors. Published by Elsevier Ltd. Selection and/or peer-review under responsibility of Global Science and Technology Forum. Open access under [CC BY-NC-ND license](https://creativecommons.org/licenses/by-nc-nd/4.0/).

Keywords: Overvalued equity; Earnings management; Agency theory; Accruals Anomaly; Misvaluation; Insider Trading

1. Introduction

The accruals anomaly is one of many well-documented apparent contradictions of the efficient market hypothesis. First reported by Sloan (1996), a strategy of buying low accrual firms and selling high accrual firms yields significant returns. In his seminal paper and others, Sloan attributes misvaluation to investor fixation on earnings. The over- (under-) valuation of high (low) accrual firms subsequently adjusts resulting in a predictable negative relationship between accruals and returns.

The abundant literature investigating the anomaly documents an important empirical regularity: mispricing related to positive accruals is not matched by mispricing related to negative accruals (Beneish and Vargus, 2002; Barth and Hutton, 2004). Rather than being naïve and indiscriminate, investors' fixation is one-sided, suggesting a need to refine our understanding of the anomaly. Kothari et al. (2006) advance an alternative

explanation for the accruals anomaly, citing a large body of literature articulating the agency theory of overvalued equity. Jensen (2005) defines and analyzes the agency costs of overvalued equity where firms become overvalued for various reasons, and managers get caught up in a game of meeting expectations.¹ Actions include using overvalued equity to make acquisitions (Moeller et al., 2005; Shleifer and Vishny, 2003) delaying the release of bad news (Kothari et al., 2006) and income increasing earnings management (Jensen, 2005; Kothari et al., 2006). Specifically considering accruals as an earnings management tool, the ultimate price reversal for high accrual firms leads to the prediction of a negative relationship between high accruals and subsequent returns.

Investor errors in interpreting accruals are at play in both explanations of the accruals anomaly, however there are important distinctions regarding motivation, mechanisms and implications. In the agency scenario, managers play a direct role, reporting inflated earnings to help sustain overvaluation. In order for the high accrual component of earnings to be an effective mechanism of manipulation, investors must misinterpret the elements of reported earnings. In contrast to the agency theory's intent and action to mislead, the fixation hypothesis is silent regarding explicit managerial motivation and acts. Also, the agency theory of overvalued equity does not require investor fixation for firms to become overvalued. Accruals are part of the arsenal for sustaining overvaluation. Under the fixation hypothesis, cognitive errors are a direct *cause* of mispricing. Investors do not properly distinguish between the cash flow (permanent) and accrual (reversing) components of earnings in forecasting future performance. Firms with a high (low) component of accruals in earnings thus become over- (under-) valued. The mis-valuation adjusts quickly (as accruals reverse within the next few quarters) leading to low returns for high accrual firms, and high returns for low accrual firms.

On the other hand, the agency theory is restricted to the relationship between high accruals and overvaluation. If the agency explanation is behind the accruals anomaly, the relationship between accruals and returns will be non-linear (asymmetric): mispricing is only related to high accruals which are part of the process of sustaining overvaluation that eventually corrects. Kothari et al. (2006) provide supporting evidence of asymmetry on the relation between accruals and returns (past, current and future), and other variables related to overvaluation (investment/financing, insider trading and analyst optimism) concentrated in the high accrual deciles.

A key empirical distinction between the naïve fixation and overvalued equity explanations is the symmetry of the relation between the level of accruals and returns. Under the fixation hypothesis, investors are focusing on the earnings number, and errors are expected in both extreme levels of accruals. The predicted relationship between accruals and future returns will be linear (symmetric).

Our investigation into the accruals anomaly focuses on the relationship between accruals and one variable: insider trading. This is a particularly interesting variable to use in exploring the accruals anomaly in the context of overvalued equity for several reasons. Jensen (2005) describes a distorted path taken by managers to validate market (and perhaps their own) growth expectations (e.g. acquisitions, excessive internal spending and risky investments) which eventually turns to accounting manipulation as challenges to meet the expectations mount. Accruals, one of many tools available for earnings management, are not particularly effective for sustaining valuation over a long time frame due to their short term, reversing nature. This is precisely the strength of the using insider trading an empirical test of the accruals anomaly in the agency context. At some point along the distorted path, the illusion of growth becomes increasingly difficult to maintain. We hypothesize that managers anticipating a share price correction use accruals to temporarily sustain overvaluation while at the same time sell their shares. Another advantage of using insider trading to understand the accruals anomaly is that gives rise to a clear empirical distinction of asymmetry versus linearity in the trading accruals relationship. The agency incentive for upwards earnings management and selling of overvalued firms is not matched by an incentive to manage earnings downwards and buy for

¹ Kothari et al. (2006) discuss the incentives managers have to sustain overvaluation such as equity-linked compensation, and reputation.

undervalued firms. On the other hand, under the fixation hypothesis mispricing is predicted for the extreme accrual firms and incentives for selling as well as buying arise.

This study's results of multivariate regression tests confirm an asymmetric relationship consistent with the agency scenario. Selling is related to income increasing accruals, however there is no relationship between buying and income decreasing accruals. In a more direct investigation into overvaluation, accruals and trading patterns we use valuation ratios and past growth. Estimates of the relationship between insider trading and accruals within book-to-market quintiles indicate that the relationship between accruals and trading is significant only for the over-valued firms (low BM) and is consistent with the agency theory of overvalued equity.

The rest of the paper is organized as follows. Section 2 provides a literature review and background for our research question and Section 3 presents the hypotheses. The empirical tests are specified and results are reported in Section 4, followed by concluding remarks in Section 5.

2. Background

The accruals anomaly was first identified by Sloan (1996) reporting returns to a hedge portfolio long low-accrual stocks and short high-accrual stocks of 10.4 percent. Sloan interprets this as evidence that investors price earnings information without differentiating between the cash and accruals component. Earnings persistence associated with accruals is lower than that associated with cash flows but market prices do not reflect the differential persistence. Firms with high accruals relative to cash flow are thus overvalued, whereas those with low accruals are undervalued. The subsequent correction of the over- (under-) valuation results in a negative relationship between accruals and returns. Sloan's speculation that this investor 'fixation' on earnings is behind the abnormal returns has gained wide acceptance in the enormous volume of literature that has followed.²

The negative relationship between accruals and returns is well documented and shown to be robust to various measures, countries and time periods.³ The fixation explanation for the anomaly is not without detractors. In fact, as with other anomalies, its very existence is questioned on grounds such as: model misspecification (Kahn, 2008); data restrictions (Kothari et al., 2005); it is another anomaly in disguise (Collins and Hribar, 2000; Desai et al., 2004); and it captures the fundamental relationship between investment, accruals and returns (Zhang, 2007; Wu et al., 2010). Kothari (2001) points out many of the problems with tests of functional fixation including unidentified risk factors and research design.

Evidence that the relation between accruals and returns (and other variables related to mispricing) is driven by high accruals and negative returns undermines the fixation hypothesis.⁴ Thomas and Zhang's (2002) work points to a specific use of accruals based earnings management in sustaining overvaluation through inventory changes. Documenting several empirical regularities in extreme inventory changes, they build an explanation based on demand shifts, where managers use accruals-based earnings management to disguise declining demand. Other studies provide direct evidence of a link between accruals-based earnings management and overvaluation using measures to control for the probability of overvaluation.⁵

A key element in investigating alternative explanations for the anomaly is the theoretical foundation yielding testable hypotheses. Despite substantial evidence that the anomaly is asymmetric, alternative theoretical models which explain the distinction between misvaluation of high versus low accruals have been lacking. Kothari et al. (2006) provide this important base with their proposal of the agency theory of

² Richardson et al., 2005; Xie, 2001; Collins et al. 2003; Bradshaw et al., 2001.

³ See for example: Xie, 2001; Ali et al., 2000; Pincus et al., 2007.

⁴ Beneish and Vargus, 2002; Barth and Hutton, 2004.

⁵ Beneish and Nichols, 2005, 2006; Chi and Gupta, 2009.

overvalued equity. In the agency scenario, the cause of misvaluation is not investor inability to differentiate between accrual and cash flow persistence. Rather, overvaluation is initially exogenously determined. The relationship between current accruals and subsequent returns results from attempts to sustain overvaluation through upwards earnings management and mispricing that eventually reverses.

Our work uses insider trading to continue the investigation. Several studies provide evidence that insiders act as informed traders (Jaffe, 1974; Penman, 1982, 1985). Direct links between insider trading and misvaluation are provided by Seyhun (1992), Rozeff and Zaman (1998) and Jenter (2005). Assuming that insider trading patterns reflect information about deviations from fundamental value, several studies test hypotheses with measures of the relationship between accruals and insider trades. For example, Beneish and Vargus (2002) argue that both accruals and trading are observable signals of managers' private information and use accruals to distinguish between informative and opportunistic earnings management.

Kothari et al. (2006) use insider trading as one of the test variables in their empirical investigation of the accruals anomaly, hypothesizing asymmetry in the relationship between accruals and trading. According to the agency theory of overvalued equity the upwards earnings management overvalued firms will cluster in the high accrual groups, whereas undervalued firms are expected to be dispersed across deciles. In contrast, the fixation predicts overvaluation of high accrual firms and a corresponding undervaluation of low accrual firms. The asymmetry that Kothari et al. (2006) find for insider trading (concentrated in high accrual deciles) supports the agency theory.

Our study complements and extends the evidence provided by Kothari et al. (2006) in several ways. An important enhancement to decile-based evidence is our multivariate regression tests that measure the relationship between accruals and insider trading while controlling for firm-specific effects. Kothari et al.'s (2006) evidence can be questioned on the basis of confounding effects, an important one of which is fundamental growth. Zhang (2007) and Wu et al. (2010) provide evidence that the accrual anomaly is at least partially explained by growth driven by investment and its effect on working capital. A plausible alternative explanation for the clustering of selling in the high accrual deciles is that insiders tend to be heavy sellers of high growth firms, rebalancing their portfolios which have become overexposed to their firm. In this scenario, accruals (such as addition to inventories and accounts receivable) are a function of growth and not part of the distorted managerial behaviour in the agency explanation. Univariate evidence risks leading to the conclusion that accruals and trading are related, when the true relationship is between growth and selling. The regression tests in our paper control for growth, as well as other variables that have been shown to be related to accruals.

3. Empirical Tests and Results

3.1. Sample and Key Variables

The sample comprises 47,666 firm-year observations covering the period from 1991 to 2004. The trading data are from Thomson Financial and accounting data are from COMPUSTAT. Insider-trading behaviour is measured with the net purchase ratio (NPR) used by Kothari, et al (2006):

$$NPR_{i,t} = \frac{Buy_{i,t} - Sell_{i,t}}{Buy_{i,t} + Sell_{i,t}} \quad (1)$$

Where $Buy_{i,t}$ ($Sell_{i,t}$) equals the number of shares purchased (sold) by registered insiders of firm i during fiscal year, t .

Models based on Jones (1991) and Dechow et al.'s (1995) modification have been widely adopted in studies measuring accruals:

$$TA_{i,t} = NDA_{i,t} + DA_{i,t} \quad (2)$$

Where:

$TA_{i,t}$ = Firm i total accruals during year t . TA is the change in current assets plus change in short term debt, less change in cash, change in current liabilities, and depreciation expense.

$NDA_{i,t}$ = Firm i non-discretionary accruals during year t .
 $DA_{i,t}$ = Firm i discretionary accruals during year t .

We use both the Jones and modified-Jones models to estimate non-discretionary accruals:

$$NDA_t = a_0 + \alpha_1 \left(\frac{1}{A_{t-1}} \right) + \alpha_2 \left(\frac{\Delta REV_t - \Delta REC_t}{A_{t-1}} \right) + \alpha_3 \left(\frac{PPE_t}{A_{t-1}} \right) \tag{3}$$

Where:

A_{t-1} = Total assets at time $t-1$.

ΔREC_t = Net receivables in year t less net receivables in year $t-1$.

ΔREV_t = Revenues in year t less revenues in year $t-1$.

PPE_t = Gross property, plant and equipment year t

$\alpha_1, \alpha_2, \alpha_3$ = Firm parameters, estimated using OLS regression and data for all firms in a given SIC industry and year:

$$TA_{i,t} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{i,t-1}} \right) + \alpha_2 \left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{A_{i,t-1}} \right) + \alpha_3 \left(\frac{PPE_{i,t}}{A_{i,t-1}} \right) + \varepsilon_t$$

3.2. Relationship between accruals and trading

We begin by investigating whether insider trading is consistent with the returns patterns characteristic of the accruals anomaly. If insiders exploit the anomalous pattern of high (low) accruals, followed by negative (positive) returns, we expect that:

H1 Insider selling (buying) is positively (negatively) related to accruals.

The firms are grouped into six levels of trading on the basis of purchases. At the extremes are: All Buy (NPR = 1) and All Sell (NPR = -1). The other groups are majority buy (NPR between 0.5 and 1), buy equal sell ($0.5 \geq NPR \geq -0.5$, except NPR = 0), majority sell (NPR between -0.5 and -1) and no trade (NPR = 0). Table I reports the number of firms in each group and the average and standard deviation of accruals estimated for the NPR groupings.

Table I. Average accruals for trading groups

A: Descriptive Statistics					
NPR Group ³	DA_J ¹		DA_MJ ²		N
	Mean	S.D.	Mean	S.D.	
All Buy	-0.0051	0.1131	-0.0062	0.1167	8646
Buy	-0.0042	0.1125	-0.0049	0.1153	1463
Buy = Sell	-0.0041	0.1081	-0.0038	0.1113	2584
Sell	0.0029	0.1024	0.0043	0.1056	5555
All Sell	0.0033	0.1056	0.0044	0.1090	9735
No Trade	0.0000	0.1118	-0.0006	0.1155	19683
¹ DA_J: Estimated with Jones model. See equations (2) and (3).					
² DA_MJ: Estimated with Jones model. See equations (2) and (3).					
B: Difference in Accruals All Buy DA Minus All Sell DA					
	Difference in Mean		T Value	p-value	
DA_J	-0.0084		-5.204	0.000	
DA_MJ	-0.0106		-6.326	0.000	

Selling dominates the trading, which is common in insider trading studies which report that the majority of observations indicating insiders’ consensus on firm valuation or prospects. The buy groups’ negative accruals and the sell groups’ earnings increasing accruals support H1.

We investigate whether the relationship in Table I holds while controlling for other determinants of discretionary accruals (Cheng and Warfield, 2005) using the model:

$$DA_{i,t} = a_0 + \sum_{n=1}^5 \alpha_n NPRG_n + a_6 OCF_{i,t} + \alpha_7 Gr + \alpha_8 Size + \alpha_9 Lev + \alpha_{10} Lit + e_i \tag{4}$$

NPRG is a binary variable distinguishing between trade groups. *DA* measures accruals, *OCF* (operating cash flow) controls for the negative relationship between operating cash flow and accruals (Dechow et al., 1998). *Gr*, proxies for investment related growth and is included to control for the effect of investment activities. Other variables which have been shown to affect accruals are included as controls.

Equation (4) is estimated with OLS regression. Significant negative coefficients for the All Buy and Buy groups, and significant positive coefficients for the All Sell group confirm an inverse relationship between trading and accruals. The results reported in Table II show that the results of Table I hold after controlling for variables related to discretionary accruals and provide further support for H1. Estimates of the control variable coefficients are consistent with expectations and empirical evidence.

Table II. Regression estimates of trade groups’ average accruals

	Int	All Buy	Buy	B = S	Sell	All Sell
DA_J	-0.0115 (8.15)	-0.0070 (5.02)	-0.0080 (2.74)	-0.0055 (2.45)	0.0018 (1.06)	0.0034 (2.46)
DA_M	-0.0137 (9.48)	-0.0072 (4.99)	-0.0080 (2.67)	-0.0046 (1.98)	0.0030 (1.69)	0.0043 (3.04)
	OCF	Gr	Size	Lev	Lit	Adj R ²
DA_J	-0.0541 (36.99)	0.0082 (7.78)	0.0023 (9.14)	0.0153 (5.02)	-0.0108 (10.21)	0.036
DA_M	-0.0555 (36.89)	0.0157 (14.37)	0.0026 (10.01)	0.0115 (3.67)	-0.0112 (10.31)	0.041

N = 47,655

The distinction between fixation and agency hypotheses centers on asymmetric trading patterns in the high and low accrual groups. Assuming that insider trading patterns reflect private information about mispricing, the fixation hypothesis predicts that the relationship between accruals and trading is linear because both high- and low- accrual firms are misvalued. According to the agency hypothesis, the expected relationship is asymmetric because the income increasing earnings management associated with sustaining overvaluation is not matched by the expectation of income-decreasing earnings management for undervalued firms. We hypothesize:

H2 The relationship between accruals trades is non-linear. Selling and high accruals are related low accruals and buying are not related.

Using a continuous NPR variable and controlling for other interactions, we test for asymmetry (H2) by adding a quadratic term to the regression equation:

$$DA_{i,t} = a_0 + a_1NPR_{i,t} + \alpha_2NPR^2_{i,t} + \sum_{n=3}^7 a_n Control_{i,t} + e_i \tag{5}$$

The coefficient α_3 indicates whether the relationship is linear. In this regression the relationship between accruals is measured by $\alpha_2 + \alpha_3$. A significant negative (positive) coefficient for α_3 indicates that the relationship is stronger on the buy (sell) side.

Table III. Quadratic Tests of Linearity

	Int	NPR	NPR ²	Adj R ²	Error DF
DA_J	-0.0132 (4.96)	-0.0058 (7.58)	0.0041 (1.89)	0.0276	27975
DA_MJ	-0.0140 (5.11)	-0.0066 (8.31)	0.0036 (1.63)	0.0337	27975

The results in Table III provide support for H2. The positive coefficient estimate for the quadratic term (α_3) in Panel A indicates the negative relationship between sells (buys) and accruals is strengthened (attenuated) as the NPR falls accruals is strengthened (attenuated) as the NPR falls.

Using the modified-Jones coefficient the relationship between accruals and trading is estimated as:

$$\frac{\partial DA_{mj}}{\partial (NPR)} = -0.0066 + 2 \times 0.0041 (NPR)$$

Figure 1 depicts the relationship over the range of NPR -1 (All Sell) and +1 (All Buy) and the increasing slope as selling increases.

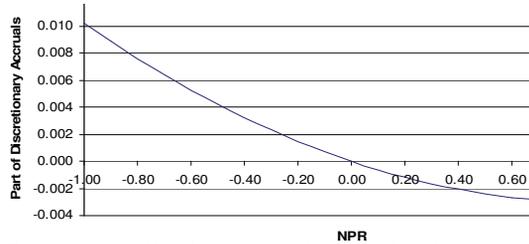


Figure 1. Accrual/trading relationship quadratic estimation

In another test of asymmetry (H2) we add a binary term to the regression equation:

$$DA_{i,t} = a_0 + a_1 NPR_{i,t} + \alpha_2 D * NPR_{i,t}^2 + \sum_{n=3}^7 a_n Control_{i,t} + e_i \tag{6}$$

where D = 1 if All Sell or Sell, otherwise equals zero. Again, a significant α_3 estimate indicates that the relationship between trading and accruals for the Sell and All Sell groups is different from the other groups.

The non-linear relationship is confirmed by regression estimates of equation (7) indicating that the slope of the accruals/ trade relationship for the sell group is significantly higher than the other groups: all sell (NPR=-1) the slope is $-0.0029 - 0.0074 = -0.0103$, but for others the slope is -0.0029 .

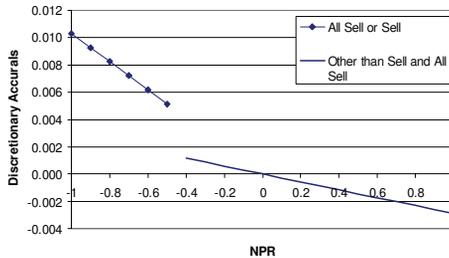


Figure 2. Accrual/trade relationship binary estimates

$$DA_{mj} = \begin{cases} -0.0029 (NPR) & \text{for } NPR \leq -0.5 \\ [-0.0029 - 0.0074] (NPR) & \text{otherwise} \end{cases}$$

The next step of the investigation uses fundamental measures to test accrual and trading patterns for a subset of, potentially misvalued firms. A behavioural view of misvaluation is built on investors’ cognitive bias in overreacting to earnings, causing well (poorly) performing firms to become over- (under-) valued. One measure of this is extreme valuation ratios. Price-to-earnings (PE) and book-to-market (BM) ratios are popular empirical proxies.

In line with the agency theory of overvalued equity we expect the incentives for overvalued firms to meet expectations and avoid disappointing markets are stronger than for fairly- or under-valued firms. We predict that upwards and the highest accruals will be associated with overvaluation:

H3 Earnings management of overvalued firms is greater than earnings management of other firms.

We begin by the separating the sample into book-to-market quintiles and comparing the trading across groups. The results (not reported here) are consistent with Rozeff and Zaman (1998), where insider sales

dominate the low BM firms' trades (lowest BM, whereas high BM firms trades are dominated by purchases. Average accruals for the lowest BM quintile (overvalued firms) are significantly higher than average accruals for the highest BM quintile (undervalued firms) providing support for H3 where earnings management is predicted to be higher for overvalued firms.

We next use the multiple regression model specified by equation (7) including control variables. The regression is estimated with binary BM grouping variables as interaction terms in order to measure the relationship between accruals and trading within each group:

$$DA_{i,t} = a_0 + a_1NPR_{i,t} + \sum_{n=2}^5 \alpha_n NPR * BMG_n + \sum_{a=6}^{10} a_n Control_{i,t} + e_i \tag{7}$$

The results reported in Table IV are also consistent with an agency story. The NPR interaction coefficients measure the incremental relationship between accruals and trading within The significant positive coefficients for the highest quintile effectively nets to zero (0.0067 - 0.0075 = -0.0008) indicating that there is no relationship between accruals and trading for the high BM firms, inconsistent with the fixation hypothesis where insiders would be expected to act on accrual related undervaluation. On the other hand, the relationship is negative for the other groups indicating an asymmetry consistent with the overvalued equity explanation of the accruals anomaly.

Table IV. Trading-accrual relationship for BM groups

	Int	NPR* BMG ₂	NPR* BMG ₃	NPR* BMG ₄	NPR* BMG ₅	NPR
DA	-0.0118 (5.94)	-0.0035 (1.55)	-0.0022 (0.99)	0.0023 (1.02)	0.0067 (2.90)	-0.0075 (4.47)
5 = Highest BM quintile		Adj R ² = 0.034		DF Error = 27972		

The relationship between accruals and trading for the groups is illustrated in Figure 3. In sum, the results are consistent with insiders exploiting the accrual anomaly. Trading is concentrated on the selling side consistent with the agency explanation of the anomaly. The negative relationship we find in Table V builds on evidence of asymmetry and is arguably driven by selling on overvaluation.

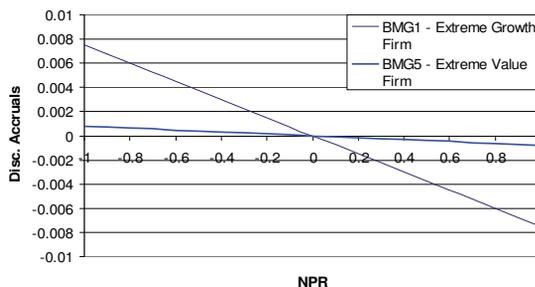


Figure 3. Trading/accruals relationship conditioned on valuation

4. Conclusion

In this paper, we investigate the accruals anomaly from an agency perspective, contrasting it with the naive fixation hypothesis. Although these are not totally distinct hypotheses in that investor fixation on reported earnings is the fulcrum for the latter and a likely element in the former, there are important distinctions to be made in terms of mechanisms, actions and implications under each.

The prevailing explanation of the accruals anomaly is that investors fixate on reported earnings and do not properly value the continuing (cash) and reversing (accrual) components of earnings. By definition, investors are naïve and do not distinguish between high and low accruals. Despite an abundance of studies reporting evidence that the accruals anomaly is driven by the relationship between high accruals and subsequent negative returns, economic rationale for, and a better understanding of, the anomaly have gone wanting. Kothari et al.'s (2006) proposition of the agency hypothesis of overvalued equity as an alternative explanation provides an important theoretical framework.

This study uses insider trading and firm characteristics to investigate the accruals anomaly. The agency theory predicts that managers of overvalued firms respond to incentives to sustain it, a mechanism for which is income-increasing accruals. Overvaluation cannot be sustained indefinitely and prices revert as fundamentals are revealed. We hypothesize that managers anticipate the correction of overvaluation and sell their shares, and predict a relationship between selling and high accruals for overvalued firms. While managers of undervalued firms may benefit from purchasing their firms' shares, they have no incentive to depress their earnings.

Our empirical investigation centers on the prediction of an asymmetric relationship between accruals and managerial trading, which is distinct from the fixation prediction of a symmetry in misvaluation (both positive and negative accruals are incorrectly extrapolated). Multivariate, binary and quadratic regression tests of the relationship between insider trading patterns and accruals indicate that it is concentrated more strongly in the selling of high accrual firms. This contributes important evidence supporting the agency explanation advanced and supported by Kothari et al.'s (2006) accrual decile evidence.

The agency explanation is further supported with evidence of asymmetric accrual related trading conditioned on valuation. Using book-to-market ratios to proxy for under- (low BM) and over- (high BM) valuation, we find a significant relationship high accruals and selling within the high BM group, whereas there is no relationship between trading and accruals in the low BM group.

Whether one considers the agency theory of overvalued equity a distinct, competing hypothesis or subset of the fixation explanation for the accruals anomaly, an economic rationale for the well-documented asymmetry in the accrual-return relationship is not well articulated in the literature. The agency perspective is fertile ground for understanding the relationship between accruals and returns when firms become misvalued. Further investigation into the interactions between the distortions in investment and operating decisions, and accounting manipulation through real and accrual based earnings management are avenues to be explored.

References

- Aboody, D., Hughes, J., Liu, J., 2005. Earnings Quality, Insider Trading, and Cost of Capital, *Journal of Accounting Research* 43, pp. 651-673.
- Ali, A., Hwang, L., Trombley, M., 2000. Accruals and Future Stock Returns: Tests of the Naïve Investor Hypothesis, *Journal of Accounting, Auditing and Finance* 15, pp.161-181.
- Baker, M., Wurgler, J., 2002. Market Timing and Capital Structure, *Journal of Finance* 57, pp. 1-32.
- Baker, M., Stein, J., Wurgler, J., 2003. When Does the Market Matter? Stock Prices and the Investment of Equity-Dependent Firms, *Quarterly Journal of Economics* 118, pp. 203-218.
- Beneish, M. D., 1999. Incentives and Penalties Related to Earnings Overstatements that Violate GAAP, *The Accounting Review* 4, pp. 425-457.
- Beneish M., Vargus, M., 2002. Insider Trading, Earnings Quality and Accrual Mispricing, *The Accounting Review* 77, pp. 755–792.
- Beneish M., Press, E., Vargus, M., 2005. The Effect of the Threat of Litigation on Insider Trading and Earnings Management, Working Paper, Indiana University.
- Bergstresser, D., Philippon, T., 2006. CEO Incentives and Earnings Management, *Journal of Financial Economics* 80, pp. 511-529.
- Cheng, Q., Warfield, T., 2005. Equity Incentives and Earnings Management, *The Accounting Review* 80, pp. 441-476.
- Chi, J., Gupta, M., 2009. Overvaluation and Earnings Management, *Journal of Banking and Finance* 33, pp. 1652 – 1663.

- Collins, D., Hribar P., 2000. Earnings-based and Accrual-based Market Anomalies: One Effect or Two? *Journal of Accounting and Economics* 29, pp. 101-123.
- Core, J.E., Guay, W., Richardson, S.,Verdi, R., 2006. Stock Market Anomalies: What Can We Learn from Repurchases and Insider Trading? *Review of Accounting Studies* 11, pp. 49 – 70.
- Coughlan, A. T., Schmidt, R. M., 1985. Executive Compensation, Management Turnover, and Firm Performance, *Journal of Accounting and Economics* 7, pp. 43-66.
- DeBondt, W., Thaler, R., 1985. Does the Stock Market Overreact? *Journal of Finance* 40, pp. 793-805.
- Dechow, P.M., Sloan, R.G., Sweeney, A.P., 1995. Detecting Earnings Management, *The Accounting Review* 70, pp. 193-225.
- Dechow, P.M., Kothari, S.P, Watts, R., 1998. The Relation between Earnings and Cash Flows, *Journal of Accounting and Economics* 25, pp. 133-168.
- Desai, H., Rajgopal, S., Venkatachalam, M., 2004. Value-Glamour and Accruals Mispricing: One Anomaly or Two? *The Accounting Review* 79, pp. 355-385.
- Jaffe, J., 1974. The Effect of Regulation Changes on Insider Trading, *The Journal of Business* 47, pp. 410–428.
- Jensen, M., 2005. Agency Costs of Overvalued Equity, *Financial Management* 34, pp. 5-19.
- Jenter, D., 2005. Market Timing and Managerial Portfolio Decisions, *The Journal of Finance* 60, pp. 903-1949.
- Kahn, M., 2008. Are accruals Mispriced? Evidence from Tests of an Intertemporal Capital Asset Pricing Model, *Journal of Accounting and Economics* 45, pp. 55-77.
- Kothari, S., 2001. Capital Markets Research in Accounting, *Journal of Accounting and Economics* 31, pp.105 - 231.
- Kothari, S., Sabino, J., Zach, Z., 2005. Implications of Data Restrictions on Performance Measurement and Tests of Rational Pricing, *Journal of Accounting & Economics* 39, pp. 129-161.
- Kothari, S., Shu, S., Wysocki, P., 2009. Do Managers Withhold Bad News? *Journal of Accounting Research* 47, pp. 241 - 276.
- Kothari, S., Loutskina, E., Nikolaev, V., 2006. Agency Theory of Overvalued Equity as an Explanation for the Accrual Anomaly. Discussion Paper 103, Tilburg University, Center for Economic Research.
- Kraft, A., Leone, A., Wasley, C., 2006. An Analysis of the Theories and Explanations Offered for the Mispricing of Accruals and Accrual Components, *Journal of Accounting Research* 44, pp. 297 – 339.
- Lakonishok, J., Shleifer, A., Vishny, R., 1994. Contrarian Investment, Extrapolation and Risk.,*The Journal of Finance* 44, pp. 1541–1578.
- Moeller, S., Schlingemann, F., Stulz, R., 2005. Wealth Destruction on a Massive Scale? A Study of Acquiring-firm Returns in the Recent Merger Wave, *Journal of Finance* 60, pp. 757-782.
- Penman, S., 1982 . Insider Trading and the Dissemination of Firm's Forecast Information, *Journal of Business* 55, pp. 479-503.
- Penman, S., 1985. A Comparison of the Information Content of Insider Trading and Management Earnings Forecasts, *Journal of Financial and Quantitative Analysis* 20, pp. 1-17.
- Pincus M., Rajgopal S., Venkatachalam M., 2007. The Accruals Anomaly: International Evidence, *The Accounting Review* 82, pp. 169-203.
- Rozeff, M., Zaman, M., 1998. Overreaction and Insider Trading: Evidence from Growth and Value Portfolios, *The Journal of Finance* 53, pp. 701–716.
- Sawicki, J., Shrestha K.M., 2008. Insider Trading and Earnings Management, *Journal of Business Finance and Accounting* 35, pp. 331-346.
- Seyhun, H., 1992. Why Does Aggregate Insider Trading Predict Stock Returns? *Quarterly Journal of Economics* 107, pp. 1303 – 1332.
- Shleifer, A., Vishny R., 2003. Stock Market Driven Acquisitions. *Journal of Financial Economics* 70, pp. 295-311.
- Sloan. R. G., 1996. Do Stock Prices Fully Reflect Information in Accruals and Cash Flows about Future Earnings? *The Accounting Review* 71, pp. 289-315.
- Thomas, J., Zhang H., 2002. Inventory Changes and Future Returns, *Review of Accounting Studies* 7, pp. 163-187.
- Warner, J. B., Watts, K. H., Wruck, K. H., 1988. Stock Prices and Top Management Changes, *Journal of Financial Economics* 20, pp. 461-492.
- Wu, J., Zhang, L., Zhang X., 2010. The Q-theory Approach to Understanding the Accrual Anomaly, *Journal of Accounting Research* 48, pp. 177-223.
- Xie, H., 2001. The Mispricing of Abnormal Accruals. *The Accounting Review* 76, pp. 357-373.
- Zach, T., 2007. Evaluating the 'Accrual-Fixation' Hypothesis as an Explanation for the Accrual Anomaly. Washington University, working paper.
- Zhang, X.F., 2007. Accruals, Investment, and Accrual Anomaly. *The Accounting Review* 82, pp. 1333–1363.