CONSERVATISM, EARNINGS PERSISTENCE, AND THE ACCRUALS ANOMALY

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By

Gulraze Wakil

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Dissertation written by

Gulraze Wakil

BCOMM, University of Toronto, 1988

MA (Econ), University of Toronto, 1990

Ph.D., Kent State University, 2011

Approved by

_____ Chair, Doctoral Dissertation Committee
Dr. Pervaiz Alam

_____ Members, Doctoral Dissertation Committee
Dr. Wei Wei Li

Dr. Eric D. Johnson

Accepted by

_____ Doctoral Director, Graduate School of
Dr. Murali Shankar Management

_____ Associate Dean, Graduate School of Management
Dr. Frederick W. Schroath

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CHAPTER 1

INTRODUCTION

1.1 Overview

Stock market anomalies are empirical results that seem to be inconsistent with maintained theories of asset pricing (Schwert, 2001). The accruals anomaly falls into this category because trading on the information contained in accruals has been shown to produce abnormal returns and mispricing of stocks using various asset pricing models. In accounting, accruals are adjustments made to the financial statements for which cash is either to be received or paid out in the future. For example, sales made for a payment that has not yet been received are accruals. In the past and in the contemporary literature, the mispricing of stocks related to accruals has been shown by a zero investment trading strategy of buying long low accrual firms and selling short high accrual firms that produced abnormal returns greater than zero.¹ This result is often referred to as the “accruals anomaly” and is considered a violation of market efficiency (Lev and Nissim, 2006; Kothari et al., 2008).

After more than a decade since Sloan’s (1996) landmark article on the mispricing of accruals, authors of accounting and finance research still find evidence of this market

¹ Throughout this dissertation, the accruals anomaly means earning abnormal returns from a similar hedge strategy that trades on the information contained in accruals. In Sloan (1996), the first article to document the ability to earn abnormal returns by using information about accruals, the return on a hedge portfolio taking a long position in the lowest accrual decile firms and an equally valued short position in the highest accrual decile firms gave a 10.4 percent abnormal return for the first year after portfolio formation. The sample period was 1962-1991. A simple long position in the lowest accrual decile firms still produced abnormal returns in the range of 5 percent using the market model that assumed the Capital Asset Pricing Model (CAPM). In addition, Hirshleifer et al. (2007) state that the ability of accruals to predict cross-sectional returns is robust to the use of CAPM beta, size, book-to-market ratio, and the Fama and French (1993) 3-factor model.

inefficiency. In this thesis, I extend the research on the accruals anomaly by investigating how accounting conservatism, the tendency of a firm to record losses in a timelier manner and specific accounting rules that lower the book value of a firm, affects accrual persistence and, in turn, the accruals anomaly. I examine accrual persistence, the ability of an accrual to be sustained into the future, as an intermediary step in understanding the accruals anomaly, because the lower persistence of accruals is a common reason for the accruals anomaly (Sloan, 1996; Bradshaw et al., 2001; Richardson, et al., 2005; Kothari et al., 2008) and persistence is an important attribute of earnings (Dechow and Schrand, 2004). In addition, this study is the first to examine the effects of individual explanations of conservatism (interchangeably referred to as drivers in this thesis) on the accruals anomaly.² The conservatism drivers are: contracting, litigation, accounting regulation, and taxation (CLRT), as described in Watts (2003a) and in Chapter 2 of this thesis. Nevertheless, since the conservatism drivers do not include all explanations of conservatism and have common features, I also analyze a firm's overall degree of conservatism and its effect on the accruals anomaly.³

The two main questions investigated in this study are: (1) How is the persistence of different magnitudes of accruals affected by overall degree of conservatism and each of the conservatism drivers? (2) What effect does the overall degree of conservatism and each of the conservatism drivers have on the accruals anomaly?⁴

² The term 'drivers' has been used to describe explanations of conservatism in previous literature (Lobo et al., 2008; Chen et al., 2008; Lara et al., 2009). These drivers are also referred to as inducing conservatism in Qiang (2007).

³ The common features of the conservatism drivers are discussed in Section 2.5 of the literature review.

⁴ A firm's overall degree of conservatism and the conservatism drivers will be measured using various proxies (see Chapter 3). Also, in this dissertation, an increase in the accruals anomaly implies greater abnormal returns from trading on information contained in accruals.

Explanation of the accruals anomaly begins with a simple equation of earnings being equal to the sum of a cash and a non-cash component. The non-cash component is accruals, which are adjustments made to the financial statements for which cash is either to be received or paid out in the future. Dechow and Ge (2006) defined operating accruals as net income less cash flows from operations. To account for scale differences in accruals across firms, accruals are often deflated by total assets. Moreover, accruals are more subjective and transitory than cash flows because they include estimates of one-period-ahead cash flows, deferrals of past cash flows, allocations, and valuations (Richardson et al., 2005). Due to their higher subjectivity, they have lower persistence in predicting future earnings, in comparison to cash flows. Persistence is generally described as the first order autocorrelation of a variable between consecutive years (Paek et al., 2007). The literature on the accruals anomaly describes accrual persistence as the correlation between current accruals and one-period-ahead earnings in a multivariate regression of one-period-ahead earnings on current cash flows and current accruals.

Sloan (1996) explained that investors' expectations do not reflect or incorporate the lower persistence and greater subjectivity of accruals versus cash flows. He refers to this as investors naively fixating on earnings instead of its components, which is consistent with the functional fixation hypothesis.⁵ By overestimating the effect (persistence) of accruals, and underestimating the effect of cash flows in forming their expectations, investors underestimate one-period-ahead earnings of low accrual firms (bottom decile of scaled accruals) and overestimate one-period-ahead earnings of high accrual firms (top decile of scaled accruals). This leads to the mispricing of stocks because earnings are a key variable in forecasting future returns or stock prices. For

⁵ Hand (1990) describes the functional fixation hypothesis as some investors always being unsophisticated and unable to assess the true implications of cash flows in accounting data. This is a departure from the efficient market hypothesis where investors are assumed to be sophisticated and understand accounting data.

example, ex-ante ante cost of capital models use estimates of future earnings. Due to this mispricing, abnormal returns can be made by investing in a portfolio of low accrual firms because low accrual firms have a greater percentage of their earnings from cash flows and therefore their earnings are underestimated making their current stock prices under-valued. Even greater returns can be made from a hedge portfolio that is long in low accrual firms and short in high accrual firms. In the extant literature and research, this is called the accruals anomaly.

Sloan's (1996) paper spawned a large number of subsequent papers investigating the differential persistence between accruals and cash flows and stock mispricing (Bradshaw et al., 2001; Xie, 2001; Fairfield et al., 2003; Desai et al., 2004; Richardson, Sloan, Soliman, and Tuna, 2005; Core et al., 2006; Zhang, 2007; Ali and Gurun, 2009). Two papers in particular, Kraft et al. (2007) and Kothari et al. (2008), challenged Sloan's investor fixation hypothesis. Kraft et al. (2007) used the Mishkin (1983) test on a year-by-year basis and found that accruals were not mis-priced, though the cash flow component and the largest accrual deciles were still mis-priced. Nevertheless, as Kraft et al. (pg. 1100) point out, using year-by-year basis discards information about the estimated standard errors that the Mishkin test was designed to exploit. Kothari et al. used the agency theory of overvalued equity and earnings management, as opposed to the investor fixation hypothesis, to explain the accruals anomaly. Another argument is that growth in investments of a firm causes the accruals anomaly. The work of Fairfield et al. (2003) and Zhang (2007) support this explanation.

Conservatism has been described as the greater verification requirements to record in the financial statements good news as gains versus bad news as losses, or the asymmetric verification requirement for gains and losses (Watts 2003a, p. 208; Basu 1997, p. 7). This interpretation allows for degrees of conservatism based on differences in verification (Watts,

2003a).⁶ In this thesis, I interpret unrealized gains and losses similar to those described in Ball and Shivakumar (2005b). In their article, examples of unrealized gains and losses included gains/losses involving working capital, gains/losses on trading securities, inventory write-downs due to factors such as spoilage, obsolescence, or declines in market value, receivables' revaluations, and provisions for operating costs arising from adverse events in the current period. I argue that the greater verification requirements of unrealized gains, due to accounting conservatism, will make accruals more persistent and provide a lower accruals anomaly in high accrual firms that have greater degrees of conservatism.⁷ I restrict my argument to high accrual firms because they are likely to have greater percentages of unrealized gains in their accruals than would low accrual firms because all of the examples listed above from Ball and Shivakumar (2005b), related to gains (losses), increase (decrease) the amount of accruals. Further, since conservatism requires greater verification from unrealized gains, due to its asymmetric verification requirements, conservatism will make the accruals in high accrual firms more persistent relative to accruals in low accrual firms. High accrual firms tend to have earnings managed upwards and are most likely to benefit, in terms of increased persistence, from greater

⁶ Conservatism has also been classified as unconditional and conditional. Unconditional (ex ante or news independent) and conditional (ex post or news dependent) are explained in Section 2.5.1 of the literature review.

⁷ Section 2.5 explains in detail how the drivers of conservatism (contracting, litigation, regulation, taxation) can induce an increase in the persistence of accruals. The main argument used is that these drivers are costs to outsiders and conservatism can reduce the costs of these drivers. For example, in debt contracts, creditors are at an informational disadvantage because they are outside of the firm and would incur greater costs (e.g., greater probability of default loss) if earnings were overstated than understated. Conservatism can reduce the costs to outsiders from high earnings relative to low earnings by understating net assets. Similarly, the greater verifiability requirements of conservatism reduce the litigation driver costs from a lawsuit of over inflating earnings (Watts, 2003a; Qiang, 2007). I extend this research to show that along with conservatism reducing the costs of the contracting and litigation conservatism drivers, it can increase the persistence of accruals in high accrual firms because of its asymmetric reliability and verifiability requirements. The other driver costs are regulation and taxation. Under the regulation hypothesis, regulators prefer lower income because it results in less scrutiny or blame from constituents in the political process (Qiang, 2007). Examples of regulation costs are restatements and SEC intervention. Taxation costs are the amount that is owed to the internal revenue service.

degrees of conservatism. The idea of high accrual firms having greater managed earnings is supported by Hirshleifer et al. (2007) and Kothari et al. (2008).

A second characteristic of conservatism is that it increases the reliability of accruals. Balachandran and Mohanram (2006) stated that “Conservative accounting requires verifiability that minimizes the potential for errors in measurement, and correspondingly increases the reliability of the resulting information”. Moreover, Zhang (2000), in his conclusion, stated: “Generally speaking, conservatism arises from considerations such as reliability,...”⁸ Watts (1993) stated: “My explanation for conservatism is that it is a mechanism by which reliable estimates are required for profits to be anticipated.” The estimates to which he was referring were accruals. Reliability of accruals and their relationship to persistence was also examined by Richardson et al. (2005). They showed an increase in accrual persistence when accruals were more reliable, i.e., a positive relationship. I hypothesize that greater reliability of accruals is likely to be related to the contracting and litigation explanations/drivers inducing conservatism, because increased reliability of accruals should reduce information asymmetry to persons outside the company. For example, Zhang (2008) explained that lenders’ default risk in debt contracts decrease as gains become more reliable through conservatism. Krishnan (2003) found, due to their higher litigation risk, firms audited by “Big 6” auditors had discretionary accruals that were better priced by the stock market and were more accurate in predicting future earnings. The latter article supports the litigation driver inducing conservatism to increase reliability of accruals, because “Big 6” auditors are known to be subject to greater litigation risk (Palmrose, 1988; Khurana and Raman, 2004).

⁸ Balachandran and Mohanram (2006) also associate reliability with value relevance in capital markets. Their study did not find that conservatism decreased value relevance, which is often considered a trade-off to reliability.

Even though Sloan (1996) did not discuss conservatism as a reason for the lower persistence of accruals leading to the accruals anomaly, recent studies (e.g., Fairfield et al., 2003; Dechow and Ge, 2006; Zhang, 2007) attribute part of the lower persistence of accruals to the accounting principle of conservatism. Dechow and Ge (2006) showed that low accrual firms had the least persistence of accruals, which they attributed almost entirely to the writing off of special items and implied that it was due to conservatism. Zhang (2007) stated that conservatism “...often leads to lower earnings in year $t+1$ for high-investment/growth firms, as firms recognize expenses immediately but the new investment has not generated much revenue yet”. Zhang is referring to high accrual firms as those that would be high-investment/growth firms.

To reiterate, the accruals anomaly is a market inefficiency and a common explanation is that it is caused by investors who overestimate the persistence of accruals in earnings, whereby abnormal returns are made. These abnormal, size-adjusted, returns are made by investing in a hedge portfolio that is long in low accrual firms and short in high accrual firms.⁹ The seminal paper by Sloan (1996) showed that prior year’s cash flows can better explain future earnings than can accruals; i.e., cash flows are more persistent or sustainable. The reason given by Sloan (1996) and Richardson, Sloan, Soliman, and Tuna (2005) are that accruals include subjectivity, and therefore, are less persistent in predicting one-period-ahead earnings than are cash flows.¹⁰

Due to their lower persistence and investors’ fixating on earnings, signed accruals are negatively

⁹ Market efficiency has been characterized as information being widely and cheaply available to investors and that all relevant and ascertainable information is already reflected in prices (Brealey et al., 1986, p. 279). The market inefficiency caused by accruals is due to investors not fully incorporating the persistence differences between accruals and cash flows rather than to limited availability of information in forming their expectations.

¹⁰ Sloan (1996) attributed the lower persistence of accruals to their discretionary nature. Other authors have attributed it to growth in assets/investments (Fairfield et al., 2003; Zhang, 2007) and the agency argument of overvalued equity (Kothari et al. 2008). The growth argument is that in growth firms accruals are formed because accounting rules require expenses to be incurred but the related revenue to be deferred to a greater degree than expenses. This makes accruals of growth firms less persistent. Kothari et al. argued that under the agency theory of overvalued equity, managers of overvalued firms have incentives to keep managing their firms’ accruals upwards to maintain the overvaluation. This would give over-representation to overvalued firms in high accrual deciles. However, the overvaluation can’t last forever and therefore accruals become less persistent.

related to one-period-ahead stock returns. Sloan (1996), Richardson et al. (2005), and Dechow and Ge (2006) empirically demonstrated that these size-adjusted hedge returns are approximately 10 percent to 20 percent annually.

In summary, one of the main reasons for the accruals anomaly is the lower persistence of accruals relative to cash flows in predicting one-period-ahead earnings that is not properly differentiated by investors, leading to stock mispricing. This is also consistent with the functional fixation hypothesis. I extend the lower persistence of accruals relative to cash flows in predicting one-period-ahead earnings by examining what effects conservatism and its drivers have on the accruals anomaly. I predict a positive relationship between a firm's overall degree of conservatism and its drivers and the persistence of accruals in high accrual firms. This is because the higher reliability and verification requirements from greater conservatism are likely to make high accruals more accurate. If this prediction is true, then conservatism can help to reduce the accruals anomaly.

1.2 Motivation

The accruals anomaly has been attributed to the lower persistence of accruals, growth in assets or the investment argument (Fairfield et al., 2003; Zhang, 2007; Hribar and Yehuda, 2008), and the agency theory explanation of over-valued equity (Kothari et al., 2008; Raith, 2009). This thesis; however, concentrates on conservatism's effect on persistence of accruals because: (1) The persistence argument is partially explained by the subjectivity and judgment involved in accruals, which is related to conservatism; (2) Conservatism is expected to affect the persistence of accruals rather than affecting the amount of investment a firm makes via its reliability and verification requirements. Conservatism is an accounting concept related to how a

firm records its financial transactions that is unlikely to affect business decisions like investing; and (3) Accounting conservatism is related to the agency argument for the accruals anomaly. For example, the contracting explanation of conservatism (as outlined in Section 2.6.1) maintains that conservatism is used by shareholders, among others, to mitigate the agency problems discussed in Kothari et al. (2008) and supported by Raith (2009).

Watts (1993; 2003a,b) suggested that greater degrees of conservatism add reliability to accruals and Richardson et al. (2005) showed that accrual reliability is positively related to accrual persistence, which was linked to Sloan's (1996) notion of subjectivity in accruals.¹¹ Therefore, a connection between conservatism and accrual persistence has been implied in prior research and I expect that isolating degrees of conservatism within high accrual deciles would provide information to further explain the accruals anomaly.

Furthermore, accruals are a major concept of GAAP (Generally Accepted Accounting Principles) accounting, and the importance of accrual accounting cannot be understated. The Financial Accounting Standards Board (FASB), in many of its Statement of Financial Accounting Concepts (e.g., SFAC NO. 1, 1978; SFAC No. 106, 1990) has laid out the importance of accrual accounting. Consequently, accounting researchers still need to delve into the reasons for accruals causing mispricing, since it shows that accounting contributes to market inefficiency. The accruals anomaly may be interpreted as a weakness in accounting, which lowers its value and usefulness. Accounting academics and practitioners must therefore find better ways to reduce the effects of accruals on market inefficiency for users of accounting information. I believe that the relationship between conservatism and the accruals anomaly can

¹¹ Richardson et al. (2005) measured accrual reliability as the variance of the error in estimating accruals and stated that conservatism could be a cause of variation in the error, though it was not addressed in their model. Working capital accruals had the greatest variance and financial accruals had the least, indicating that working capital accruals are the least reliable.

aid in isolating firms that are causing relatively more (or less) abnormal returns from a hedge strategy that uses information in accruals. The more the market understands the relationship, the less mispricing of stocks will occur.

1.3 Hypotheses and Research Design

This study develops two sets of hypotheses to examine the relationship between firm-level overall degree of conservatism and drivers of conservatism (contracting, litigation, regulation, and taxation) with the accruals anomaly. The first set of hypotheses examines how the overall degree of conservatism and each of the conservatism drivers affect the persistence of accruals in predicting one-period-ahead earnings; and the second set of hypotheses examines how the overall degree of conservatism and conservatism drivers affect the accruals anomaly or the potential to earn abnormal returns from the information contained in accruals. Both sets rely on the increased reliability and verifiability requirements of conservatism.

The explanations or drivers of conservatism reduce the agency problem of asymmetric information to external parties. For example, conservatism is a mechanism that can credibly reduce the downside risk of lenders (Watts and Zimmerman, 1986). In Chapter 3 of this thesis, I predict that higher levels of accrual persistence will be positively related to conservatism in high accrual firms, since these firms' accruals are more likely to materialize, i.e., will be converted to cash. This prediction is made because these accruals will be generally more reliable and be subject to greater verifiability. Similar arguments are used to develop a negative relationship between the accruals anomaly and conservatism in high accrual firms, i.e., greater conservatism in high accrual firms will decrease the accruals anomaly. This hypothesized relationship is illustrated in Figure 1. The solid line depicts how abnormal returns from trading on accruals is

negatively related to accrual deciles without considering degrees of conservatism, as was first reported in Sloan (1996). The dashed line depicts firms with higher degrees of conservatism and shows that when accruals are high, holding everything else constant, a greater degree of conservatism (either by one of the drivers or overall) decreases negative abnormal returns. The accruals anomaly, in this study, the positive abnormal returns from a hedge portfolio that is long in low accrual firms and short in high accrual firms, is decreased because now lower one-period-ahead negative returns are earned in high accrual firms if they are relatively more conservative.¹²

Figure 1: Effects of Conservatism on Abnormal returns

*Abnormal Returns from trading on information in accruals

¹² The hypotheses in Chapter 3 test whether or not greater abnormal returns can be made from a similar hedge portfolio except that it shorts high accrual firms that also have low levels of conservatism. See hypothesis H3, Section 3.2.3.

Within both sets of hypotheses, I also examine the overall firm degree of conservatism and its effects on accrual persistence and the accruals anomaly. Overall degree of conservatism is addressed because the conservatism drivers do not capture all explanations of conservatism and, at the outset, it is not clear whether the drivers or overall conservatism will have greater effects, or better explain the accruals anomaly. For example, overall conservatism, beyond the drivers of conservatism, does not necessarily increase accrual persistence if that part is found to add further variance to accruals. In addition, Watts (2003a) suggested that due to the commonalities among the conservatism drivers, they may be manifestations of a single explanation. These commonalities are described in Chapter 2 (literature review). The analysis of overall firm degree of conservatism avoids the commonality issue because it attempts to capture all explanations of conservatism. Apart from the commonality issue, overall conservatism also reduces the potential correlated omitted variable problem.

The research design in this thesis starts with the standard ordinary least squares regression equation of one-period-ahead earnings as a function of current cash flows and accruals, as used in previous literature. To measure the effect of overall degree of conservatism and the conservatism drivers on accrual persistence, interaction variables of the degree of conservatism (overall or driver), accruals, and high accrual decile indicator variable are added to this equation (See Equations 4a, 4b, 4c, 4d, and 4e in Chapter 3, Section 3.3.4). The interactions will isolate the incremental effect of the degree of conservatism on high accrual decile firm's persistence. For the second set of hypotheses, I determine the effects of conservatism on the accruals anomaly using a multivariate regression approach that controls for other factors known to be associated with stock returns (Section 3.3.6, Equation (5a)). This multivariate equation includes

variables for conservatism, accruals, and their interaction at the firm-level. Similar to the persistence set of equations, a high accrual indicator variable is used to determine whether or not a difference occurs in conservatism's effects on one-period-ahead returns from accruals between high and low accrual decile firms.

In addition to the above main testing, an analysis was performed at the portfolio-level. Portfolios were formed by first sorting on accrual deciles and then by a second sort/pass with respect to conservatism quintiles. This provided 50 portfolios per year. I then estimated size-adjusted abnormal returns and abnormal returns measured by Jensen's alphas obtained from common asset pricing models.¹³

1.4 Summary of Empirical Findings

This thesis examined conservatism's effect on accrual persistence and on one-year-ahead returns from accruals. In addition, the individual drivers or explanations of conservatism were examined for their effects on accrual persistence and on one-year-ahead returns from accruals. In the following paragraphs, I describe the empirical findings and their implications.

Accruals are at the heart of GAAP accounting and have been criticized for their lower persistence in predicting one-year-ahead earnings. The results of this study show that overall degree of conservatism incrementally increased the persistence of accruals in predicting one-period-ahead earnings, relatively more for high accrual firms than for low accrual firms. This aspect of conservatism has not been previously established.

¹³ The asset pricing models used are the market model and the Fama and French (1993) three-factor model, enhanced by the momentum factor of Jegadeesh and Titman (1993).

With respect to the drivers of conservatism, only the taxation driver increased accrual persistence at statistically significant levels. Moreover, when comparing high accrual firms to low accrual firms, greater accrual persistence in predicting one-period-ahead earnings was only supported by the conservatism coming from contracting and litigation. Conservatism, explained by regulation and taxation was not statistically significant for increasing accrual persistence, when high accrual decile firms were compared to low accrual decile firms. The latter result is consistent with that of Watts (2003b), who found that the evidence for regulation and taxation explaining conservatism was weak.

The second part of this thesis explores conservatism's effect on one-year-ahead abnormal returns from accruals. Overall degree of conservatism incrementally increased the effect of accruals in predicting one-period-ahead abnormal returns. In addition, this increase was greater for high accrual firms than for low accrual firms. However, statistically insignificant results were obtained for conservatism explained by contracting, litigation, regulation, or taxation for increasing the effect of accruals in predicting one-period-ahead abnormal returns. Furthermore, when comparing high accrual firms to low accrual firms, the regulation driver of conservatism actually reduced the returns of accruals in high accrual decile firms.

Generally, overall degree of conservatism was shown to increase accrual persistence in predicting one-period-ahead earnings and reduce the negative one-year-ahead abnormal returns from accruals. The latter result can be interpreted as increasing market efficiency, because the ability to earn abnormal returns is associated with market inefficiency (Daniel and Titman, 1999; Schwert, 2003). These results will be of interest to investors, because they show that conservatism indeed affects abnormal returns. Further, since the main analysis of this study was done at a firm-level basis, and conservatism should be stable over periods of time (Givoly et al.,

2007, pg. 83; Hui et al., 2009), the information can be used ex-ante and prior to the release of financial statements.

1.5 Contribution

Previous research examined the accruals anomaly and its relationship with accrual persistence, agency theory and earnings management, analyst forecasts, special items, and investment growth, among other items. To my knowledge, this study is the first to examine the effects of overall degrees of accounting conservatism and its explanations on the accruals anomaly at a firm-level basis. The firm-level analysis avoids the loss of information that occurs from averaging in the portfolio-generating process and from averaging associated with some independent variables.

This research shows that the accruals anomaly still exists, despite considerable literature having described its presence (Lev and Nissim, 2006; Mashruwala et al., 2006; Ali et al., 2007). By understanding how conservatism and its drivers interact with the anomaly, academics and investors may be able to identify, ex-ante, which types of firms are more likely to exhibit accruals mispricing. Prior research does not provide ex-ante information, except for the magnitude of accruals, related to the accruals anomaly. The additional information about the effects of a firm's overall degree of conservatism (and the drivers) on the accruals anomaly will help academics and investors in further understanding the anomaly. This new information can assist to increase market efficiency by lowering stock mispricing.¹⁴

¹⁴ Observing abnormal returns can have reasons other than market inefficiency. I reproduce here a note from Kothari et al. (2008) that succinctly explains other reasons. "In an efficient market, the correction should take place quickly after the public release of information such that even for the high accrual stocks one-period-ahead performance should not be predictably negative for one or more years. The observed evidence of negative abnormal performance for the high-accrual portfolios has multiple potential explanations. They include (i)

1.6 Implications for Regulators

The relationship of conservatism and its drivers to the accruals anomaly has implications for regulators regarding the standards for fair value accounting. Fair values are considered more relevant and are a departure from conservatism. In fact, current standard-setting does not explain conservatism in the value relevance literature (Holthausen and Watts, 2001, p. 13).¹⁵ In SFAC No. 2, paragraph 93, the Financial Accounting Standards Board (FASB) states that conservatism “was once commonly expressed as the admonition to ‘anticipate no profits but anticipate all losses’” and “Conservatism in financial reporting should no longer connote deliberate, consistent understatement of net assets and profits.” These statements are in contrast to the preferences that regulators had for unconditional conservatism (Qiang, 2007).¹⁶

Accounting conservatism is a biased application of fair value accounting due to its asymmetric requirements of gains and losses recognition. Nevertheless, the results of this study show that market inefficiency from the accruals anomaly can be reduced by incorporating the effects of conservatism on accruals. Therefore, the long-standing accounting principle of conservatism in accounting needs to be part of fair value accounting and international accounting

market inefficiency, (ii) limited arbitrage, trading frictions, and arbitrage risk, which prevent a speedy price adjustment, (iii) survival and hindsight biases, and (iv) risk mis-estimation, i.e., the fact that inferences from estimated abnormal performance are tests of the joint hypothesis of market efficiency and a model of equilibrium expected returns.”

¹⁵ A recent study by Christian and Nilolaev (2009) showed that even in an international environment of international financial reporting standards, most firms are still voluntarily valuing assets at historical costs and used conservatism. Kothari et al. (2009), using agency theory argue that verifiability and conservatism should be part of GAAP.

¹⁶ Unconditional (conditional) conservatism is due to accounting rules and is news independent (dependent) and is sometimes referred to as ex-ante (ex-post) conservatism (Beaver and Ryan, 2005; Pae et al., 2005). An example of unconditional conservatism would be the immediate expensing of R&D that is required by GAAP and an example of conditional conservatism would be deciding whether to write off a receivable of a company when it is learned that the company is in financial difficulty.

standards.¹⁷ In addition, the results of this study support Watts' (2003a) concerns about the FASB's recent moves to introduce even less reliable information, e.g., fair values and future cash flow estimates into GAAP financial statements.

1.7 Organization of Study

The remainder of this thesis is organized as follows. Chapter 2 provides a review of the relevant literature on the accruals anomaly and accounting conservatism. Hypotheses and research design and methods are developed and discussed in Chapter 3, and Chapter 4 presents the empirical findings and their interpretations. I conclude with Chapter 5, which also discusses contributions, limitations, and one-period-ahead research.

¹⁷ Watts (2003a) suggested that proponents of the information perspective fail to recognize conservatism's benefits in mitigating problems with asymmetric payoffs and limiting the liability to outsiders. The FASB's attempts to reduce conservatism will thus be misguided and have unintended consequences. The FASB and the IASB are reluctant to include conservatism in their standards; however, standards are only one reason for conservatism in accounting. Market and economic reasons, such as reduction of agency costs and restraining earnings management will continue to require conservatism in accounting.

CHAPTER 2

RELATED PRIOR RESEARCH

2.1 Overview and Purpose

The purpose of this chapter is to provide a review of the relevant body of research on the accruals anomaly and accounting conservatism and conservatism's explanations. Sections 2.2 to 2.4 are devoted to the accruals anomaly with emphasis on the persistence, investment, and agency theory explanations of the accruals anomaly. The second part of this chapter is a non-exhaustive description of the literature on accounting conservatism. I start by defining and explaining accounting conservatism in general and then expand into the individual drivers/explanations of conservatism: contracting, litigation, regulation, and taxation. The chapter ends with a summary on how the accruals anomaly and conservatism are related to this thesis.

2.2 Accruals Anomaly

2.2.1 Definition of Persistence

In the accounting literature, persistence is often used to describe how a variable can predict another variable in a future time period. Greater predictability is associated with greater persistence. For example, Dechow and Ge (2006) used the coefficient on current earnings obtained from regressing one-period-ahead earnings on current earnings as a measure for persistence. Persistence is also described as being the first order autocorrelation of the same

variable between consecutive years (Paek et al. 2007). Literature on the accruals anomaly has described accrual persistence as the correlation between current accruals and one-period-ahead earnings in a multivariate regression of one-period-ahead earnings on current cash flows and current accruals.

Many studies examining the accruals anomaly (Sloan, 1996; Bradshaw et al, 2001; Collins et al., 2003) use the persistence of accruals to describe how current accruals can predict future earnings. The importance of persistence in these studies is that investors and analysts do not properly differentiate between the persistence of accruals and cash flows, which leads to mispricing and the potential for earning abnormal returns from this information regarding accruals. Sloan (1996) attributes subjectivity and transitory nature of accruals relative to cash flows as the cause of accruals' lower persistence.

2.2.2 Accruals Anomaly- Persistence Argument

The pioneering paper by Sloan (1996) examined whether stock prices reflect the differential persistence of cash flows and accrual components in future earnings. He showed that the cash flow component is more persistent in predicting future earnings, with the greatest difference in regressions using accrual decile rankings compared to continuous accrual amounts. In the decile ranked regressions, cash flows and accruals had approximate coefficients of 0.8 and 0.5, respectively representing their persistence in predicting one-period-ahead earnings. The main result from his paper is that investors, via affects on stock prices, do not fully understand the difference in persistence of the earnings' components. They fixate on earnings rather than analyze the components of earnings. Specifically, investors overestimate the persistence of accruals and underestimate the persistence of cash flows, which results in stock mispricing. This

is also known as the functional fixation hypothesis (Hand, 1990). In prior literature this mispricing has been shown by a zero investment trading strategy of buying low accrual firms and selling short high accrual firms that produce abnormal returns greater than zero. This result, subsequent to Sloan (1996), is often referred to as the “accruals anomaly” and is considered a violation of market efficiency (Collins et al., 2003; Lev and Nissim, 2006; Kothari et al., 2008; Kaserer and Klingler, 2008).¹⁸ In the Sloan paper, abnormal returns are calculated using both size-adjusted returns and Jensen’s alphas obtained from a simple one-factor market model. Both approaches provided annual abnormal returns of approximately 10 percent from a hedge portfolio that is long in low accrual decile firms and short in high accrual decile firms.

Richardson, Sloan, Soliman, and Tuna (2005) add to the work of Sloan (1996) by addressing the reliability and persistence of three types of accruals: current operating activities, non-current operating activities, and financing activities. The reliability of accruals is highest for financing activities and lowest for current operating activities. The authors show that the accruals anomaly or stock mispricing is highest when accruals are least reliable. Their explanation is that the persistence of less reliable accruals is lower. Since Watts (1993, 2003a) suggests that conservatism leads to greater reliability of accruals, the Richardson, Sloan, Soliman, and Tuna (2005) article is indirectly supporting greater conservatism increasing the persistence of accruals.

Richardson, Sloan, Soliman, and Tuna (2005) measure persistence by regressing one-period-ahead return on assets (ROA) as a function of the three types of accruals and lagged ROA. Indeed, the lowest coefficient from the time series regressions was on current operating

¹⁸ In Sloan’s (1996) work, portfolios are formed based on the accrual decile in which a firm belongs. Accrual magnitudes are not absolute values, i.e., they are signed. Portfolio abnormal returns (i.e., size adjusted) ranged from 4.9 percent for the lowest accrual decile portfolio and -5.5 percent for the highest accrual decile. The return on a zero investment hedge portfolio taking a long position in the lowest decile and an equally valued short position in the highest decile gave a 10.4 percent abnormal return for the first year after portfolio formation. The sample period in Sloan’s study was 1962-1991. Using a more recent sample period of 1988-2002, Dechow and Ge (2006) found size adjusted abnormal returns of a similar hedge portfolio had an average return of 13.3 percent.

accruals indicating lower persistence. A related study by Dechow, Richardson, and Sloan (2008) examined the persistence of three components of cash flows: (1) the change in the cash balance, (2) issuances/distributions to debt, and (3) issuances/distributions to equity. The authors found that the higher persistence of cash flows over accruals is entirely due to distributions of equity and that investors misprice changes in cash flows for the other two components of cash flows similar to accruals. Given the new results of their paper, the authors concur that investors' fixation on earnings, or the functional fixation hypothesis, does not fully explain the accruals anomaly.

Collins et al. (2003) further explained the accruals anomaly by examining the relationship between a stock's institutional ownership and persistence of accruals. They found that firms with high institutional ownership had stock prices that more accurately reflected the persistence of their accruals. Their interpretation was that institutions avoided firms that would provide abnormal returns related to accruals because of institutional constraints on where they could invest. They also attributed the negative relationship between abnormal returns and institutional ownership to investor sophistication. Once again, firms with the greatest abnormal returns were small, less profitable, low share turnover, suggesting limits for institutional investors to take advantage of the accruals anomaly.

2.2.3 Accruals Anomaly-Investment Argument

Zhang (2007) investigated two competing reasons for the accrual anomaly: investment growth and persistence. He stated that "... there is general consensus that accruals are negatively related to future stock returns.", but prior literature has not been able to "disentangle" the accruals anomaly between the investment growth and persistence explanations, or determine the

more dominant reason.¹⁹ His motivation for choosing investment growth, proxied by growth in employees, is because growth stocks have lower future returns, similar to high accrual firms. Fama and French (1992) conjectured that growth stocks have lower returns because they have a lower probability of bankruptcy, which reduced investors' risk. The investment and persistence arguments described in Zhang (2007) are summarized below:

Investment argument: *Accruals capture fundamental investments in working capital, and the investment growth information contained in accruals predicts future (negative) stock returns. In addition, investments have a long-term smoothing role in earnings and have a short-term role of mitigating cash flow noise. Zhang (2007) hypothesized that when income growth and its correlation with accruals is stronger, accruals are more likely to capture investment information.*

Persistence argument: *High accrual firms should have lower future earnings and the negative correlation between earnings growth and accruals should be stronger when accruals are least persistent relative to cash flows.*

Zhang (2007) has empirically shown the accruals anomaly to increase with the investment information contained in accruals. In the main model, firm-level future returns are regressed on contemporaneous accruals (acc), accruals correlation with investment growth (covar), and their interaction. Results showed that the coefficient on the interaction term (covar X acc) had a

¹⁹ A related working paper by Hribar and Yehuda (2008) tries to explain accrual mispricing by examining different stages of a firm's life cycle. They found that accruals explain mispricing more in the early growth stages of firms while higher cash flow persistence explains the mispricing in the maturity and decline stages of firms. Their method was to separately run OLS regressions of size adjusted returns on cash flows and accruals for the growth, maturity, and decline stages of a firm's life cycle.

negative coefficient, lending support to the investment argument for the accruals anomaly.²⁰ In a separate model similar to the above, except the interaction term is replaced with persistence multiplied by accruals (PERS X acc), the coefficient on the interaction term was found to be statistically insignificant, not lending support to the persistence argument. In addition, when Zhang separated firms into three persistence groups based on magnitude, the accruals anomaly was lower (2.46%) in the high persistence group compared to the low persistence group, which supports the persistence argument because the persistence argument predicts a statistically significant lower accruals anomaly in the high persistence group. However, the difference was statistically insignificant. In a subsequent paper by Wu, Zhang, and Zhang (2010), they further support Zhang's investment argument. By incorporating an investment loading factor (long in low-investment stocks and short in high investment stocks) in common asset pricing models they found a substantial reduction in the accruals anomaly, often to insignificant levels. Therefore, Zhang (2007) and Wu et al. (2010) support the accruals anomaly being largely attributable to fundamental investment growth.

Another article that related investment growth to the accruals anomaly was by Fairfield et al. (2003). They examined the relationship between growth in net operating assets (NOA) and one-year-ahead return on assets (ROA) since accruals are a component of both NOA and earnings.²¹ Their empirical findings indicated both accruals and growth in long-term net operating assets as being negatively associated with one-year-ahead ROA and to have similar market mispricing, supporting both the persistence and investment argument. Given their results,

²⁰ Also, in industries where accruals show little correlation to investment growth, the accruals anomaly is weak. Zhang (2007) found persistence to be generally higher for cash flows. Nevertheless, in this article the persistence argument is not supported because he found that as persistence in accruals increases, relative to cash flows, the accruals anomaly change is insignificant.

²¹ NOA = operating assets (excluding cash) – operating liabilities. Growth in NOA = Growth in long-term NOA + Growth in accruals. [GrLTNOA = NOA less accruals]

the authors described the accruals anomaly as a special case of a more general growth anomaly. Further, the authors state that the lower future ROA associated with growth in NOA is hypothesized to be related to accounting conservatism or diminishing marginal returns from new investments, or both. However, Richardson et al. (2005) contend that extreme sales growth (as part of investment growth) has a transitory economic impact on earnings. They relate the transitory nature of extreme sales growth back to accrual reliability and persistence.

A related study to growth, accruals, and conservatism is by Lobo et al. (2008). They examined the relationship between aggressive reporting and conservatism by using growth - proxied by the book-to-market ratio - as a “driver” of aggressive reporting, discretionary accruals as a “measure” of aggressive reporting, and the asymmetric timeliness (AT) measure of Basu (1997) for the degree of conservatism. In their paper, they found that high-growth firms exhibited a significantly lower degree of conservatism than low-growth firms, and that the degree of conservatism is lower for firms with greater discretionary accruals. In other words, conservatism was found to be negatively related to growth and discretionary accruals. These results are interesting because even though the authors do not investigate how conservatism or growth are related to the accruals anomaly, their finding of higher conservatism levels in firms that had lower discretionary accruals lends support to conservatism making accruals more reliable, which should make them more persistent.

2.2.4 Accruals Anomaly-Agency Theory Argument

A recent study by Kothari et al. (2008) offered an alternative explanation for the accruals anomaly and also provided results inconsistent with the investor fixation explanation. Rather than investors being fixated on earnings and accruals, as explained by Sloan (1996), these

authors used the agency theory of overvalued equity to explain the accruals anomaly. They argued that under the agency theory of overvalued equity, managers of overvalued firms have incentives to keep managing their firms' accruals upwards to maintain the overvaluation. This would give over-representation to overvalued firms in high accrual deciles.²² The overvaluation cannot last forever and eventually there are negative abnormal returns for high accrual firms. In contrast, the authors did not find the reverse occurring for undervalued firms. Undervalued firms were dispersed across various accrual deciles and therefore there was no significant relationship of undervalued firms to future returns. In addition, their agency theory hypothesis predicts and finds an asymmetric relation between past returns and current accruals, i.e., high accrual decile portfolios will be preceded by high past returns, but the same will not hold true for low accrual decile portfolios. This casts doubt on the functional fixation hypothesis because it predicts a monotonic relationship between returns and accruals.

Agency theory is not independent of conservatism. For example, Ahmed and Duellman (2007) show that conservatism assists boards in reducing agency conflicts of the firm and the contracting explanation of conservatism (as outlined in Section 2.6.1) maintains that conservatism is used by shareholders, among others, to mitigate the agency problems discussed in the Kothari et al. (2008) paper. This proposition is supported theoretically by Raith (2009), who used a two-period principal-agent contract model that proved accrual accounting, which included conservatism, is optimal. In Raith (2009), whenever future cash flows were uncertain, conservatism was shown to mitigate the problem of the manager leaving before the accrual has reversed/materialized into cash. Leone et al. (2006) called this the “*ex post* settling up in cash compensation paid to CEOs.” Nevertheless, conservatism should not be seen as the only method

²² Reasons given for the overvaluation are: meet investor expectations, analyst optimism, insider trading activity, manager reputation, and distortions in firms' investment and financing decisions.

shareholders use to mitigate the agency problem of overvalued equity. Another example to curtail moral hazard issues of management is to have large block-holders of shareholders (Berle and Means, 1932; Shleifer and Vishney, 1986).

2.2.5 Accruals Anomaly-Magnitude of Accruals

Dechow and Ge (2006) extended our knowledge of the accruals anomaly by examining the difference in persistence of accruals between high and low accrual decile firms (HAD vs. LAD). They found that LAD firms had lower earnings persistence than HAD firms, which they attributed to be almost entirely driven by special items.²³ In addition, signed accruals improved earnings persistence relative to cash flows in high accrual firms. These high accrual firms tended to be growth firms (growth in business involves growth in assets and sales), which have negative cash flows. The accruals component of earnings in HAD firms is more permanent, leading to the greater persistence of accruals relative to cash flows in HAD firms. Therefore, earnings persistence is affected by both the magnitude and the sign of accruals. Similar to Dechow (1994), Dechow and Ge showed that earnings are more persistent than cash flows in all deciles and earnings persistence is greatest when signed accruals are closer to zero, which is approximately decile five. Dechow and Ge showed that large signed accruals had lower persistence of earnings, but large negative accruals were less persistent than large positive accruals.

With respect to the accruals anomaly in the Dechow and Ge article, the accruals anomaly is more pronounced if one takes into account that investors misinterpret the transitory nature of

²³High accrual growth firms have an income statement perspective because accounting allows certain expenditures to be delayed until their matching revenue is recognized. Low accrual downsizing firms have a balance sheet perspective because they have to recognize losses immediately to make sure that the balance sheet is correct. Dechow and Ge (2006) identify special item accruals as being made to “correct” the balance sheet.

special items in low accrual firms (firm-level analysis using only LAD firms).²⁴ Since these special items produce current negative accruals, investing in these firms gave higher one-period-ahead stock returns than those in other low accrual firms. Dechow and Ge (2006) further explained these higher one-period-ahead returns as consistent with investors requiring a higher expected return to hold special item-LAD firms because they have low investor recognition. Another explanation given by Dechow and Ge is that low accrual special item firms signify an end to the downward trend and management is turning around, but investors are stuck on using past base information of poor company results. Their research seems to indicate that the magnitude of the accrual rather than its persistence is what matters for the accruals anomaly.

Dechow and Ge's (2006) paper is motivated by accounting rules affecting differences in accruals for firms increasing or reducing their asset bases. Their paper does not explicitly mention conservatism but the discussion of their paper by Fairfield (2006) states that the paper is motivated by accounting conservatism affecting the persistence of earnings and accruals. In any case, the authors only indirectly looked at conservatism through special items and the role played by these items in the accruals anomaly. Fairfield's (2006) discussion of Dechow and Ge's (2006) paper suggests the need for further research into why the low accrual special item firms have higher future returns. Fairfield indicates that the authors did not explore many of the issues that could have made a substantial contribution to understanding the behavior and reaction of investors to accounting information.

Another important article, Ahmed, Nainer, and Zhang (2006), deals with magnitude of the accruals anomaly rather than magnitude of accruals. As noted in the overview of chapter 1, cash flow persistence underestimation is a contributor to the accruals anomaly, and this article

²⁴ Large negative accruals include transitory items like impairment charges, restructuring, and "special items". Dechow and Ge (2006) only examined special items, which are usually a separate line item, so management can isolate their temporary nature from income from operations.

examines whether accruals or cash flows is a greater contributor to the “magnitude” of the accruals anomaly. Similar to this thesis, they use a firm-level multivariate equation and portfolio approach. Using a firm-level approach, the contribution to the accruals anomaly, in absolute terms, is the same for cash flows and working capital accruals. The coefficient on cash flows was 0.028 and on working capital accruals was -0.028 in a multivariate regression where the dependent variable was one-period-ahead annual returns and control variables were lagged BTM (book-to-market ratio), size, and returns. This suggests that the contribution to the accruals anomaly, in absolute terms, is the same for cash flows and working capital accruals. However, when using a portfolio approach, the accruals anomaly is affected more in magnitude by abnormal returns from cash flows.²⁵ Therefore, the authors conclude that trading profits could be even higher if investors also traded on the magnitude of cash flows instead of just on the magnitude of accruals. In their article, a trading strategy of a portfolio with a long position in high cash flow and low working capital accrual firms and a short position in low cash flow and high working capital accrual firms generated an average of 17.59 percent size-adjusted annual returns (p. 68). The majority of this was generated from the high cash flow firm input of the portfolio. This is approximately double the abnormal returns from a hedge trading strategy based only on accruals.

2.2.6 Accruals Anomaly-Other Explanations

A substantial amount of research on the accruals anomaly followed the Sloan paper, ranging from explanations other than accruals (e.g., Fairfield et al., 2003; Desai et al., 2004; Zhang, 2007; Dopuch et al., 2010), to how security analysts play a role (Bradshaw et al., 2001;

²⁵ This is shown by a double sorting process of cash flows and working capital accruals into quintiles, resulting in 25 portfolios per year.

Elgers et al., 2003; Barth and Hutton, 2004).²⁶ Barth and Hutton (2004) report a “combined strategy that uses analyst forecast revisions to refine the accrual strategy generated a hedge return of 28.5%.” The following paragraphs describe some of the other main explanations.

Francis and Smith (2005) reexamined the persistence of accruals and cash flows. They found that the low persistence of accruals is partly due to accruals from the prior period included in the current period accruals, which they referred to as the misalignment of accruals. In their paper, excluding the accruals from prior periods gave current accruals an increase in persistence from 0.69 to 0.76 (cash flows still had higher persistence that remained at approximately 0.8). In addition, in their sample that excluded prior year accruals, the authors found that more than 85 percent of firms do not show accruals being less persistent than cash flows. They attributed this result to the use of firm-specific regressions instead of pooled regressions, along with the exclusion of prior period accruals. Another study, Desai et al. (2004), argued that the value-glamour anomaly in the finance literature is related to the accrual anomaly. They showed that cash flow from operations divided by price (CFO/P) captures the accruals anomaly and the four characteristics of glamour/growth firms: high past sales growth, low book-to-market ratio, low earnings to price ratio, and low earnings (less depreciation) to price.²⁷ However, Cheng and Thomas, (2006) found that CFO/P did not subsume discretionary accruals in explaining future announcement returns and discretionary accruals were incremental to CFO/P in explaining future returns. Accruals are not a manifestation of the value-glamour anomaly; however, CFO/P did

²⁶ The Dopuch et al. (2010) study is a recent paper that finds the accruals anomaly to be mostly associated with profitable firms because investors find earnings numbers of loss firms less relevant (sample period 1988 to 2005). Due to the lower importance of earnings attached to loss firms compared to profitable firms, there is less mispricing for the loss firms. Hedge returns were 7.7 percent for the whole sample but increased to 12.2 percent when only profitable firm-year observations were included in the portfolios. This does not refute the investor fixation on earnings explanation because investors are still fixating on positive earnings firms.

²⁷ Collins and Hribar (2000) investigated the accruals anomaly using quarterly data instead of annual data that is used by Sloan (1996). They found that the accruals anomaly held for quarterly periods and is distinct from the post-earnings announcement drift that occurs from the announcement of unexpected earnings.

subsume total accruals in explaining future returns in the Cheng and Thomas study, similar to Desai et al. (2004).²⁸ Xie (2001) also concurred that the accruals anomaly was primarily due to the discretionary or abnormal component of accruals. In addition, Gu and Jain (2006) explicitly disagree with Desai et al.'s results when looking at components of accruals. Nevertheless, Resutek (2010) finds evidence consistent with Desai et al. in that the accruals anomaly is a “derivative” of the value/growth anomaly using total accruals.²⁹ Indeed, the results of this thesis also show that the effect of accruals on future returns becomes insignificant when cash flows are added as an independent variable to return models. However, the results of a negative relationship between accruals and one-period-ahead abnormal returns became statistically significant at the 5 percent level when conservatism proxy variables were added to the models (See Table 11, Panel A).

Kraft et al. (2007) argued against the existence of the accruals anomaly from a methodological perspective. Kraft et al. used the Mishkin (1983) test, similar to Sloan (1996), but instead of using observations pooled across firms and time, they estimate the Mishkin test on a year-by-year basis over 1974–2003 and calculate coefficients as the mean of the 30 yearly coefficients. Using the year-by-year approach they found that accruals were not mispriced.³⁰ However, the cash flow component and the largest accrual deciles were still found to be

²⁸ The findings of this thesis show that the accruals anomaly still exists when using total accruals (Section 4.7.2).

²⁹ Resutek (2010) introduces new variables to capture intangible current and prior period returns, i.e., information not explained by accounting information. When these new variables were added to in an OLS regression with future returns as the dependent variable, the coefficient on total accruals became insignificant. However, his definition of operating accruals does not subtract depreciation “... due to the logarithmic nature of this variable”. The variable referred to is operating accruals. Since depreciation is subjective, it is likely that the definition of OAC used by Resutek cannot be compared to other studies.

³⁰ “Estimating the MT on a year-by-year basis raises at least two issues. First, year-by-year estimation discards information about the estimated standard errors that joint estimation of the forecasting and pricing Equations underlying the MT is designed to exploit. As a result, year-by-year estimation removes one of the perceived advantages of the MT over OLS. Second, as we discuss in more detail below, altering how the MT is implemented in accounting settings raises the question of how such changes affect its efficiency versus that of OLS.”, Kraft et al. (2007, p. 1100). The rational pricing of both accruals and cash flows is rejected by Kraft et al. (2007) when using the pooled sample.

mispriced in the Kraft et al. (2007) paper and mispricing similar to Sloan (1996) was shown when their sample was restricted to stocks with a price over five dollars. In addition, they re-examined the inverted U-shaped relationship between returns and accruals, as documented in Kraft et al. (2006). The U-shaped relationship resulted when extreme observations were removed, which Kraft et al. (2007) accomplished by winsorizing the 1st and 99th percentiles of their sample. Using the winsorized sample, they found that accruals were not mispricing significantly at the 10 percent level. However, the cash flow component was still found to be mispriced. Nevertheless, mispricing similar to Sloan (1996) was shown when their sample was restricted to stocks with a price over five dollars even when extreme observations were removed.

Another major explanation for the accruals anomaly is the size of the firm. Firm size is a common factor in asset pricing models (Banz, 1981; Fama and French, 1992; Dhaliwal et al., 2005) and has been shown to be negatively related to returns, possibly due to larger firms being perceived as less risky. With respect to the accruals anomaly, Palmon et al. (2008) found that size is not independent from accruals in explaining the anomaly. The authors performed one sort on accrual deciles and a second sort on size quartiles. Using the 40 portfolios obtained from this double sort, they found that abnormal returns are concentrated in small firms using four asset pricing models including the Carhart (1997) four factor model that includes size as a control. Further insight into firm size and the accruals anomaly was provided by Ali and Gurun (2009), who examined the accruals anomaly in the context of investor sentiment. Their results showed that in high sentiment periods, individual investors pay less attention towards understanding the differences in the accruals and cash flow components of earnings. Nevertheless, this effect is observed primarily for small stocks since they are more likely to be followed by individual investors, who tend to have limited attention. Small stocks reported higher accruals during high

sentiment periods compared to that in low sentiment periods, suggesting that accruals are being managed during high investor sentiment periods. Firm size is also attributed in the explanation for the accruals anomaly not being arbitrated away.

Hirshleifer et al. (2007) and Khan (2008) examined whether the accruals anomaly was a priced risk factor or was actually mispricing by investors. If accruals are a rational risk factor; i.e., low accrual firms are somehow riskier, then capital markets are not inefficient with respect to accruals. Using the method developed by Fama and French (1993) and extended by Daniel and Titman (1997), Hirschleifer et al. (2010) found that when a factor mimicking accrual portfolio loading factor, standard accrual hedge return, was added to Fama and French's (1993) three factor model as another independent variable, it captured the accruals anomaly. Nevertheless, the loading factor can still be just a proxy for market misevaluation since it is constructed from accruals. The authors do further testing by controlling for the accruals characteristic by doing a sort on accruals and another on the loading factor. After controlling for the accrual characteristic, the factor mimicking the accrual portfolio loading factor was not associated with returns. Therefore, their findings further support investor mispricing or market inefficiency rather than accruals being a priced risk factor. In contrast, using a combination of the Fama French three factor model and two risk factors from the Campbell and Vuolteenaho (2004) model, Khan (2008) generally found that accruals are not mis-priced or explained by the risk factors in his combination model. A hedge portfolio similar to Sloan (1996) only generated annual abnormal returns of 1.6% in Khan's model, which is considerably lower than Sloan's 10 percent size adjusted abnormal returns.³¹

³¹ Khan (2008)'s 4 factor model includes the SMB and HML from the Fama and French 3 factor model and news about expected one-period-ahead dividends and news about expected one-period-ahead returns on the market portfolio. The latter two are from Campbell and Vuolteenaho (2004) and since they are factors related to future

2.3 Longevity of Accruals Anomaly

More than a decade has passed since Sloan's (1996) article was published, yet the accruals anomaly still exists. Next, I document some of the studies that provide reasons for the accruals anomaly not being arbitrated away.

Mashruwala et al. (2006) attributed the accruals anomaly to idiosyncratic risks represented by stock return volatility that cannot be diversified away by the arbitrageur, which they term, "arbitrage risk." The arbitrageur, who wants to hedge the portfolio, needs close substitutes for stocks in the accrual portfolio strategy.³² They found that an accrual hedge strategy had higher profits for stocks that did not have close substitutes, which according to the authors have idiosyncratic risk. In fact, abnormal returns were found to be significantly less (approximately 10 percentage points less in annualized returns) in low accrual decile portfolios that have low arbitrage risk. Similarly, Collins et al. (2003) found that the accruals anomaly is limited to instances of low institutional ownership. The abnormal returns are made from firms that are smaller, which institutions shy away from, and held by unsophisticated investors. Collins et al. referred to Hand's (1990) extended functional fixation hypothesis (EFFH), which posits that a firm's stock price can be temporarily mispriced when prices are set by unsophisticated marginal investors.

time periods, he calls his model an intertemporal capital asset pricing model. Portfolios that were formed based on sorts of accruals and size provided insignificant abnormal/excess returns except the portfolio in the smallest size quintile which provided abnormal annualized returns of 4.6 percent. Another article, Fama and French (2006) included accruals in their valuation equation for average stock returns. Accruals were shown to not mean revert much faster than cash flows and not to add much to the mean reversion of earnings. The incremental return from including accruals in their model was less than 1 percent per year. Therefore, the story of investors being unable to understand the faster mean reversion (lower persistence) of accruals is not universally accepted for explaining the accruals anomaly.

³² Pontiff (1996) was one of the early authors to operationalize idiosyncratic risk due to lack of substitutes.

Lev and Nissim (2006) agree with the reasons from the extant research to explain why institutional investors are not taking advantage of trading on accruals. For example, small firm size, low profitability, and high risk are associated with extreme low accruals, which most institutions tend to avoid investing in. They also explained that, to implement a successful accrual strategy, one would have to hold about 50 stocks. The transaction costs would be too high for small investors to maintain or rebalance a portfolio of this size, to profit from trading on accruals. In addition, the high abnormal returns from trading on accruals were associated with low price and low volume stocks, which have high relative transaction costs. Thus, these authors feel that the accruals anomaly will likely remain. Another related study, Ali et al. (2007), found that the mutual funds that profited from trading on accruals exhibited higher fund return volatility. They concluded that mutual funds rarely trade on accruals. Once again, most institutions did not take advantage of the abnormal returns that could be obtained from trading on accruals. However, Core et al. (2006) do find that managers and executives of firms, who are assumed to be well informed regarding the valuation of their firm's equity, do make abnormal returns from accruals. For e.g., repurchases when they know their stock is under-valued ---low accrual firms and insider trading on low accrual firms.

2.4 Accruals Anomaly: International Evidence

Pincus, et al. (2002) examined Australia, Canada, the UK, France, Germany, and Japan for the existence of the accruals anomaly. They found that stock prices in the UK and Japan exhibited under-weighting of cash flows, but no evidence suggested an over-weighting of accruals in any of the six countries examined. They suggested that the accruals anomaly may be

idiosyncratic to the US capital markets. In contrast, LaFond (2005) examined 17 countries and concluded that the accruals anomaly was a global phenomenon.³³

2.5 Conservatism

2.5.1 Definitions

Conservatism was defined as early as 1924 by Bliss (1924, p. 110). His definition included “anticipate no profits, but anticipate all losses.” The official definition of accounting conservatism is from the FASB Statement of Financial Accounting Concepts (SFAC) No. 2 (1980). In it, conservatism is described as a prudent reaction to uncertainty and used to ensure that uncertainty and risks inherent in business situations are adequately considered. For example, if two estimates of amounts to be received or paid in the future are about equally likely, conservatism requires the less optimistic estimate to be used. Nevertheless, the SFAC No. 2 also indicates that conservatism introduces bias which conflicts with other desirable qualities of financial reporting. These desirable qualities include representational faithfulness, neutrality, and comparability.

Watts (2003a, p. 208) defines conservatism as the asymmetry in the verification requirements for gains and losses. A greater degree of verification is required for gains than for losses. Contracting, shareholder litigation, accounting regulation, and taxation serve to explain accounting conservatism. In particular, Watts argued that conservatism is an “efficient technology employed in the organization of the firm for its contracts with various parties.” The various parties are external to the firm and have loss functions that are generally asymmetric.

³³ Australia, Belgium, Canada, Denmark, France, Germany, Hong Kong, Italy, Japan, the Netherlands, Norway, Singapore, Spain, Sweden, Switzerland, the UK, and the US, between 1989-2003. Denmark and Norway are the only two countries where the accruals anomaly is insignificant.

The asymmetry is due to management having greater information about the firm and has incentives for moral hazard that are unobservable to external parties to a contract. Management would incur a loss that is smaller than outsiders from dysfunctional behavior, which results in an asymmetric loss function. Watts refers to this as the “contracting explanation” of conservatism and that conservative accounting tends to reduce contracting costs. Numerous studies document the benefits (or decrease in contracting costs) from conservatism in debt contracts (Ahmed et al., 2002; Beatty et al. 2008; Zhang, 2008). In these articles conservatism tended to reduce income, which provided lenders early signals of default risk reducing their contracting costs.

Nevertheless, a major criticism of conservatism is that it introduces bias in financial reporting (SFAC No. 2). Despite criticism from many quarters, including standard setters, conservatism appears not only to have survived in accounting for many centuries, but has also increased (Basu, 1997; Givoly and Hayn, 2000; Watts, 2003a, b). In addition, Holthausen and Watts (2001) document the existence of conservatism in periods prior to formal accounting standard setting (1927-1941). Therefore, it is likely that conservatism will exist regardless of the direction taken by standard setters, and specifically with or without reference to conservatism in standards.

Moreover, Givoly and Hayn (2000) described conservatism as the choice of accounting principles that lead to a minimization of reported earnings. Conservatism leads to consistently lower cumulative earnings relative to operating cash flows. Nevertheless, Givoly et al. (2007) assert that no authoritative definition of conservatism exists, though a consensus suggests that conservative accounting systematically undervalues a firm’s net assets (book equity) relative to its economic value. For example, Watts (2003a, p. 208) agrees that a “...persistent understatement of net asset values” is present. In the accounting-based valuation literature,

researchers often refer to Feltham and Ohlson's (1995) characterization reporting that net assets will be less than the market value in the long-run due to conservative accounting. Beaver and Ryan (2005, 269) state: "We define accounting conservatism as the on average understatement of the book value of net assets relative to their market value."

Accounting conservatism is also separated by whether it is unconditional or conditional. Beaver and Ryan (2005) define unconditional (ex ante or news-independent) conservatism as understatement of book value, because of the accounting process, and conditional conservatism (ex post or news-dependent) is defined as the writing down of assets under adverse conditions but not written up under favorable circumstances. Examples of unconditional conservatism include accounting depreciation that is greater than the actual depreciation of long-term assets, immediate expensing of certain items which last beyond one period, and historical cost accounting for positive net present value projects. An example of conditional conservatism is using the lower of cost or market for inventory and asset impairments.

2.6 Conservatism Drivers³⁴

Previous research (Watts, 2003a; Leone and Zimmerman, 2006; Qiang, 2007) gives explanations for accounting conservatism from the perspective of demand from users of financial statements. Watts (2003a) classified these explanations/drivers of conservatism as contracting, litigation, regulation, and taxation. Qiang (2007) splits each of the conservatism explanations into whether they are due to unconditional or conditional conservatism and provides proxies that can be used for each of the explanations. Specifically, contracting induces conditional

³⁴ The analysis and discussion in this section borrows heavily from Watts (2003a, b). Watts does not consider earnings management that lowers income as a driver of conservatism because it cannot explain the systematic understatement of net assets.

conservatism, litigation induces both types, and regulation and taxation are induced by unconditional conservatism.

In the proceeding Sections, benefits to users of firm's accounting reports from conservatism are broken down into each of the conservatism drivers. I also review the literature on a firm's overall degree of conservatism because Watts (2003a) points out that there are commonalities among these explanations of conservatism. First, contracting, litigation, and regulation induce conservatism because of the asymmetry of aversion to high earnings by external parties. Second, the verifiability requirement is common to all the drivers.

2.6.1 Contracting

This explanation for conservative accounting is to reduce the agency problem of asymmetric information to parties external to the firm (i.e., external parties are at an information disadvantage). Internal parties of the firm have asymmetric payoffs, limited horizons, limited liability, and incentives for moral hazard or dysfunctional behavior. External parties can include owners or shareholders, debt holders, and government. Nevertheless, shareholders can also be considered internal parties of a firm when compared to debt holders. Watts (2003a) explains that due to conservatism's asymmetric verifiability requirement, it is one means to constrain managements' opportunistic behavior and upward bias in financial reporting. Specific examples of these opportunistic activities among management are higher compensation to themselves or excessive dividend distributions, which reduce assets available to creditors. Conservatism "...is part of the efficient technology employed in the organization of the firm and its contracts with various parties." Watts (2003a).

Ahmed et al. (2002) showed that accounting conservatism is a mechanism to mitigate the conflict in debt contracts between shareholders and creditors of inappropriate distributions. For example, restrictions on dividends to shareholders and limits on retained earnings. They also show that creditors award conservative accounting with a lower cost of debt. Similarly, Zhang (2008) provided evidence of conservatism benefiting both borrowers and lenders by improving the efficiency of debt contracts. Using four measures of overall conservatism, Zhang found all four measures of overall conservatism positively associated with a lower cost of debt and provided creditors with early signals of firm default risk via covenant violations.³⁵ Zhang, as in this thesis, also addresses the ex-ante information to users of financial statements provided by conservatism. Another study on debt contracting is by Beatty et al. (2008). They answer the question of whether debt contracts adjust GAAP income outside a firm's financial reporting; in which case conservatism would not be very valuable in debt contracting. In support of debt contracts driving accounting conservatism, they found two thirds of their sample to include income escalators (constraints on net worth covenants that exclude a portion of net income from covenant calculations) within the financial reporting of the firm and are positively related to various measures of conservatism used in their study.

2.6.2 Litigation

A company's litigation costs are asymmetric to earnings. The asymmetry is once again related to the magnitude of firm earnings. Managers, auditors, and directors are more likely to be sued if earnings are overstated than if they are understated (Watts, 1993, 2003a; Beaver, 1993).

³⁵ A conservative borrower is more likely to violate debt covenants, e.g., Debt/EBITDA (Earnings before income taxes and depreciation allowance), because they record losses on a timelier basis, thereby increasing the probability of triggering covenant violations (Zhang, 2008).

This asymmetry of litigation costs leads firms to choose conservative accounting to reduce earnings if they are faced with high litigation costs. In other words, managers and auditors have incentives to choose conservative accounting to mitigate expected litigation costs.

Intra-country empirical evidence was provided by Ball and Shivakumar (2005) who found that even though public and private companies in the UK face similar accounting regulations and taxation, public firms still tended to be more conservative. The higher litigation costs of public companies are cited as a reason. In another study, Ball et al. (2000) found inter-country evidence to compare the earnings recognition differences between common law and code law countries.³⁶ Compared to common law countries, stakeholders in code law countries were more involved with the governance of the firm and in turn had less information asymmetry. The authors hypothesized that code law country firms would have lower expected litigation costs. Their results showed that common law countries had greater timeliness of recording losses, due entirely to recording of economic losses or income conservatism. Again conservatism was used to counter the higher litigation costs of common law countries because of the higher information asymmetry. Basu (1997) also provided evidence of intra-country conservatism due to litigation. During two high U.S. “auditor” litigation growth periods, he found a significant increase in accounting conservatism and no increase in the low-litigation growth periods.

As stated above, auditors are among the major groups that would be subject to litigation risk. The risk borne by auditors can be passed on to firms by auditors who are less willing to accept aggressive accounting (Kinney and Uecker, 1982; Pae et al., 2003; Qiang, 2007). In fact, Qiang (2007) used Big audit firms as a proxy for conservatism due to litigation risk. Many studies have examined whether or not “Big” audit firms’ companies, relative to companies

³⁶ Australia, Canada, the UK and the US were classified as common law countries and France, Germany and Japan were classified as code law countries in Ball et al. (2000).

audited by “non-big” auditors, have better financial reporting (Francis et al. 1999; Defond et al., 2002; Krishnan, 2003; Blokdijs et al., 2006), with the consensus being that they do better audits.³⁷ Krishnan (2003) showed that discretionary accruals are more positively related to stock prices for firms audited by Big audit firms. He suggested that this is consistent with Big auditors enhancing the credibility of accruals.

Chung et al. (2003) argued that, to reduce litigation risk, auditors prefer their clients to make conservative (or income-decreasing) accounting choices rather than non-conservative (income-increasing) choices. The authors predicted and showed that Big audit firms are more effective in constraining income-increasing accrual than non-Big audit firms, since Big audit firms are more likely to face litigation risk in the case of audit failure. Cahan and Zhang (2006) and Krishnan (2007) supported auditors of ex-Andersen clients using conservatism to reduce their litigation risk. Cahan and Zhang (2006) found lower abnormal or discretionary accruals in ex-Andersen clients compared to a matched sample and Krishnan (2007) used the Basu (1997) measure of AT to support ex-Andersen clients of Big auditors having greater degrees of conservatism. The ex-Andersen clients were viewed as a “unique form of litigation risk.” Moreover, Francis et al. (1999) found firms were more likely to hire “Big” auditors if they had high accruals to provide a signal that these accruals were credible. In addition, they reported that the level of discretionary accruals is significantly lower for Big 6 (now Big 4) clients than for non-Big 6 clients after controlling for several firm-specific characteristics.

Further support for auditors using accounting conservatism to reduce their litigation risk is provided by Francis and Krishnan (1999). Their results for a large sample of U.S. publicly-listed companies indicated that auditors were more conservative, that is, more likely to issue both types

³⁷ Prior research has used “Big 8,” “Big 6,” and “Big 4” audit firms to classify audit firms as “Big.” I use Big without a number to indicate “Big” audit firms.

of modified audit reports for high-accrual firms.³⁸ However, when their sample was split between Big and non-Big auditors, it was only the Big auditors that showed reporting conservatism due to the magnitude of accruals. Francis and Krishnan state, “...income-increasing accruals are somewhat more likely to result in reporting conservatism than income-decreasing accruals, and that only the Big 6 group of auditors show evidence of reporting conservatism.”

2.6.3 Regulation

Similar to the asymmetry in litigation costs to parties external to the firm, an asymmetry in costs also exists for accounting standard setters and regulators, which Watts (2003) terms as the regulation explanation of conservatism. The political costs to these non-contracting parties (standard setters and regulators) are higher if firms overstate net assets than if they understate net assets because overstatements will be more visible to investors and outsiders in general. Regulated firms are also more visible because they tend to be larger. Examples include banks, insurance companies, utilities, pharmaceuticals, and oil and gas industries.³⁹ Also, Watts and Zimmerman (1990) state that size has been used as a proxy variable for political attention.

Standard setters in the past have advocated conservative accounting rules. For example, in the U.S., research and development costs and advertising are expensed in the year they are incurred. They are not capitalized and matched with the future revenue they are expected to generate. This is clearly a conservative rule because the expense is recognized before its matching revenue. The conservatism principle took priority over the matching principle by

³⁸ The modified audit reports were either due to asset realization or going concern problems. Accruals were scaled by total sales.

³⁹ Grant Thornton, a large audit firm, classifies regulated industries with large corporations.

standard setters for these two items. In contrast, The Statement of Financial Accounting Standards (SFAS) No. 107 (FASB 1991) requires firms to disclose fair value estimates of financial instruments. This is a departure from the conservatism principle of “lower of cost and market” (LOCAM) because it allows firms to increase the value of financial assets if they have increased in value.⁴⁰ Watts (2003) warns of possible earnings management and “unintended consequences” from valuing items at fair values.

The Sarbanes-Oxley Act of 2002 (SOX) has garnered much attention due to the corporate scandals that expedited its passage in the House of Representatives and the extra costs on firms to comply with its requirements. This regulation, enforceable by the SEC, is reported to have increased firms’ conservatism in the post SOX period (Lobo and Zhou, 2006). However, recently FASB seems to favor neutrality over the bias of conservative accounting and they seem not to want it included in the conceptual framework (Lafond and Watts, 2008). Watts (2003a) and Lafond and Watts (2008) argue that a decrease in conservatism promulgated by FASB would increase information asymmetry.

Regulation has purposes other than accounting conservatism. Qiang (2007) notes two recent studies that provide multiple explanations other than conservatism for regulation. Bushman and Piotroski (2006) show that the legal and political systems of countries interact with the contracting and litigation factors which influence conservatism and Ball et al. (2003) found that in four East Asian countries with high quality regulation had low levels of conservatism. In addition, Ball and Shivakumar (2005) provide evidence against the regulation argument of conservatism in the UK. They found that even though public and private companies in the UK

⁴⁰ In SFAS 107, the FASB defines fair value as the amount at which an asset could be exchanged in a current transaction between willing parties, other than in a forced liquidation or sale. SFAS 157 was issued in 2006 by the FASB effective for fiscal year 2008 (AICPA, 2009). SFAS 157 prescribes how to measure fair values of an asset or liability.

face similar accounting regulations, public firms still tended to be more conservative. It was the market demand for higher quality earnings and higher litigation costs of public companies that were the likely reasons for the higher degrees of conservatism and not greater regulation or accounting standards.

2.6.4 Taxation

Asymmetric recognition of losses and gains due to accounting conservatism in financial reporting can affect taxes paid by firms. Profitable firms can reduce their taxes by decreasing their earnings through the use of accounting conservatism. Taxes are affected because of the link between financial reporting and taxation (Watts, 2003a, 2003b) and Qiang (2007) shows that taxation induces unconditional conservatism.

An example of conservative accounting used to decrease current and future taxes is LIFO inventory costing. LIFO inventory valuations result in similar effects to financial income and taxable income since tax regulations require the use of LIFO for financial reporting if it is used for calculating taxable income. However, the link between financial and taxable income is not perfect because often accounting rules are different from taxation rules. For example, accounting depreciation is based on the accountant's judgment of the useful life of the assets, but since 1981 depreciation for tax purposes has been set by statute (Shackelford and Shevlin, 2001).

Another stream of literature that affects taxation is earnings management of financial reporting to affect taxes. Deferred tax expense (the difference between taxes payable according to GAAP and taxes payable according tax rules) was used by Philips et al. (2003) to detect earnings management to affect taxes. In the Philips et al. (2003) article it was found that deferred

tax expense was useful in detecting earnings management beyond that of the standard methods.⁴¹

Another article, Guenther (1994), examined a specific event to ascertain if earnings are managed for tax reduction. He found that firms managed earnings by deferring income prior to enactment of the tax reform act of 1986, which reduced corporate taxes from 46 percent to 34 percent. His results supported large firms managing earnings because earnings were lower in the year prior to this act, the year with the higher rate. In addition, Hanlon (2005) uses the book-tax difference (GAAP income less taxable income) to account for earnings management or management discretion. She found that firms with large book-tax differences have earnings that are less persistent than firms with small book-tax differences. She also found that investors catch on to relatively larger book-tax differences as indicators of earnings that will be less persistent. This was shown by hedge returns that were only marginally significant at the 10 percent level when book-tax differences were high compared to abnormal returns of to an accrual-based strategy of four percent when book-tax differences were not taken into account. However, when the earnings components are split between accruals and cash flows, investors decreased their persistence expectation of both accruals and cash flows. Since the cash flow decrease was more than required, overall investors underestimated the persistence of earnings for firms with large book-tax differences.

Finally, in part II of Watts' article (Watts, 2003b), the evidence on regulation and taxation is weak. Bushman and Piotroski (2006) also found mixed evidence for the differences in taxation between countries affecting conservatism, and Beatty et al. (2008, p. 169) found insignificant results for the relationship between earnings conservatism and corporate tax rates. The latter

⁴¹ Standard methods for detecting earnings management include discretionary accrual ratios and frequency of small profit. The latter indicating firms attempting to avoid a loss through earnings management.

result does not support Watts (2003a) because higher tax rates should induce greater earnings conservatism.

2.7 Overall Conservatism Measures

Watts (2003b) groups conservatism measures into three types:

- (1) earnings and stock returns relation measures;
- (2) net asset measures; and
- (3) earnings and accrual measures.

1) Earnings and stock returns relation measures

Basu (1997) used a reverse regression of earnings as a function of returns. He assumed that positive stock returns generally reflect net asset gains and negative stock returns reflect net asset losses. Basu argued that earnings will reflect net losses more quickly than net gains due to accounting conservatism. This is the asymmetric timeliness of earnings, as described in his article.

2) Net asset measures

The book-to-market ratio (book value of equity divided by market value of equity of the firm) is a net asset or balance sheet measure. This ratio, being used for conservatism, originates from the work of Feltham and Ohlson (1995). Pae et al. (2005) tried to reconcile conservatism in the income statement with that in the balance sheet. They found earnings conservatism, the tendency of firms to recognize bad news in earnings on a timelier basis than good news, is negatively associated with the price-to-book (PTB) ratio (or positively related to the BTM ratio).⁴² In a recent paper by Roychowdhury and Watts (2007), the authors explained how the

⁴² A working paper by Liu and Thornton (2008) also confirms the negative association between earnings conservatism and the price to book ratio.

observed correlation between the BTM and asymmetric timeliness of earnings can be positive, as observed by Pae et al. (2005), for short horizon periods. Both the BTM ratio and asymmetric timeliness measure conservatism with error and asymmetric timeliness is commonly not measured over horizons that include the firm's IPO. The negative association between the BTM and conservatism is more of a long-run relationship.

3) Earnings and accrual measures

The second hypothesis of Basu (1997) is that negative earnings changes are more likely to reverse in the next period, compared to positive earnings changes. Given conservatism in accounting, negative changes in earnings will be incorporated into net assets to a greater degree than will positive changes in current earnings. Positive earnings changes are not fully incorporated into current earnings, leaving further changes to be incorporated in future periods, and producing less of an earnings reversal. In other words, positive earnings accruals are more persistent.

Jiang (2007) is a paper that is related to this thesis because it deals with the accruals anomaly, conservatism, and used the Basu measure of conservatism as a proxy for overall degree of conservatism. His results showed that a hedge strategy that takes a long position in low accrual firms and poor prior stock performance and a short position in high accrual firms with prior poor stock performance performed better than similar hedge portfolios that had either neutral (near zero percent return) prior stock performance or had prior good stock performance. The accrued earnings of the poor performers are less persistent in predicting one-period-ahead earnings. A key difference, among other differences, between this thesis and Jiang's paper is that Jiang does not analyze how conservatism will affect accruals of high accrual firms.⁴³

⁴³ In addition, his study relates to the concept of accounting conservatism and not to how an individual firm's degree of conservatism affects different magnitudes of accruals, as this thesis does. Also, differences in abnormal returns

Two studies have tried to measure a firm's degree of conservatism by constructing conservatism indexes based on a firm's magnitude of accruals. First, Penman and Zhang (2002) developed a conservatism index as follows: They define $C_i = ER_i/NOA_i$; where C_i is the conservatism index for firm i , ER is the estimated reserve, and NOA are net operating assets. The ER is based on the capitalization of R&D, advertising, and differences in inventory between LIFO and FIFO accounting policies. A complete conservatism index would include all operating reserves but the authors only choose these items because they are not subject to management discretion. They also model the interaction of investment growth and conservatism and its effects on earnings quality. They define earnings quality as being persistent or sustainable earnings. Penman and Zhang (2002) show conservatism to lower the quality of earnings when interacted with changes in investment growth, especially if the investment growth is temporary, making earnings less predictable. In addition, Penman and Zhang show that the stock market does not price the temporary change in earnings properly and that this is partly due to conservative accounting. Second, Mason (2004) constructed a conservatism index by assigning values to the amount of R&D, advertising, inventory, unrecorded pension, accounts receivable, and depreciable assets. These are Mason's proxies for the unrecorded (accrual) value of a firm's operating assets.

2.8 Summary

This chapter provided an overview of the relevant research related to the objective of this study: the effect conservatism has on the accruals anomaly. The first part of the chapter reviewed

between the good and neutral news groups are statistically insignificant in high accrual quintiles or the difference in hedge returns between the good and neutral news groups. It should be noted that the persistence factors for both good and bad news groups are lower than for the neutral group on pg. 162 of Jiang (2007).

the literature on the accruals anomaly. Research subsequent to Sloan (1996) has described the accruals anomaly as the potential to earn abnormal returns by trading on the information contained in accruals. It is surprising that over a decade since the seminal article by Sloan, the anomaly still exists (Collins et al., 2003; Lev and Nissim, 2006; Mashruwala et al., 2006). The second part of this chapter was devoted to accounting conservatism. The literature review is far from exhaustive because the research on accounting conservatism is so vast and can be traced back to Bliss (1924). Instead I focused on defining conservatism and its major explanations: contracting, litigation, taxation, and regulation. I also go into detail on the literature that attempts to measure a firm's level of conservatism. Since there are various metrics for measuring conservatism, it seems that more than one metric should be used.

This study expands the accruals anomaly by analyzing how qualities of accounting conservatism, particularly reliability, verifiability requirements, and constraints on income increasing accruals, can isolate firms that have greater persistence in accruals and therefore be less susceptible to one-period-ahead abnormal returns from trading on accruals.

CHAPTER 3

HYPOTHESES AND RESEARCH DESIGN

3.1 Accounting and Persistence of Accruals

The first of two main objectives of this thesis is to examine how overall degree of conservatism and the drivers of conservatism (Contracting, Litigation, Regulation, Taxation, or CLRT) affect the persistence of accruals in predicting one-period-ahead earnings. This objective and the second main objective, conservatism's effect on the accruals anomaly, are related and are extensions to the functional fixation hypothesis of Sloan (1996). I chose conservatism's effect on persistence of accruals for four reasons. First, the persistence argument is partially explained by the subjectivity and judgment involved in accruals, which is related to conservatism. Second, it is expected that conservatism is more likely to affect persistence of accruals rather than affecting the amount of investment a firm makes via its reliability and verification requirements. Conservatism is an accounting concept related to how a firm records its financial transactions that is unlikely to affect business decisions like investing. The third reason is that accounting conservatism is related to the agency argument for the accruals anomaly discussed in Kothari et al. (2008) and supported by Raith (2009). For example, the contracting explanation of conservatism (as outlined in Section 2.6.1) maintains that conservatism is used by shareholders, among others, to mitigate agency costs. Finally, the fourth reason for choosing conservatism's effect on accrual persistence is that it is the prevailing and most common explanation for the accruals anomaly (Kothari et al., 2008).

Watts (1993), Zhang (2000), and Balachandran and Mohanram (2006) suggested that greater degrees of conservatism add reliability to accruals, and Richardson et al. (2005) showed that more reliable accrual estimates are related to higher earnings persistence and less stock mispricing. Further support for conservatism providing reliable financial information is given by Krishnan and Visvanathan (2008) who used conservatism as their main measure of earnings quality. Nevertheless, Basu (1997) and Jiang (2007) showed that conservatism in accounting, using negative prior year returns in earnings as a proxy for conservatism, reduces the persistence of earnings. Basu explained that accruals are more transitory, less persistent, and lower, given a higher degree of conservatism. Basu, however, agrees that positive prior year returns will be more persistent in predicting one-period-ahead earnings because of the greater verification requirements of unrealized gains due to accounting conservatism. This lends support to conservatism increasing persistence in high accrual firms (see hypothesis H1a).⁴⁴

The subsequent Sections build on the discussion presented above to formulate hypotheses on how conservatism and its explanations are related to the persistence of accruals. Also in the subsequent Sections, unrealized gains and losses are interpreted similar to Ball and Shivakumar's (2005b) examples of unrealized gains and losses, involving working capital. Their examples included gains/losses on trading securities, inventory write-downs, receivables revaluations, and provisions for operating costs arising from adverse events in the current period.⁴⁵ Therefore, in formulating the hypotheses, it is reasonable to assume that on average firms of high deflated

⁴⁴ Hypothesis 3 in Basu (1997): Negative earnings changes have a greater tendency to reverse in the following period than positive earnings changes.

⁴⁵ These examples are appropriate because I use the working capital definition of accruals, the convention in accruals anomaly accounting research, which is consistent with Sloan (1996). The equation for working capital accruals is $OAC = [(\Delta CA - \Delta CL - \Delta CASH + \Delta STD - \Delta TP) - DEP]/TA$. These variables are defined in Equation (1) of Section 3.3.1.

accruals (highest accrual decile) will have a greater percentage of unrealized gains than firms of low deflated accruals (lowest accrual decile).

3.1.1 Degree of Conservatism and Accruals

Before examining how conservatism affects the persistence of accruals, it would be useful to verify a simple relationship of how accruals are related to the overall firm degree of conservatism. The more conservative a firm is in its accounting and financial reporting, the more likely it will incorporate income decreasing events on a timelier basis compared to income increasing events. A negative relationship between conservatism and total accruals excluding depreciation has been implied in previous literature (Givoly and Hayn, 2000; Moreira and Pope, 2006; LaFond and Watts, 2008).⁴⁶ Therefore, I predict that the magnitude of scaled total accruals will be lower, as a firm's overall degree or level of conservatism is higher. I do not assign this prediction a formal hypothesis because it is not part of the two major themes of this thesis, i.e., conservatism's affect on persistence of accruals and the accruals anomaly.

3.1.2 Overall Degree of Firm-level Conservatism and Persistence of Accruals

This thesis separately examines the effects of the overall degree of conservatism on accrual persistence because the four conservatism drivers do not capture all types of conservatism. By only including CLRT (Contracting, Litigation, Regulation, Taxation) an omitted variable problem is likely, or more seriously, a correlated omitted variable may occur in the regression

⁴⁶ The negative relationship implied in these studies relates to conservatism and total accruals. In this thesis, I exclusively use working capital/operating accruals since that is what has been used in most prior accruals anomaly studies. In addition, throughout this thesis, I use signed accruals to indicate that it is not the absolute value of accruals and scaled accruals are working capital accruals divided by average total assets.

equations used in the methods Section (S. 3.3) of this chapter. For example, a CFO/CEO may be risk-averse and therefore tend to be conservative in their firm's accounting. This explanation for conservatism is not included as one of CLRT and could be correlated to any of the drivers of conservatism. This would create a correlated omitted variable bias giving rise to incorrect estimates and inferences about the effects of CLRT on accruals. Further support for analyzing overall degree of conservatism was suggested by Watts (2003a). He stated that the four explanations of conservatism might be "manifestations of a single explanation." Therefore, I first examine the overall degree of firm-level conservatism's effect on accruals.

Watts (1993, 2003) suggested that conservatism leads to greater reliability of accruals and Richardson et al. (2005) empirically showed that greater reliability of accruals also increased their persistence in predicting one-period-ahead earnings and returns. I connect the observations of these two papers. That is, conservatism affects the reliability of accruals and reliability affects the persistence of accruals. Specifically, high accrual firms associated with greater conservatism are more likely to represent permanent items because positive accruals require greater assurance of realization, which will make these accruals more persistent in predicting one-period-ahead earnings. This is due to the asymmetric reliability and verifiability requirements that conservatism creates: higher reliability and verifiability requirement for gains relative to losses. For example, a conservative firm would only record a contingent gain if it was very likely to be realized but a contingent loss would require less likelihood of being realized by the same conservative firm. Conservatism is not expected to affect low accrual decile (LAD) firms as much because the greater reliability and verifiability requirements are far less for income decreasing accruals that are more common in LAD firms. Further, SFAC No. 2 indicates that conservatism introduces bias which conflicts with other desirable qualities of financial reporting.

These desirable qualities include representational faithfulness, neutrality, and comparability. This thesis is developed on the premise that the bias part of conservatism would affect LAD firms' accrual persistence more than high accrual decile (HAD) firms' accrual persistence. This view is consistent with Basu (1997) and Dechow and Ge (2006) on their findings related to HAD firms described in the paragraph below.⁴⁷

Dechow and Ge (2006) showed that extreme high accrual firms (highest decile) are more persistent in predicting one-period-ahead earnings when compared to extreme low accrual firms (lowest decile) because of the transitory nature of accruals in low accrual firms. They also conjectured that low accrual firms are likely to be more associated with downsizing and high accrual firms more with growth. In addition, firms in either extreme accrual decile were conjectured to be in volatile business environments. Similarly, the third hypothesis of Basu (1997, p. 20) is that negative earnings changes are more likely to reverse in the next period, compared to positive earnings changes, and therefore, positive accruals are more persistent. Again, conservatism seems to affect accrual persistence, depending on accrual magnitude. Therefore, my first hypothesis, in alternate form, is:

H1a: *Ceteris paribus, a higher overall degree of conservatism will increase the persistence of accruals in high accrual decile firms relatively more than in low accrual decile firms.*

⁴⁷ Zhang (2007) finds working capital accruals to be positively related to investment/growth opportunities. He also indicates "...that accounting conservatism often lead to lower earnings in year $t+1$ for high-investment/growth firms, as firms recognize expenses immediately but the new investment has not generated much revenue yet". I find this to add support to the prediction of conservatism increasing HAD firm persistence more than LAD firms because conservatism constrains recognizing revenue for growth firms.

3.1.3 Contracting Driver

Conservatism is expected to reduce the costs of each of the explanations (drivers) of conservatism (CLRT) (Watts, 2003a; Qiang, 2007). As explained in Section 2.6.1, the contracting explanation of conservatism reduces the agency cost of asymmetric information to parties external to the firm and thereby reduces their information costs, which increases contract efficiency. Ahmed et al. (2002) and Zhang (2008) document that conservatism is used by firms to receive lower borrowing rates in debt contracts by reducing the downside risk of creditors (external parties). Firms receive better terms because conservatism prevents managers from inflating earnings to hide default risk in debt contracts, which lowers the downside risk for creditors. Debt contracting with respect to loan covenants was studied by Zhang (2008) and Beatty et al. (2008). Both articles explain conservatism from debt contracting as increasing the likelihood of a firm to violate loan covenants, which serve as early signals to creditors of default risk. These early signals are useful to creditors because they are at an information disadvantage - the asymmetric information problem- with respect to actual earnings of the firm.⁴⁸

Conservatism due to debt contracting would increase the reliability of high accrual firms because these managers are constrained from inflating accruals, making them more persistent. The reasoning is that high accruals are more likely to be associated with unrealized gains than unrealized losses and conservatism requires greater verification for unrealized gains.⁴⁹ This

⁴⁸ Both articles explain that lenders could contract outside of GAAP; e.g., by adjusting GAAP earnings themselves. This does not, however, prevent management from exercising discretion over reported GAAP earnings, which would still be used as an input to contracting outside of GAAP. This makes accounting conservatism valuable for contracting efficiency both inside and outside of GAAP. Second, borrowers could reduce their level of conservatism after getting into a debt contract. Nevertheless, as Zhang (2008) explains, borrowers have an incentive to commit and maintain their level of conservatism because borrowing is a repeated game: deviation from their degree of conservatism is likely to affect their reputation on future borrowings.

⁴⁹ High accruals also contain many items that are used for the investment argument (e.g., high investment in assets,

prediction is supported by Watts' (2003a) definition of conservatism for unrealized gains requiring greater degrees of verification.

Another agency problem that affects accruals would be a temporary inflation of earnings for higher management compensation, which can introduce bias and noise into earnings numbers. Conservative accounting is a means of addressing the moral hazard issue of inflated earnings caused by management due to the asymmetric verification requirements of conservatism (Watts, 2003a). LaFond and Watts (2008) argued that "...conservative financial reporting is a governance mechanism that reduces the managers' ability to manipulate and overstate financial performance and increases the firm's cash flows and value." Similarly, Kothari et al. (2008) also gave an agency theory explanation for high accrual firms having accruals that are managed upwards, and therefore, are more transitory. Conservatism due to compensation contracts constrains management's upward bias in earnings, thereby, making accruals more persistent in predicting one-period-ahead earnings. In addition, Lara et al. (2009) provided evidence that good governance mechanisms, used to mitigate the moral hazard described above, had a causal positive link to accounting conservatism. Therefore, the hypothesis for the contracting driver, in alternate form, is as follows:

H1b: *Ceteris paribus, higher degrees of conservatism from the contracting driver will increase the persistence of accruals in high accrual decile firms relatively more than in low accrual decile firms.*

high sales/profits, and have high growth). The arguments in this study do not refute the investment argument but rather take the approach of conservatism increasing accruals persistence. Accruals may still contain investment growth items.

3.1.4 Litigation Driver

The second explanation for conservatism, litigation, is due to the asymmetry of being sued from inflated earnings. Managers, auditors, and directors are more likely to be sued if earnings are overstated than if they are understated (Beaver, 1993; Watts, 1993, 2003a), which gives them a greater incentive to only record high accruals that are likely to materialize into cash flows. I formulate the litigation conservatism driver's affects on accruals from an auditor perspective since they are a major party that would, and can, enforce conservatism to reduce their litigation risk. Also, Qiang (2007) used “Big” auditors as a proxy for higher conservatism induced from litigation.

Previous research has supported auditors using conservatism to reduce their litigation risk. For example, Francis and Krishnan (1999) argued that reporting conservatism is “...a rational mechanism through which auditors can achieve a desired level of audit risk for high-accrual clients.” and conservatism compensates for high accrual firms having accruals that have greater uncertainty due to their subjectivity and management incentives for opportunistic reporting. Chung et al. (2003) further argued that, to reduce litigation risk, auditors prefer their clients to make conservative income-decreasing accounting choices rather than non-conservative income-increasing choices. These authors predicted and showed that “Big” audit firms are more effective in constraining income-increasing accruals than non-Big audit firms, since “Big” audit firms are more likely to face litigation risk in the case of audit failure.⁵⁰ In addition, Krishnan (2003) found that discretionary accruals are better priced by the market when firms have “Big” auditors and Lobo et al. (2008) showed that discretionary accruals are negatively related to accounting

⁵⁰ Francis and Krishnan (1999), Defond et al. (2002), Krishnan (2003), and Blokdijs et al. (2006) have also supported better financial reporting of firms audited by Big auditors, relative to non-Big auditors. Big auditors range from the largest eight to the largest four audit firms in previous literature.

conservatism. Given the above literature on litigation induced conservatism from auditors and “Big” auditors in particular, auditors use conservatism for better financial reporting and better pricing of discretionary accruals. These qualities will likely make accruals more persistent. Therefore, the hypothesis for the litigation driver, in alternate form, is as follows:

H1c: *Ceteris paribus, higher degrees of conservatism from the litigation driver will increase the persistence of accruals in high accrual decile firms relatively more than in low accrual decile firms.*

The arguments for the two hypotheses above mostly pertain to restrictions on income increasing accruals and how accruals would be more persistent, the greater the conservatism, due to contracting and litigation costs. The same arguments are not implied for income decreasing accruals because conservatism biases the accrual even lower. Basu (1997) and Dechow and Ge (2006) both show low accrual firms to be less persistent in predicting one-period-ahead earnings than high accrual firms.

3.1.5 Regulation and Taxation Drivers

Qiang (2007) suggests that regulation induced conservatism will be more associated with large firms because they are more likely to be noticed and Watts and Zimmerman (1990) state that size has been used as a proxy variable for political attention, consistent with the political cost hypothesis. Indeed, regulated firms tend to be larger, for example, banks, insurance

companies, utilities, pharmaceuticals, oil and gas, etc.⁵¹ Further, similar to the asymmetry in litigation costs to parties external to the firm, an asymmetry in costs also exists for accounting standard setters and regulators, i.e., they have higher political costs if earnings are overstated because overstatements will be more visible to investors and outsiders in general because overstatements can be used in the political process more than understatements (Watts, 1977, p. 67). However, even though regulators and standard setters prefer conservatism, the literature on regulation's effect on accounting conservatism is not conclusive. For example, Bushman and Piotroski (2006) show that the legal and political systems of countries interact with the contracting and litigation factors which influence conservatism and Ball et al. (2003) found that in four East Asian countries with high quality regulation had low levels of conservatism. In addition, Ball and Shivakumar (2005) provide evidence against the regulation argument of conservatism in the UK. They found that even though public and private companies in the UK face similar accounting regulations, public firms tended to greater earnings conservatism than private firms. The expectation was that private companies would have lower conservatism due to different market demands and greater legal obligations of managers and auditors.

Qiang (2007) considers market value or total assets of a firm to proxy for the regulation driver of conservatism because it has been used in prior literature to proxy for firms likely to receive political attention and is consistent with the political cost hypothesis (Watts and Zimmerman, 1990). However, market value or total assets as a proxy for size may be problematic because size is related to many other variables in accruals anomaly research. For example, size is the dominant variable in explaining loan covenant violations in Zhang (2008) and size is not independent of the accruals anomaly (Palmon et al., 2008). To address this issue,

⁵¹ Grant Thornton, a large audit firm, classifies regulated industries with large corporations. http://www.grant-thornton.co.uk/large_corporates.aspx.

Qiang used sales as a proxy for the regulation conservatism driver to avoid the size problem. Nevertheless, I think the above issue will still exist because sales are positively related to size. For instance, Blokdijs et al. (2003) tested both total sales and total assets for client size measures to use for planning materiality. Even though assets were found to be superior to sales, the product of both measures was found to be the best size measure.

Another issue which will make isolating firms that are associated with greater regulation is the Sarbanes Oxley Act of 2002 (SOX). I expect this new regulation to increase conservatism, however, it will also make it more difficult to isolate firms that are conservative due to regulation because now all public firms (large or small) are subject to greater regulatory overview and size may not be enough of a discriminating factor for conservatism due to regulation.

The last driver addressed is conservatism due to taxation. The intuition behind taxation as a driver for conservatism is that firms use conservatism in financial reporting to reduce taxes. Nevertheless, the relationship is less clear than it sounds. In North America firms use different rules for financial reporting compared to taxable income and less flexibility is allowed for arriving at taxable income (Phillips et al., 2003). For example, firms must use the method of depreciation, as stated in the tax acts, for taxation, but can use different methods for their financial reporting (Shackelford and Shevlin, 2001; Mills and Plesko, 2003). Depreciation methods for taxation are often accelerated depreciation methods, but straight-line depreciation methods are the most common for financial reporting (Rajan and Reichelstein, 2009). Therefore, conservatism arising from depreciation policies of firms could be independent of taxation because different methods for each can be used for each type of reporting.

Another departure from reported income and taxable income could arise from the recent Financial Accounting Standards 141 and 142 on business combinations. Now business

combinations require the purchase method for mergers and acquisitions and disallow the pooling method. These new standards also changed the accounting for goodwill. Instead of amortization, firms must now do an annual impairment test to determine if goodwill should be written down. This will add to the differences between financial and taxable income because the taxation rules for goodwill (IRC, Sec. 197) have not changed the requirement for goodwill to be amortized over 15 years for taxation purposes. Once again, goodwill rules are not the same for financial reporting and taxation. In fact, a firm could practice earnings management to inflate its earnings and still minimize taxable income (Phillips et al., 2003).

Next, the research on book-tax differences is mixed on conservatism's affect on persistence of accruals. Hanlon (2005) showed that U.S. firms with lower book-tax differences had higher persistence of accruals. This lends support to conservatism from taxation increasing the persistence of accruals because a lower book-tax difference is considered to imply higher conservatism (Hanlon, 2005). On the other hand, Desai (2003) and Plesko (2004) indicated that the book-tax difference was increasing during the 1990's. However, during the same period, conservatism was on the rise (Givoly and Hayn, 2000). One would expect that increases in conservatism would reduce the book-tax difference because conservatism tends to lower book income.

Taken together, the above literature and discussion on the regulation and taxation drivers of conservatism indicates that it will be difficult to identify firms that are actually using conservatism for financial reporting. Support for this prediction was given in part II of the article by Watts (2003b) in that the evidence for regulation and taxation was weak. In addition, Bushman and Piotroski (2006) found mixed evidence for differences in taxation between countries to affect accounting conservatism. Further, Beatty et al. (2008) reported insignificant

results for the relationship between corporate tax rates and earnings conservatism. This is counter-intuitive to taxation being a driver of conservatism because higher tax rates would provide more tax savings from being conservative, *ceteris paribus*. Therefore, given the mixed evidence and difficulty in identifying a suitable proxy for regulation and taxation induced conservatism, the hypotheses for regulation and taxation are stated in non-directional form, as follows:

H1d: *Ceteris paribus, the regulation driver of conservatism is related to the persistence of accruals.*

H1e: *Ceteris paribus, the taxation driver of conservatism is related to the persistence of accruals.*

3.2 Accruals Anomaly

3.2.1 Overall Degree of Firm-level Conservatism and the Accruals Anomaly

The accruals anomaly is prominently explained as investors misunderstanding the lower persistence of accruals compared to cash flows for predicting one-period-ahead earnings, which leads to stock mispricing or abnormal returns. I extend this relationship by examining what effects, if any; conservatism has on the accruals anomaly.

The basis of the accruals anomaly, from Sloan (1996), is the lower persistence of accruals relative to cash flows and investors' expectations not reflecting this differential persistence. Sloan refers to investors' lack of understanding of the persistence difference as investors naively

fixating on earnings, which leads to an overestimation of the effect (persistence) of accruals and an underestimation of the effects of cash flows in forming earning expectations. The result is stock mispricing. As hypothesized in Section 3.1.2., accruals persistence is predicted to increase as a firm's overall degree of conservatism increases in high accrual firms. If high accruals become more persistent, then the accruals anomaly should decrease, since Sloan's investor fixation hypothesis predicts less mispricing when high accruals are more persistent. For example, investing in high accrual firms with greater degrees of conservatism provides higher one-period-ahead returns than would high accrual firms with lower degrees of conservatism, since the former accruals have greater persistence or probability of materializing into real earnings. Therefore, my next hypothesis, in alternative form, is:

H2a: *Ceteris paribus, higher overall degree of conservatism will increase one-year-ahead returns of accruals in high accrual decile firms relatively more than in low accrual decile firms.*

3.2.2 Conservatism Drivers and the Accruals Anomaly

To further support conservatism's effect on accruals, I examine the affect each of the explanations/drivers of conservatism (CLRT) has on the accruals anomaly. As hypothesized in Sections 3.1.3 and 3.1.4, accrual persistence is predicted to increase as a firm's degree of conservatism due to contracting or litigation increases in high accrual firms. If high accruals become more persistent, then the accruals anomaly should decrease since Sloan's investor fixation hypothesis predicts less mispricing when high accruals are more persistent. Therefore, my next hypotheses, in alternative form, are:

H2b: *Ceteris paribus, higher degrees of conservatism from the contracting driver will increase one-year-ahead returns of accruals in high accrual decile firms relatively more than in low accrual decile firms.*

H2c: *Ceteris paribus, higher degrees of conservatism from the litigation driver will increase one-year-ahead returns of accruals in high accrual decile firms relatively more than in low accrual decile firms.*

The predictions for how the other two drivers of conservatism (regulation and taxation) are related to the accruals anomaly is stated in non-directional form because of the weak and conflicting evidence of their affect on accrual persistence (Section 3.1.5). The regulation and taxation hypotheses are formally stated as:

H2d: *Ceteris paribus, the regulation driver of conservatism is related to the accruals anomaly.*

H2e: *Ceteris paribus, the taxation driver of conservatism is related to the accruals anomaly.*

3.2.3 Hedge portfolio returns, Conservatism, and the Accruals Anomaly

Investors could earn greater abnormal returns from using information about a firm's overall degree of conservatism in addition to its level of accruals. The arguments presented in this chapter support the idea that the overall degree of conservatism will reduce the negative one-

period-ahead abnormal returns from accruals in high accrual firms (HAD). In other words, HAD firms that are also high in accounting conservatism will have higher one-period-ahead returns relative to HAD firms that are low in accounting conservatism.

In a like manner, the arguments presented in Section 3.2.2 above, the contracting and litigation conservatism drivers increasing the one-period-ahead abnormal returns in high accrual firms should also be applicable for a firm's overall degree of conservatism since they are considered parts of overall degree of conservatism. Conversely, as the overall degree of conservatism decreases, HAD firms will have lower one-period-ahead returns relative to HAD firms that are high in accounting conservatism.

Therefore, I predict a hedge portfolio that consists of a long position in low accrual firms and a short position in high accrual firms with lower degrees of conservatism will earn greater abnormal returns than a similar hedge portfolio that takes a long position in low accrual firms and short in high accrual firms with higher degrees of conservatism. My final hypothesis in alternate form is stated below.⁵²

H3: *Ceteris paribus, investment in a hedge portfolio that is long in low accrual decile and short in high accrual decile firms, that have a lower overall degree of conservatism, will have higher levels of the accruals anomaly relative to a similar hedge portfolio that invests in higher overall degree of conservatism firms.*

⁵² As stated in the introduction of this dissertation, the accruals anomaly means earning abnormal returns from a hedge strategy that trades on the information contained in accruals.

3.3 Research Design

This section develops and discusses the methods and models used to test the hypotheses. Initially, the measures for accruals, firm-level degrees of conservatism, and persistence, are developed. The subscript k represents represent contracting, litigation, regulation, and taxation drivers of conservatism (C, L, R, T).

3.3.1 Calculation of Accruals

A comprehensive definition of accruals would include all current and non-current operating assets, current and non-current operating liabilities, non-cash financial assets, and financial liabilities. This can be simplified to define change in accruals as the difference between accrual earnings and cash earnings, or the difference between change in non-cash assets and change in liabilities. However, instead of this comprehensive definition, I use the working capital definition of accruals (the convention in accrual accounting research) to be consistent with Sloan (1996), as defined below:⁵³

$$OAC = [(\Delta CA - \Delta CL - \Delta CASH + \Delta STD + \Delta TP) - DEP] / AVGTA \quad (1)$$

Where:

OAC = Operating accruals [computed, since not in Compustat];

ΔCA = Change in current assets [Compustat item #4];

$\Delta CASH$ = Change in Cash and cash equivalents [Compustat item #1];

ΔCL = Change in current liabilities [Compustat item #5];

⁵³ Jiang (2007) and F. Zhang (2007) use the Sloan (1996) or working capital accrual definition. Ali and Gurun (2009) use two types of operating accruals: one that subtracts depreciation and another that does not, and Bradshaw et al. (2001) use both the working capital and a comprehensive definition of accruals.

ΔSTD = Change in debt included in current liabilities [Compustat item #34];

ΔTP = Change in income tax payable [Compustat item #71];

$DEPN$ = Depreciation and amortization expenses [Compustat item #14];

$AVGA$ = Average of beginning and end of fiscal year book value of total assets [Compustat item #6]

As in prior research (Sloan, 1996; Hanlon, 2005), all of the above variables are deflated by the average of beginning and end of fiscal year book value of total assets, to allow for cross-sectional comparability between firms.

3.3.2 Calculation of Overall Degree of Conservatism

Previous research has developed different metrics to measure a firm's overall degree of conservatism (e.g., Basu, 1997; Penman and Zhang, 2002; Mason, 2004). Givoly et al. (2007) suggested using more than one measure to assess the overall degree of conservatism since each capture different dimensions of conservatism. For example, the BTM (book-to-market) ratio is more of a stock measure used to gauge conservatism over time, while AT (asymmetric timeliness) is more of a flow or income statement measure (Khan and Watts, 2009). Further, measures of conservatism do not give consistent approximations. When Givoly et al. (2007) compared AT to three other conservatism measures (BTM ratio, cumulative discretionary accruals over time, and the persistence of current period accounting losses) they found that the AT measure was less stable than these three measures for conservatism.⁵⁴ Thus, I use the average

⁵⁴ Givoly et al. (2007), using simulated and actual data, showed that Basu's (1997) AT measure can lead to anomalous results because it differs across research settings (firms, countries, time periods) when other fundamental factors indicate that it should not do so. They showed that it gave results that were inconsistent with situations that would predict lower levels of conservatism due to earnings management (big issuers and restaters).

of three measures for overall firm degree of conservatism. Each conservatism measure is converted to quintiles before averaging.

1. Basu (1997) measured a firm's degree of conservatism as the sensitivity of earnings to negative returns. In this thesis, I use Basu's model of earnings as a function of stock returns as one measure of the overall degree of conservatism, as shown below:

$$X_{it}/P_{it-1} = \alpha + \beta_1 DR_{it} + \beta_2 R_{it} + \beta_3 (R_{it} \times DR_{it}) + \varepsilon_{it} \quad (2)$$

Where:

X_{it} = Earnings per share before extra-ordinary items and discontinued operations [Compustat item #58];

R_{it} = annual cum dividend return from CRSP (Center for research on security prices);

DR_{it} = a dummy variable which equals 1, when returns are negative, and 0 otherwise;

P_{it-1} = beginning of the fiscal year stock price [Compustat item #199].

The subscript i represents the firm and subscript t represents the fiscal year of the firm i .

In Equation (2), Basu (1997) predicts all coefficients to be positive. The main coefficient of interest is β_3 , which represents the incremental effect on earnings from negative returns (coined 'bad news' in Basu's article), in comparison to positive returns (good news). A positive and statistically significant β_3 is interpreted as conservatism because negative returns have a greater effect on earnings than do positive returns. Therefore, following Francis et al. (2004) and Zhang (2008), I use the sensitivity of earnings to negative returns ($\beta_2 + \beta_3$), relative to positive returns (β_2), as a proxy for the overall degree of firm-level conservatism. Formally, I call this an asymmetric timeliness

Also, Basu's (1997) differential timeliness component is based on a sample aggregate attribute and is often not calibrated as a firm-specific measure of conservatism. In this study, however, it is calibrated at the firm-level. Also, by using an average measure helps to control for ex-ante conservatism inducing ex-post conservatism.

measure of conservatism as $AT = (\beta_{2,it} + \beta_{3,it} / \beta_{2,it})$. This quotient is calculated on a rolling 10-year window, $t-9, \dots, t$, as in Francis et al. (2004). I require a minimum of five years for a firm to be given an AT measure of conservatism. It is expected that AT will be greater than one.

2. The second measure for overall degree of conservatism is obtained using the method of Penman and Zhang (2002). They developed a conservatism score called a C-score (higher score meaning a higher degree of conservatism) composed of three estimated reserves created by conservative accounting standards: LIFO (last in, first out) inventory reserves, research and development reserves, and advertising reserves. This measure is consistent with conservatism causing a persistent understatement of net asset values. I denote this measure of conservatism as RES, which is calculated below in Equation 3.

$$RES_{it} = (LIFOres_{it} + RNDres_{it} + ADVres_{it}) / NOA_{it} \quad (3)$$

Where:

$LIFOres_{it}$ = LIFO inventory reserves reported in the financial statement footnotes [Compustat item #240];

$RNDres_{it}$ = Estimated unamortized research and development expense [Compustat item #46] using a uniform amortization over five years;

$ADVres_{it}$ = Estimated unamortized advertising expense [Compustat item #45] using the sum of years digits amortization over two years;

NOA_{it} = Net operating assets or equivalently book value of operating assets minus the book value of operating liabilities.⁵⁵

The subscript i represents the firm and the subscript t represents the fiscal year of the firm

i. Furthermore, as in Krishnan and Vishvanathan (2008), I only use this measure (RES_{it}) for firms that have one or more of the three reserves above.

3. The third measure for overall firm degree of conservatism is the PTB ratio (market value of equity divided by the book value of equity of the firm). I use this measure because it is parsimonious and has been used in previous literature as a firm-level measure of conservatism (Givoly and Hayn, 2000; Ahmed et al., 2002; Beaver and Ryan, 2005; Roychowdhury and Watts, 2007). The BTM ratio is a long-run measure of conservatism, as modeled by Feltham and Ohlson (1995), which tends to be higher under conditions of more accounting conservatism (Khan and Watts, 2009).

To re-iterate the calculation of the overall degree of conservatism, it is the average of three measures for overall firm degree of conservatism. Each conservatism measure is converted to quintiles before averaging to give them equal weight for the final measure firm-level measure of overall degree of conservatism (abbreviated as CONSQ). Nevertheless, it should be noted that even though I call this measure a “firm-level” measure of conservatism, it is not quite a “firm-

⁵⁵ I use the following methods to calculate the R&D and advertising reserves: $RNDres_t = 0.9 \times RND_t + 0.7 \times RND_{t-1} + 0.5 \times RND_{t-2} + 0.3 \times RND_{t-3} + 0.1 \times RND_{t-4}$ (Amir, Lev, and Sougiannis 2003). $ADVres_t = Advertising\ expense_t + 1/3 (Advertising\ expense_{t-1})$. I calculate NOA as described in Penman and Zhang (2002), i.e., net operating assets is Common Equity (Compustat item #60 + Preferred Treasury Stock (Compustat item #227)) - Preferred Dividends in Arrears (Compustat item #242) + Financial Obligations (Debt in Current Liabilities (Compustat item #34) + Total Long-Term Debt (Compustat item #9) + Preferred Stock (Compustat item #130) - Preferred Treasury Stock (Compustat item #227) + Preferred Dividends in Arrears (Compustat item #242)) - Financial Assets (Cash and Short-Term Investments (Compustat item #1) + Investments and Advances - Other (Compustat item #32)) + Minority Interest on Balance Sheet (Compustat item #38).

year” measure as developed in Khan and Watts (2009).⁵⁶ The overall degree of conservatism measure in this thesis is made of components (AT, RES, and PTB ratio) that use firm-level data that encompass a range of prior year’s data to arrive at a conservatism measure for each firm-year observation. Therefore, the measure used in this thesis is an average of prior years and not a measure of only conservatism of the current year. This would only be valid if firm characteristics are stable over time, which Givoly et al. (2007) find is not the case. The Khan and Watts (2009) measure overcomes the implicit assumption of conservatism being fairly stable over time because it is a function of firm’s size, market-to-book and leverage for a single year. Therefore, I will continue to call the conservatism measure in this thesis a firm-level measure but not a firm-year measure.

3.3.3 Proxies for Drivers Inducing Conservatism

The two contracts related to accounting conservatism in this thesis are compensation and debt contracts. I use a separate proxy to account for each of these contracts inducing conservatism. For compensation contracts, from Qiang (2007, p. 791) I use percentage of institutional ownership as a proxy for equity governance.⁵⁷ Klein (2002) provided evidence that governance mechanisms, effective boards, and audit committees constrain opportunistic reporting. Opportunistic reporting for compensation is an explanation for conservatism due to contracting.

⁵⁶ The Khan and Watts (2009) measure is a function of firm’s size, market-to-book and leverage for a single year.

⁵⁷ Qiang (2007) uses the percentage of outside directors as a proxy for equity governance, however, the data would need to come from Execucomp which only includes the S&P 1500 companies. This would cause a significant reduction in sample size and sample bias. Therefore I substituted institutional ownership instead of the percentage of outside directors. Institutional ownership is used in Qiang (2007) as an alternate proxy for equity governance because it is possible that the percentage of outside directors is too narrow of a proxy for equity governance.

For debt contracting, I use the ratio of private long-term debt to total long-term debt to proxy for governance provided by debt contracting. Dichev and Skinner (2002) showed that private debt holders demand greater debt governance than do public debt holders. This is also the proxy used by Qiang (2007) for debt contracts inducing conservatism. The two contracting proxies are combined and formally stated as:

$CNTRT$ = Compensation contracting proxy + Debt contracting proxy: the percentage of institutional ownership (Compustat Mnemonic IOTSHRO) + the ratio of private long-term debt (Compustat #81+#84+#83) to total long-term debt (Compustat #82+#81+#84 + #83);⁵⁸

Section 2.6.2 of the literature review refers to numerous studies giving evidence that firms audited by “Big” auditors will be required by these auditors to be relatively more conservative than firms audited by “non-Big” auditors, and that this is mainly due to relatively higher litigation risk of the “Big” auditors (Francis and Krishnan, 1999; Chung et al., 2003; Cahan and Zhang, 2006). This leads to Qiang (2007) using “Big” auditors as a proxy for high litigation risk. Moreover, a recent study by Beatty et al. (2008) examined litigation risk and its relationship to conservatism. In their article, they associate firms with higher litigation risk if they are in a high litigation risk industry. These high litigation risk industries are ones that belong to SIC codes 2833-2836, 3570-3577, 3600-3674, 5200-5961, and 7370-7374. They assign a dichotomous variable of one if a firm belongs to any of these SIC codes and zero otherwise.⁵⁹

Therefore, my proxy for litigation risk is the sum of two dichotomous variables, described as:

⁵⁸ For fiscal years 1982 to 1988 only the debt contracting proxy is used for debt contracting since Compustat does not have institutional percentage available for those years. #81 represents debt notes, #82 represents debt debentures, #83 represents debt other L/T, and #84 represents debt capitalized lease obligations.

⁵⁹ In earlier stages of this thesis, the second litigation proxy was audit committee members that have financial expertise. This proxy was used by Krishnan and Visvanathan (2008). However, they only use firms on the S&P 500 because firms with this type of information are likely to belong to the S&P 500 index. I therefore do not use this proxy because of the sample limitations that would not be appropriate for an accruals anomaly study.

LIT = Litigation proxy: an indicator variable equal to the sum of: one, if a firm's auditor (Compustat #149) is from 1 to 8 – “Big” auditor *plus* one, if the firm belongs to SIC codes listed above and zero otherwise. Therefore values of *LIT* would be 0, 1, or 2. Higher values indicate greater litigation risk.

I use the same variable as used by Qiang (2007) as a proxy for regulation-induced conservatism, stated as:

REG = Regulation proxy: an indicator variable, equal to 1 if sales (Compustat #12), deflated by industry total sales, divided by the number of firms in the industry, is of the top quartile; and 0 otherwise. Industry is based on the two-digit SIC code.

The connection, or correlation, between taxable earnings and reported earnings provides an incentive to defer earnings that can also generate conservatism (Watts, 2003a).⁶⁰ If the connection between reported earnings and taxable earnings is high, then lowering reported earnings using conservatism will provide lower taxes, i.e., greater tax savings. Qiang (2007) uses this reasoning for his proxy of the taxation driver of conservatism. I use the same proxy variable as used by Qiang (2007) for taxation-induced conservatism, stated as:

Accruals anomaly studies must include all sizes of firms because of the documented relationship between size and the accruals anomaly (Palmon et al. 2008). The SIC codes listed as high litigation risk industries represent firms in the pharmaceutical, computers, electrical manufacturing, and retail industries.

⁶⁰ The correlation between financial income and taxable income may also be due to other explanations of conservatism. For example, reported income may be lower, due to debt covenant requirements, regulatory constraints, and litigation. Shackelford and Shevlin (2001) even note that tax minimization is not necessarily the objective of tax planning, since other business decisions must be considered. Therefore, conservatism is not the only factor aligning accounting income with taxable income.

TAX = Taxation proxy: the association between book income and tax income estimated from time series regressions of income taxes (Compustat #16 - #50) on tax expense (Compustat #16); all variables are deflated by lagged total assets. As in Qiang (2007), to get firm-year relationships, each firm's relationship is used throughout the sample period.

3.3.4 Persistence Measures

To measure earnings persistence of cash flows, accruals, and conservatism, persistence being the ability of these variables to predict or affect one-period-ahead earnings, I use the following equations:

$$EFO_{i,t+1} = \alpha + \pi_1 CFO_{it} + \pi_2 OAC_{it} + \varepsilon_{i,t+1} \quad (4a)$$

$$EFO_{i,t+1} = \alpha + \pi_1 CFO_{it} + \pi_2 OAC_{it} + \pi_3 CONSQ_{it} + \pi_4 (OAC_{it} * CONSQ_{it}) + \varepsilon_{i,t+1} \quad (4b)$$

$$EFO_{i,t+1} = \alpha + \pi_1 CFO_{it} + \pi_2 OAC_{it} + \pi_3 CONSQ_{it} + \pi_4 (OAC_{it} * CONSQ_{it}) + \pi_5 HAD_{it} + \pi_6 (OAC_{it} * HAD_{it}) + \pi_7 (CONSQ_{it} * HAD_{it}) + \pi_8 (OAC_{it} * CONSQ_{it} * HAD_{it}) + \varepsilon_{i,t+1} \quad (4c)$$

$$EFO_{i,t+1} = \alpha + \pi_1 CFO_{it} + \pi_2 OAC_{it} + \sum_{k=C}^T \pi_{3,k} (\omega_{k,it}) + \sum_{k=C}^T \pi_{4,k} (\omega_{k,it} \times OAC_{it}) + \varepsilon_{i,t+1} \quad (4d)$$

$$EFO_{i,t+1} = \alpha + \pi_1 CFO_{it} + \pi_2 OAC_{it} + \sum_{k=C}^T \pi_{3,k} (\omega_{k,it}) + \sum_{k=C}^T \pi_{4,k} (\omega_{k,it} \times OAC_{it}) + \pi_5 (HAD_{it}) + \pi_6 (OAC_{it} * HAD_{it}) + \sum_{k=C}^T \pi_{7,k} (\omega_{k,it} * HAD_{it}) + \sum_{k=C}^T \pi_{8,k} (OAC_{it} * \omega_{k,it} * HAD_{it}) + \varepsilon_{i,t+1} \quad (4e)$$

Where:

π = Estimated persistence parameters for the applicable independent variables;

OAC = Operating accruals [computed using Equation (1)];⁶¹

CFO = Cash flow from operations [Compustat item #308];⁶²

EFO = (One-year-ahead) Income before extra-ordinary items [Compustat item #A123];

CONSQ = Proxy for overall degree of conservatism. Determined by the average of AT, PTB, and RES. The average is obtained by first converting each of these 3 prior measures to quintiles, this gives each measure an equal weight. A weight of 1/3 is applied to each measure to arrive at a proxy for the overall degree of conservatism. At least two of the 3 proxies: AT, PTB, and RES must have a value for the firm-year conservatism measure to be assigned an overall degree of conservatism, i.e., CONSQ; If only two measures are used then each measure is given a weight of 1/2 to arrive at CONSQ.

ω_k = k type of conservatism driver in quintiles where k represents C, L, R, T;

HAD = High accrual dummy variable, which equals 1 if firm belongs to the highest accrual decile and 0 otherwise;

The subscripts i, and q represent firm and quintile, respectively. The subscript “k” represents the type of conservatism driver and all continuous variables are deflated by the

⁶¹ I do not use deciles for cash flows and accruals because to my knowledge no accruals anomaly study has done this after Sloan (1996), i.e., they use continuous numbers. Examples that use continuous variables include: Francis and Smith (2005), Ahmed, Nainer, and Zhang (2006), Dechow and Ge (2006), Zhang (2007), and Jiang (2007). Also, using continuous variables avoids the additional variation caused by arbitrarily transforming data into deciles and the decile transformation could eliminate useful information from extreme observations.

⁶² CFO [Compustat item #308] is from the statement of cash flows and is not available in Compustat for fiscal years before 1987. Therefore, for years 1980-1986, CFO is defined as the EFO less accruals. The Sloan (1996) paper involves the period 1962-1991 and used CFO to mean the difference between earnings and accruals.

average of beginning and end of fiscal year book value of total assets, to control for scale differences.

The coefficients from the OLS regressions of Equations (4a), (4b), and (4d) will provide measures of persistence at the firm level. However, the coefficient of the interaction variable of degree of conservatism, accruals, and HAD dummy variable in Equations (4c) and (4e), will provide evidence for answering the first set of hypotheses: H1a, H1b, H1c H1d, and H1e. H1a relates to the effect of overall degree of conservatism on accrual persistence and is tested using Equation (4c). Specifically, the coefficient on the interaction variable ($OAC_{it} * CONSQ_{it} * HAD_{it}$) indicates the incremental persistence in predicting one-period-ahead earnings provided by an increase in conservatism, going from low accrual decile (LAD) to high accrual decile (HAD) firms. Second, the coefficient on the interaction variable ($OAC_{it} * \omega_{k,it} * HAD_{it}$), Equation (4e), indicates the incremental persistence in predicting one-period-ahead earnings provided by an increase in the conservatism drivers, going from LAD to HAD firms. Hypotheses H1a, H1b, and H1c predict that greater levels of conservatism from contracting, litigation, and overall degree of conservatism, respectively, will increase accrual persistence. Therefore, the coefficients on these interaction variables from Equations (4c) and (4e) are expected to be positive.

In addition, even though not formal hypotheses to be tested, the coefficients for CFO (π_1) and OAC (π_2) are expected to be positive and lower for OAC, as in prior research. Sloan (1996) obtained 0.86 and 0.77, Collins et al. (2003) obtained 0.66 and 0.47, and Dechow and Ge obtained 0.83 and 0.47, for cash flow and accrual persistence, respectively. Hypotheses H1d and

H1e, related to regulation and taxation drivers of conservatism, are presented in non-directional form so I do not give any expectations for the variables related to these hypotheses.⁶³

3.3.5 Conservatism, Accruals, and the Accruals Anomaly

To test whether incorporating conservatism's effect on accruals affects abnormal returns from trading on accruals, the second set of hypotheses uses three approaches: (1) a multivariate regression model at the firm-level; (2) a double sorting process to form portfolios on accrual deciles and conservatism quintiles; and (3) the method developed by Mishkin (1983). Alternate measures are used to test for robustness of findings and to determine if the results are specific to a model or method.

In approach (1), a multivariate regression model that includes a factor for accruals, firm-level degree of conservatism quintile, the interaction of these two factors, and control variables is used to test whether one-period-ahead returns are related to conservatism's effect on high and low accrual deciles at the individual firm-level. I examine the conservatism drivers and the overall degree of conservatism in approach (1), as explained in Section 3.3.5 below in more detail.

In approach (2), portfolios are formed at the end of each fiscal year on a first sort of firm-level accrual deciles. I then do a second sort/pass, based on firm-level degrees of conservatism quintiles within each accrual decile formed in the first sort. The purpose of the second sort is to isolate the effect of conservatism on returns within each accrual decile. Approach (3) is a two-

⁶³ In Qiang (2007), regulation and taxation conservatism were found to be related to unconditional conservatism. Unconditional conservatism is rules based which firms have to follow. With unconditional conservatism there would be less reliability and verifiability criteria to be considered.

equation approach to test whether markets are efficient in incorporating conservatism's effects on accruals.⁶⁴

3.3.6 One-period-ahead Abnormal Returns from Trading on Accruals and Conservatism at the Firm-Level (Approach 1)

Approach (1) tests whether one-period-ahead returns are related to firm-level accruals, degree of conservatism, interaction of degree of conservatism and accruals, and control variables, using a regression approach. The dependent variable is one-period-ahead annual size-adjusted buy-and-hold stock returns at the firm-level. This measure for abnormal returns has been used in previous studies on the accruals anomaly (Sloan, 1996; Zie, 2001; Hanlon, 2005; Hribar and Yehuda, 2008). One-period-ahead stock returns (cum-dividend) begin four months after the end of the fiscal year for each firm, i.e., they start in the fifth month after a firm's year-end. This time gap allows for almost all firms' financial statements to be publicly available and is the same starting month as used by Sloan (1996) and by Zhang (2007). The regression equations are presented below as Equations (5a) and (5b) and are the main models used to test the second

⁶⁴ Previous studies (Sloan, 1996; Jiang, 2007; Dechow and Ge, 2006) use the Mishkin (1983) test to ascertain if the market understands the expected lower persistence of accruals relative to cash flows. If the market does not, then mispricing is allowing abnormal returns to be made. The Mishkin approach has been criticized for being misspecified and having an omitted variable bias by not including known variables related to security returns (Zhang, 2007; Kraft et al., 2007). Kraft et al. (2007) also show that, in accounting research, OLS is equivalent to the Mishkin test in assessing the market understanding fundamental relationships when samples are large. In this study, I use large samples, so OLS will be equivalent or better than the Mishkin test. OLS also allows for easier inclusion of additional explanatory variables and cross-sectional correlation issues, compared to the Mishkin test. OLS is the recommended procedure for testing market mispricing in accounting studies (Kraft et al., 2007). Kraft et al.'s (2007) U-shaped relationship between returns and accrued earnings is discussed in Section 2.2.6.

A recent study by Pae and Thornton (2010) shows that analysts, who are sophisticated users of financial statements, do not fully understand conservatism. Therefore, investors will not likely understand how conservatism will affect accrual persistence differences. Penman and Zhang (2002), using changes in investments in firms, showed that investors do not fully account for conservatism when forming expectations of one-period-ahead stock returns. The first two tests that I use to assess the effects of conservatism on the accruals anomaly do not suffer from the problems associated with the Mishkin test, and if they show that abnormal returns are affected by conservatism, then they give information about market efficiency and about the magnitude of abnormal returns.

set of hypotheses (H2a, H2b, H2c, H2d, and H2e). They will be estimated using ordinary least squares with pooled cross-sectional data.

Approach (1) is a more robust approach than approach (2), below, because other variables are included that account for known risk factors and some of these, which are firm specific, cannot be used in the portfolio approach (approach (2)). The other explanatory variables are chosen from models used in prior accounting literature to predict or explain returns.⁶⁵ I estimate, using pooled cross-sectional regressions and Fama and Macbeth (1973) regressions, the relationship between one-period-ahead size-adjusted returns and firm-level accruals, conservatism, and their interaction with the following models referred to as Equations 5(a) and 5(b):

⁶⁵ This model's explanatory variables (other than the conservatism, accrual variables, and dividend variables) are taken from Penman and Zhang (2002, p. 260). I use their variables because they also include a conservatism measure as an explanatory variable and their model is used at the firm-level instead of the portfolio-level. I also include variables for dividend yield because, in Dhaliwal's (2003, 2005) articles, they were significant variables in explaining realized/ex-post returns. Fama and French (1992) showed that when portfolios are sorted on size and CAPM Beta, the CAPM Beta becomes insignificant. This is why the market Beta or CAPM Beta is not used in their three-factor model or in Equation 5. Nevertheless, to account for market risk I do include the market Beta in Equation 5a and 5b because it was included in previous accounting research (Sloan, 1996; Botosan and Plumlee, 2002; Penman and Zhang, 2002; Dhaliwal, 2003, 2005; Francis et al., 2004; Jiang, 2007) that included returns models. The new variables do not necessarily indicate that accruals and/or conservatism are priced risk factors, which is beyond the scope of this research.

$$\begin{aligned}
SAR_{i,t+1} = & \alpha + \beta_1 DIVY_{it} + \beta_2 DIVY2_{it} + \beta_3 BETA_{it} + \beta_4 LnBTM_{it} + \beta_5 LnMV_{it} + \beta_6 LEV_{it} + \\
& \beta_7 EYLD_{it} + \beta_8 NEYLD_{it} + \beta_9 CFO_{it} + \beta_{10} OAC_{it} + \beta_{11} CONSQ_{it} + \\
& \beta_{12} (OAC_{it} * CONSQ_{it}) + \beta_{13} HAD_{it} + \beta_{14} (OAC_{it} * HAD_{it}) + \beta_{15} (CONSQ_{it} * HAD_{it}) + \\
& \beta_{16} (OAC_{it} * CONSQ_{it} * HAD_{it}) + \varepsilon_{i,t+1} \quad (5a)
\end{aligned}$$

$$\begin{aligned}
SAR_{i,t+1} = & \alpha + \beta_1 DIVY_{it} + \beta_2 DIVY2_{it} + \beta_3 BETA_{it} + \beta_4 LnBTM_{it} + \beta_5 LnMV_{it} + \\
& \beta_6 LEV_{it} + \beta_7 EYLD_{it} + \beta_8 NEYLD_{it} + \beta_9 CFO_{it} + \beta_{10} OAC_{it} + \sum_{k=C}^T \beta_{11,k} (\omega_k)_{it} + \\
& \sum_{k=C}^T \beta_{12,k} (OAC_{it} \times \omega_{k,it}) + \beta_{13} (HAD_{it}) + \beta_{14} (OAC_{it} * HAD_{it}) + \\
& \sum_{k=C}^T \beta_{15,k} (\omega_{k,it} * HAD_{it}) + \sum_{k=C}^T \beta_{16,k} (OAC_{it} * \omega_{k,it} * HAD_{it}) + \varepsilon_{i,t+1} \quad (5b)
\end{aligned}$$

k represents C, L, R, T and ω_k represents the k th. conservatism driver.⁶⁶

Where:

$$SAR = \prod_{m=1}^M (1 + Rp, m)$$
 | Rp is the monthly cum-dividend return of the firm i for month, m , and M is the total number of months less the return on an equivalent size matched portfolio. The annual size matched portfolio return is calculated with the following buy-and-hold product:

$$\prod_{m=1}^M (1 + Rp, m)$$
 | Rp is the monthly return in month m on the size portfolio that the firm

⁶⁶ Equation (5b) in expanded form: $SAR_{i,t+1} = \alpha + \beta_1 DIVY_{it} + \beta_2 DIVY2_{it} + \beta_3 BETA_{it} + \beta_4 LnBTM_{it} + \beta_5 LnMV_{it} + \beta_6 LEV_{it} + \beta_7 EYLD_{it} + \beta_8 NEYLD_{it} + \beta_9 CFO_{it} + \beta_{10} OAC_{it} + \beta_{11,C} (CNTRT)_{it} + \beta_{11,L} (LIT)_{it} + \beta_{11,R} (REG)_{it} + \beta_{11,T} (TAX)_{it} + \beta_{12,C} (OAC_{it} \times CNTRT_{it}) + \beta_{12,L} (OAC_{it} \times LIT_{it}) + \beta_{12,R} (OAC_{it} \times REG_{it}) + \beta_{12,T} (OAC_{it} \times TAX_{it}) + \beta_{13} (HAD_{it}) + \beta_{14} (OAC_{it} * HAD_{it}) + \beta_{15,C} (CNTRT_{it} * HAD_{it}) + \beta_{15,L} (LIT_{it} * HAD_{it}) + \beta_{15,R} (REG_{it} * HAD_{it}) + \beta_{15,T} (TAX_{it} * HAD_{it}) + \beta_{16,C} (OAC_{it} * CNTRT_{it} * HAD_{it}) + \beta_{16,L} (OAC_{it} * LIT_{it} * HAD_{it}) + \beta_{16,R} (OAC_{it} * REG_{it} * HAD_{it}) + \beta_{16,T} (OAC_{it} * TAX_{it} * HAD_{it}) + \varepsilon_{i,t+1}$ (5b)

belongs to. The size portfolio is supplied by CRSP. In this thesis the starting month is May and ending month is April of the year following accrual and conservatism ranking for each firm i ;

$DIVY$ = dividend yield, and equals 0 for firm-years with no annual dividends for firm i ;

$DIVY2$ = dividend yield ($DIVY$) squared;

$BETA$ = Capital asset pricing model (CAPM) beta for firm i ; $BETA$ is estimated from a regression of 48 monthly raw returns on the CRSP value-weighted monthly stock returns up to the last month of fiscal-year t .⁶⁷

$LnMV$ = the natural logarithm of market value of common stock for firm i obtained from CRSP (Center for Research on Security Prices);

$LnBTM$ = the natural logarithm book value to market value of common stock for firm i ;

LEV = leverage, calculated as book value of total assets to book value of equity for firm i ;

$EYLD$ ⁶⁸ = earnings-to-price ratio for firm i ; this variable is calculated as Earnings per Share

Basic - Excluding Extraordinary Items [Compustat item #A123] divided by the year end price [Compustat item #A199], and then multiplied by 100;

$NEYLD$ = negative earnings indicator for firm i ; 1, if earnings are negative, 0 otherwise;

CFO = Cash flow from operations [Compustat item #308];

OAC = Operating accruals [computed using Equation (1)] and deflated by average total assets;

$CONSQ$ = overall degree of conservatism converted to quintiles;

ω_k = k type of conservatism driver and k represents C, L, R, T.

To formally test the hypotheses, Equation (5a) (overall degree of conservatism- $CONSQ$) and 5b (conservatism drivers- $CLRT$) are run separately.

⁶⁷ Fama and French (1992) use 2 to 5 years, Botosan and Plumlee (2002) use a minimum of 30 months up to a maximum of 60 months, and Dhaliwal et al. (2005) use 48 months.

⁶⁸ I do not use the price to earnings ratio provided by Compustat because the data for that item only goes back to 1998 in the current Compustat database. Instead, I use eps divided by stock price described above for $EYLD$.

Starting with the overall degree of conservatism, the main coefficient of interest to assess whether or not the overall degree of conservatism affects accruals to increase size-adjusted returns (SARs) more in HAD firms compared to that of LAD firms is the coefficient on the last variable in Equation (5a), $OAC*CONSQ*HAD$. The coefficient β_{16} will provide evidence to answer H2a for the incremental effect of higher overall degrees of conservatism on these accrual deciles. If the coefficient is positive, then overall degree of conservatism incrementally increases the SARs more in HAD firms compared to that of LAD firms. In a similar manner, the coefficients for each of the conservatism drivers (CLRT) will be examined and analyzed using Equation (5b). The sign and significance of these coefficients will provide evidence for answering hypotheses H2b, H2c, H2d, and H2e. Once again, hypotheses H2b and H2c predict a positive sign on β_{16} for the contracting and litigation drivers of conservatism. I do not make predictions for coefficients related to H2d and H2e because the hypotheses are stated in non-directional form.⁶⁹

The variables in the models (Equations (5a) and (5b)) were chosen from previous research on the accruals anomaly or conservatism. The variable CFO has generally not been used in multivariate return models examining the accruals anomaly (e.g., Sloan, 1996; Dechow and Ge, 2006; Jiang, 2007; Zhang, 2007). Nevertheless, I include CFO because it is included in persistence regressions and Ahmed, Nainer, and Zhang (2006) include CFO in their return regressions on lagged variables. In fact they found that the coefficient on CFO is equivalent in absolute terms to OAC (0.28 vs. -0.28). Their main finding was that trading on information in

⁶⁹ From previous research on the accruals anomaly, Zhang (2007, model 1, p. 1347) and Cheng and Thomas (2006, p. 1159) using firm-level regressions, obtained negative coefficients of -0.293 and -0.014 on OAC, respectively, in predicting one-period-ahead returns. Accruals are expected to have a negative coefficient because of lower persistence. I do not predict the coefficient on conservatism as it is beyond the scope of this study. In addition, no prior research has been done on how the drivers of conservatism affect one-period-ahead returns and conflicting evidence has been found on the overall degree of conservatism and one-period-ahead returns. Also, it is the interaction variables that are the main focus of this study.

CFO and OAC can further increase abnormal returns. Next, OAC is included and its coefficient is predicted to be significantly negative if the accruals anomaly still exists in the current sample. The predictions for the coefficients of the control variables in Equations (5a) and (5b) are taken from previous literature and are as follows:

DIVY = negative (Fama and French, 1998; Dhaliwal et al., 2005);

DIVY2 = positive (Elton & Gruber, 1970- concave relationship between returns and dividends);

BETA = positive (Sloan, 1996; Botosan and Plumlee, 2002; Penman and Zhang, 2002; Dhaliwal, 2003, 2005; Francis et al., 2004);

LnMV = negative (Banz, 1981; Fama and French, 1992);

LnBTM = positive (Fama and French, 1992; Dhaliwal et al., 2005);

LEV = positive (Penman and Zhang, 2002);

EYLD = insignificant from Penman and Zhang (2002);

NEYLD = insignificant from Penman and Zhang (2002);

3.3.7 One-period-ahead Abnormal Returns from Trading on Accruals and Conservatism at the Portfolio-Level (Approach 2)

Approach (2) tests for abnormal returns from portfolios formed by assigning stocks into deciles, based on their magnitude of annual deflated accruals, similar to Sloan (1996). This thesis extends Sloan's results by also performing a second sort, based on degrees of conservatism quintiles within each accrual decile. This will produce $10 \times 5 = 50$ portfolios per fiscal year to test for abnormal returns. One-period-ahead stock returns (cum-dividend) begin four months after the end of the fiscal year for each firm similar to the firm-level model of section 3.3.6. This time gap allows for almost all firms' financial statements to be publicly available and is the same starting month as used by Sloan (1996) and by Zhang (2007).

Within approach (2), three methods are used to compute abnormal returns. The first method, size-adjusted returns, adjusted annual buy-and-hold returns (BHR) from each portfolio by subtracting annual buy-and-hold returns on the associated CRSP NYSE/AMEX/NASDAQ Capitalization Assignment (CRSP ID 1) returns. Sloan (1996) uses the NYSE/AMEX associated CRSP returns. The difference is called size-adjusted abnormal returns (SARs).⁷⁰ The size-adjustment portfolios are taken from the CRSP (Center for Research on Security Prices) database. For the second method, abnormal returns are obtained by using the Sharpe-Linter version of the capital asset pricing model (CAPM) also known as the market model. Even though this is a subset of the third method used below, I present it to compare with Sloan (1996). Also, it is not clear which model is superior for calculating abnormal returns. The measure of abnormal returns is the intercept term from Equation 6, also known as Jensen's alpha.

$$Rp_{t+1} - Rf_{t+1} = \alpha + \beta_1(Rm - Rf)_{t+1} + \varepsilon_{p,t+1} \quad (6)$$

Where:

$Rp_{t+1} - Rf_{t+1}$ = one-year-ahead annual BHR on portfolio "p," adjusted for the one-year-ahead annual risk-free rate;

$Rm - Rf$ = one-year-ahead equal-weighted annual return on all NYSE, AMEX, and NASDAQ stocks (from CRSP), minus the annualized one-month Treasury bill rate (from Ibbotson Associates), obtained from the Fama and French website.

The third method or model to estimate abnormal returns is the Fama and French (1993) three-factor model enhanced by the momentum factor of Jegadeesh and Titman (1993). Mashrawala et al. (2006) used this method for estimating abnormal returns from an accrual

⁷⁰ SARs are calculated using the method described by Barber and Lyon (1997) and used in Sloan (1996). Barber and Lyon argue that buy-and-hold returns (BHARs) are the appropriate return measure for testing annual returns, compared to summing monthly cumulative abnormal returns (CARs). Monthly CARs ignore the effects of compounding, while BHARs include the effect of compounding.

trading strategy and is shown below as Equation (7).⁷¹ The measure of abnormal returns is the intercept term from Equation (7), also known as Jensen's alpha. Sloan (1996) only used a simple one-factor model and assumed the Sharpe-Linter version of the capital asset pricing model (CAPM). The four-factor model, as used in Mashrawala et al. (2006), is a more robust model because it does not assume that the CAPM holds and it also captures other risk factors known to be associated with security returns (Jagadeesh and Titman, 1993; Fama and French, 1992, 1993, 1996). In addition, inferences made from an accrual strategy can be sensitive to whether size-adjusted returns or Jensen's alphas are used (Mashruwala et al., 2006, p. 10).

$$Rp_{t+1} - Rf_{t+1} = \alpha + \beta_1(Rm - Rf)_{t+1} + \beta_2(SMB)_{t+1} + \beta_3(HML)_{t+1} + \beta_4(UMD)_{t+1} + \varepsilon_{p,t+1} \quad (7)$$

Where:⁷²

$Rp_{t+1} - Rf_{t+1}$ = BHR on portfolio "p", calculated for 12 months starting on May 1 of the year following accrual and conservatism ranking. Portfolios are formed annually by sorting on accrual deciles and a second sort on degree of conservatism quintiles (at prior fiscal year-end, denoted time t), in excess of the monthly risk-free rate (Rf);

Rf = one month US government Treasury Bill rate obtained from the Fama and French Website;

$$BHR = \prod_{m=1}^M (1 + Rp, m) \quad | \text{Rp is the monthly return of the constructed portfolio for month, m,}$$

and M is the total number of months.

⁷¹ Fama and French (1996) showed that many of the CAPM anomalies (e.g., size, earnings/price, cash flow/price, BTM ratio, past sales growth, long-term past return, and short-term past return) are related, and can be captured by their four-factor model. The accruals anomaly is not one of the anomalies in their paper.

The hedge portfolio return based on accruals in Mashrawala et al. (2006) were 10.8 percent for the period 1976-1997 calculated using the alpha from their equation, which is similar to equation (7) of this study. However, the time period of this study is from 1982-2007.

⁷² The four-factor returns ($Rm - Rf$, SMB , HML , UMD) can be obtained from Ken French's website: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

$Rm-Rf$ = excess return on a broad market portfolio; $Rm-Rf$ in for equation (7) is the value-weighted return on all NYSE, AMEX, and NASDAQ stocks (from CRSP) minus the one-month Treasury bill rate (from Ibbotson Associates) obtained from the Fama and French Website;

SMB = the difference between the annual return on a portfolio of small stocks and the return on a portfolio of large stocks (SMB , small minus big);

HML = the difference between the annual return on a portfolio of high-book-to-market stocks and the return on a portfolio of low-book-to-market stocks (HML , high minus low);

UMD = also referred to as momentum, is the average of the returns on two (big and small) high prior return portfolios minus the average of the returns on two low prior return portfolios.

The portfolios are constructed monthly. Big means a firm is above the median market cap on the NYSE at the end of the previous month; small firms are below the median NYSE market cap. Prior return is measured from month -12 to - 2. Firms in the low prior return portfolio are below the 30th NYSE percentile. Those in the high portfolio are above the 70th NYSE percentile.

It is expected that one-period-ahead size adjusted returns will increase as the degree of conservatism increases within the high accrual decile due to an increase in the persistence of these accruals. Similarly, it is expected that Jensen's alpha (method (2) from approach (2)) will increase as the degree of conservatism increases within the high accrual decile due to an increase in the persistence of these accruals. Therefore, I test the last hypothesis (H3) by taking the return of a hedge portfolio that is long in low accrual decile and short in high accrual decile firms that

also have a lower overall degree of conservatism and compare it to the returns of a similar hedge portfolio that invests in higher overall degree of conservatism.⁷³ The last hypothesis (H3) expects the difference between the first and second hedge portfolios to be positive, indicating that higher hedge portfolio returns can be made when going short in high accrual firms that are also low in conservatism.

The previous portfolio approach (portfolios are either based on the magnitude of accruals and conservatism or on a hedge portfolio of a long position in the lowest accrual decile and a short position in the largest accrual decile taking conservatism into account) does not control for confounding factors. That is, factors other than accruals and conservatism could be part of the abnormal returns that are captured by Jensen's alpha and therefore it does not necessarily indicate an accruals anomaly. Therefore, approach (2) does not give an accurate measure for the incremental effect that conservatism has on abnormal returns. Another disadvantage of the portfolio approach is the loss of information from averaging in the portfolio generating process and averaging associated with some independent variables. Therefore, the main approach to test the effects of conservatism on the accruals anomaly is approach (1).

3.3.8 Mishkin (1983) Test (Approach 3)

I supplement the main tests of this thesis by using the Mishkin (1983) methodology to determine if investors understand the effects conservatism has on the persistence of accruals. This Mishkin framework has been used in previous studies that examine the accruals anomaly

⁷³ The standard hedge portfolio when examining the accruals anomaly is one that is long in the lowest accrual decile of firms and short in the highest accrual decile of firms. The standard portfolio does not take into account firm level degree of conservatism.

(e.g., Sloan, 1996; Bradshaw et al., 2001; Xie, 2001; Hanlon, 2005; Barth and Hutton, 2004; and Dechow and Ge, 2006).

In this thesis, the Mishkin test is specified as:

$$EFO_{i,t+1} = \alpha + \pi_1 CFO_{it} + \pi_2 OAC_{it} + \pi_3 (CONSQ_{it}) + \pi_4 (OAC_{it} * CONSQ_{it}) + \varepsilon_{i,t+1} \quad (4b)$$

$$SAR_{i,t+1} = \alpha^* + \beta^* [EFO_{i,t+1} - \alpha - \pi_1^* CFO_{it} - \pi_2^* OAC_{it} - \pi_3^* (CONSQ_{it}) - \pi_4^* (OAC_{it} * CONSQ_{it})] + U_{i,t+1} \quad (8a)$$

and the two-Equation Mishkin test for the drivers of conservatism is specified as:

$$EFO_{i,t+1} = \alpha + \pi_1 CFO_{it} + \pi_2 OAC_{it} + \sum_{k=C}^T \pi_{3,k} (\omega_{k,it}) + \sum_{k=C}^T \pi_{4,k} (\omega_{k,it} \times OAC_{it}) + \varepsilon_{i,t+1} \quad (4d)$$

$$SAR_{i,t+1} = \alpha^* + \beta^* [EFO_{i,t+1} - \alpha - \pi_1^* CFO_{it} - \pi_2^* OAC_{it} - \sum_{k=C}^T \pi_{3,k} (\omega_{k,it}) - \sum_{k=C}^T \pi_{4,k} (\omega_{k,it} \times OAC_{it})] + U_{i,t+1} \quad (8b)$$

Where:

EFO = (One-year-ahead) income before extra-ordinary items or earnings from operations;

SAR = annual buy-and-hold returns (BHR) from each portfolio by subtracting annual buy-and-hold returns on an equal-weighted portfolio of firms from size deciles of NYSE and AMEX firms. See Section 3.3.7 and Section 4.4.2;

CFO = cash flows from operations scaled by average assets;

OAC = operating accruals scaled by average assets;

CONSQ = proxy for overall degree of conservatism;

ω_k = k-type of conservatism driver in quintiles where k represents C, L, R, T;

$\varepsilon_{i,t}$ and $U_{i,t+1}$ = normally distributed error terms.

I first estimate Equation (4b), the forecasting Equation, which determines the coefficients (or persistence factors) assigned to earnings and conservatism components for predicting one-

year-ahead earnings, as developed in Section 3.3.4. The next step will be to substitute the same independent variables of Equation (4b) into an abnormal returns Equation, giving rise to Equation (8a). This is the security pricing Equation. Then, using the method of Mishkin (1983), I estimate the EFO and SARs models jointly in two stages, using iterative weighted nonlinear least squares. The formal testing to examine differences in coefficients of Equations (4a) and (8a), i.e., π_1 , π^*_1 , π_2 , π^*_2 , π_3 , π^*_3 , π_4 , and π^*_4 , will be by comparing the sum of squared residuals restricted (SSRr) to the sum of squared residuals unrestricted (SSRu). The restricted model is used when the coefficients from Equation (8a), that have a *, are constrained to equal the coefficients from Equation (4b). A likelihood ratio statistic of SSRr to SSRu is asymptotically distributed like a Chi Square, based on the increase in SSRr. If the overall joint tests show that the likelihood ratio(s) statistic is significant then the weights (coefficients) placed by investors on the persistence of earnings and conservatism measures differ from the ones in Equation (4b); i.e., mispricing is present. A similar procedure is performed using the drivers of conservatism.

CHAPTER 4

EMPIRICAL RESULTS AND ANALYSIS

4.1 Overview

In this chapter are reported the findings for the hypotheses proposed in Chapter 3. The main theme of this thesis is that conservatism and its explanations/drivers affect the persistence of accruals, and in turn, this will affect the accruals anomaly. Conservatism is an accounting principle which records unrealized losses on a timelier basis than gains and specific rules in accounting that result in lower income and book value. The former is often referred to as conditional conservatism and the latter as unconditional conservatism. Accruals are the recording of incurred financial activity for which cash is yet to be received or disbursed (for a detailed definition see Section 2.5.1).⁷⁴ The accruals anomaly is the ability to earn abnormal returns using the information about the lower persistence of accruals in predicting one-year-ahead earnings. I add to the literature on the accruals anomaly by investigating how different types of conservatism in high accrual decile firms (HAD) and low accrual decile firms (LAD) affect accrual persistence in predicting one-year-ahead earnings and size adjusted returns. I also investigate how conservatism can be used by investors to earn abnormal returns. In addition, the results provide further information to regulators about the benefits and costs of conservatism.

⁷⁴ “Accruals are an important feature of financial accounting. Documenting and explaining the properties of accounting accruals is therefore a worthy goal for financial accounting researchers. Yet research on the properties of accounting accruals is limited” (Allen, Larson, and Sloan, 2009). Accruals in this thesis are operating accruals. Total accruals are examined as supplementary testing in Section 4.7.2. Total accruals include both operating and non-operating accruals.

The remainder of Chapter 4 is organized into six main parts, with their accompanying tables and figures placed at the end of the dissertation. Section 4.2 provides the analysis for changes in accrual persistence from conservatism, including both overall degree of conservatism and the conservatism drivers, separately. Section 4.3 describes the abnormal returns calculation approaches used in this thesis and Section 4.4 provides the analysis of the effects on abnormal returns from using information on how conservatism affects accruals at the firm-level for both the overall degree of conservatism and the conservatism drivers. Section 4.5 moves from the firm-level approach to the portfolio-level approach, where the effects of conservatism on abnormal returns within an accrual decile are examined. Section 4.6 provides a third method, the two-equation Mishkin (1983) test, for determining the effects of conservatism on accrual persistence and market interpretation. Finally, Section 4.7 provides supplemental and robustness testing of the main findings and the last section of this chapter, Section 4.8, provides further testing of the main models related to common econometric issues.

4.2 Conservatism's Effects on Accrual Persistence

4.2.1 Data Sources and Sample Selection

All available U.S. firm-level financial data were obtained from Standard & Poor's Research Insight Compustat Annual Industrial and Research files. Both the Active and Research file firms from the Compustat database were used. The Research files were included to reduce the survivorship bias inherent in the Active files. Stock return and market valuation data to compute conservatism proxied by the asymmetric timelines measure of Basu (1997) were obtained from the CRSP (Center for Research on Security Prices) databases.

From these databases, to be consistent with prior studies on the accruals anomaly, I included only December fiscal year-end firms to ensure that the mispriced stocks are aligned according to calendar time (Sloan, 1996; Dechow and Ge, 2006; Mashrawala et al., 2006; Palmon et al., 2008). The sample were further reduced by excluding firm-year observations from the financial sector (SIC codes 6000-6999) because the financial statement data required to compute operating accruals is not available for most of these firms. In addition, all firm-year observations from the utility industry (SIC codes 4900–4949) were excluded from the analysis because disclosure requirements and accounting rules are significantly different for these industries (Collins et al., 2003). Conservatism is an accounting concept that can be affected by different rules in the utility industry. Further, the sample only included firms traded in the New York, American, and Nasdaq stock exchanges.⁷⁵

The sample spanned fiscal years 1980-2008; however, the results were based on fiscal years 1982-2008 because the analysis uses prior year accruals and prior year accruals are deflated by average total assets, which require prior year total assets. The final sample for the persistence analysis, which includes all December fiscal year-end firms, was comprised of 36,164 and 22,677 firm-year observations, for overall degree of conservatism and the conservatism drivers, respectively (Table 1, Panels A and B). The reduction in sample size for the conservatism drivers, contracting, litigation, regulation, and taxation (CLRT), was due to extra variable requirements for the driver proxies. Also, in Table 1, panel C shows that the sample is further reduced to 27,681 firm-year observations due to the matching of market data from CRSP with financial data from Compustat for overall degree of conservatism.

⁷⁵ Palmon et al. (2008) used the New York and the American exchange firms; Collins et al. (2003) and Mushrawala et al. (2006) also included the Nasdaq exchange firms.

4.2.2 Descriptive Statistics

Table 2 (Panels A and B) reports the breakdown of the variables used in the persistence analysis. Panel A of Table 2 presents descriptive statistics for the standard variables used in persistence of cash flows and accruals research, and Panel B contains the conservatism variables. All independent and dependent variables were winsorized at the top and bottom 1 percent of their respective distributions to mitigate the influence of outliers.

Table 2 (Panel A) first presents three variables: one-year-ahead earnings from operations (EFO), cash flow from operations (CFO), and operating accruals (OAC).⁷⁶ Their mean (median) deflated values are: -0.064 (0.034), 0.019 (0.076), and -0.043 (-0.041), respectively. For comparison, Dechow and Ge (2006) obtained a mean EFO = -0.031, CFO = 0.033, and OAC = -0.064. Collins et al. (2003) obtained a mean EFO = 0.052, CFO = 0.096, and OAC = -0.044. Also, Zhang (2007) obtained a mean OAC of -0.023. The latter article does not give information on the mean EFO and CFO.⁷⁷

Panel B of Table 2 presents the proxy variables for conservatism. First, the three variables used for calculating the overall degree of conservatism are the Basu (1997) asymmetric timeliness measure (AT), the price to book ratio (PTB) and accumulated reserves (RES). Their mean (median) values are: 1.082 (0.179), 2.835 (1.844), and 0.280 (0.110), respectively. The mean AT measure ($\beta_{2,it} + \beta_{3,it} / \beta_{2,it}$) obtained from Equation (2) in Section 3.3.2 is greater than one,

⁷⁶ Throughout this thesis, unless otherwise stated, accruals are operating accruals. In addition, data is not available for CFO (item #308) in this Compustat database for years 1986 and prior because SFAS 95 only required the information of CFO for years after 1987. For years 1986 and prior, CFO = EFO - OAC because CFO (item #308) is not available. Sloan (1996) defines cash flows as the difference between earnings and accruals. Detailed definitions and formulas for variables are found in Appendix B.

⁷⁷ Sample periods for Collins et al. (2003), Dechow and Ge (2006), and Zhang (2007) were 1988-1997, 1988-2002, and 1964-2003, respectively. Dechow and Ge calculate operating accruals from the statement of cash flows calculated as earnings before extraordinary items (Compustat item #123) minus cash from operating activities (Compustat item #308) all divided by average assets. They restrict their observations to after the release of SFAS 95 in order to calculate operating accruals from the statement of cash flows.

indicating that on average there is earnings conservatism in the firms used in the sample using the AT measure of Basu (1997). The mean PTB measure is well above one indicating that market values of firms are on average about three times as much as book values. A major reason for this is conservatism in measuring firm book values, but not market values. The mean RES measure, from Penman and Zhang (2002) is 0.313, which is close to the value of 0.280 in this sample.⁷⁸

To obtain an overall degree of conservatism measure, each of these measures of conservatism (AT, PTB, and RES) is converted into quintiles. I convert them to quintiles so each is given equal weight during the simple averaging process of assigning one third weights to obtain on overall degree of conservatism measure. The calculation is equal to $1/3 \times (AT + PTB + RES)$ and is calculated for each firm-year. Then, each of these rankings is assigned an accrual decile based on its level of deflated accruals for a given fiscal year. After the annual accrual decile ranking, each overall degree of conservatism is further assigned into conservatism quintiles within its respective annual accrual decile. For example, assume a firm had an AT, PTB, and RES of 1.1, 2.8, and 0.3, respectively, for a given year. Each of the measures would be converted to quintiles, i.e., assigned a rank from zero to four. Since these measures are close to their averages, their quintiles ranks would each be approximately two. Therefore, overall degree of conservatism = $1/3 \times (2 + 2 + 2) = 2$. Next, if this firm-year observation was also in the top 10th percentile of deflated accruals for that year, then it would be assigned a ranking of nine (since decile ranks are from zero to nine). Finally, a second sort of the conservatism measure is done within its respective annual accrual decile. This firm-year observation is labeled variable

⁷⁸ I require at least two of the three reserves: life, advertising, and research and development, for a firm to be assigned a reserve measure. In addition, at least two of the three conservatism measures (AT, PTB, RES) are required for a firm to be assigned an overall degree of conservatism measure.

CONSQ. Note, that this firm-year observation's conservatism ranking (CONSQ) may not be two because a second conservatism quintile ranking is performed within an annual accrual decile.⁷⁹

Second, the proxies for the drivers/explanations of conservatism are contracting (CNTRT), litigation (LIT), regulation (REG), and taxation (TAX) and have detailed descriptions provided in Appendix B. Summarized descriptions are as follows: 1) contracting conservatism driver proxy is equal to the percentage of institutional ownership plus the ratio of private debt to total debt; 2) litigation conservatism driver proxy is an indicator variable equal to one if a firm's auditor is a "Big" auditor, and zero otherwise *plus* one, if the firm belongs to industries that are subject to higher litigation; 3) regulation conservatism driver proxy is an indicator variable, equal to 1 if sales deflated by industry total sales, divided by the number of firms in the industry, is of the top quartile and 0 otherwise; and 4) taxation conservatism driver proxy is the association between book income and tax income estimated from time series regressions of income taxes on book tax expense. These proxies are the same as the ones used for explanations of conservatism in the article by Qiang (2007). Much prior research is used for developing these proxies (see Section 3.1). For example, Klein (2002) provided evidence that governance mechanisms, effective boards, and audit committees constrain opportunistic reporting.

For the current sample, the mean (median) values of contracting, litigation, regulation, and taxation proxies for explaining conservatism are: 1.351 (1.360), 1.077 (1.000), 0.311 (0.000),

⁷⁹ Even though I call this measure a "firm-level" measure of conservatism, it is not quite a "firm-year" measure as developed in Khan and Watts (2009). The overall degree of conservatism measure in this thesis is made of components (AT, RES, and PTB ratio) that use firm-level data, which encompass a *range* of prior year's data to arrive at a conservatism measure for each firm-year observation. Therefore, the measure used in this thesis is an average of prior years and not a measure of only conservatism of the current year. This would only be valid if firm characteristics are stable over time, which Givoly et al. (2007) find is not the case. The Khan and Watts (2009) measure overcomes the implicit assumption of conservatism being fairly stable over time because it is a function of firm's size, market-to-book and leverage for a single year. However, the measure in this thesis does not suffer from not incorporating cross-sectional variation. Therefore, I will continue to call the conservatism measure in this study a firm-level measure and not a firm-year measure.

and 0.583 (0.699), respectively. For comparison, Qiang (2007) obtained values of 1.41 for contracting, 0.77 for litigation, 0.62 for regulation, and 0.77 for taxation proxies of explaining conservatism. The sample size is reduced to 22,677 firm-year observations when using the conservatism drivers. This is due to the greater data requirements for four conservatism measures as compared to one for the overall degree of conservatism.⁸⁰

It should be noted that Table 2 shows the number of observations for the overall degree of conservatism as 36,164 and for the conservatism drivers as 22,677. The lower number of observations for the drivers of conservatism is due to the extra variable requirements for their proxies.

In addition to the above moments of the sample distribution of Table 2, I split the current sample into 22 industries based on SIC standard industry classification codes (Table 3). Presented for comparison are the industry distributions for the Compustat population during the sample period 1982-2008, for only December year-end firms that are not in the financial or utilities industries. The current sample closely represents the Compustat population because only the services and transportation industries have percentage differences of greater than two percent. Services are 2.7 percent less and transportation is 2.1 percent less than the Compustat population industry percentage. Also in Table 3 are columns containing the number and percentage of firms that are within high accrual decile (HAD) and low accrual decile (LAD) of the sample. This separation reveals that manufacturing companies are about twice as likely to be

⁸⁰ Institutional ownership, which is used for one component of the contracting proxy of conservatism, had a large number of NA observations in COMPUSTAT. This was a major reason for the reduction in sample size. Further, for years prior to 1987 only the ratio of private debt to total debt is used because institutional ownership percentages are not available. Therefore, for years 1986 and prior, only the debt proxy was used for contracting. Persistence results for HAD relative to LAD did not change much. Testing was also performed by splitting the components of contracting and litigation proxies as separate proxies. Results actually became less significant for comparing HAD to LAD. Therefore, it would seem that I get more significant results by combining the components of the two proxies for contracting and litigation.

in HAD compared to LAD and the reverse occurs for the computer, extractive, services, and transportation industries. That is, the latter industries have greater percentage of firms in the LAD.

Continuing with analyzing the current sample, Table 4 presents average metrics of portfolios formed by annually ranking firms based on their magnitude of the deflated accrual component of earnings.⁸¹ Table 4 (Panel A) reports the portfolio mean values, by decile, for the magnitudes of earnings and its two components: cash flows from operations and operating accruals. In addition, a similar breakdown is provided for the components of operating accruals: change in current assets, change in current liabilities, and change in depreciation. The LAD firms have lower change in current assets, higher change in current liabilities, and higher change in depreciation compared with HAD firms. And as expected, subtracting the components from operating accruals (OAC_COMP) approximately equals zero for all accruals deciles. An interesting observation is that EFO (earnings from operations) were lowest in the extreme deciles (-0.361 for LAD firms and -0.153 for HAD firms). This follows from Dechow and Ge's (2006) suggestion that LAD firms are downsizing and incurring losses and Zhang (2007)'s finding that HAD firms were growth firms that would have revenues deferred until future periods.⁸² The current sample supports HAD firms to be high growth firms because growth, proxied by the percentage change in assets, is highest in the highest accrual decile at 50.5 percent. In addition, the percentage sales growth is second highest for the highest accrual decile at 96.3 percent. It should also be noted that both average assets and net operating assets were lowest in the highest accrual decile and second lowest in the lowest accrual decile.

⁸¹ The numbers of observations in each decile are different because they are the averages of the deciles by year. Each year had a different number of observations in the sample due to data restrictions.

⁸² The sales growth is highest for LAD firms at 446%. Therefore, I looked at growth in the proceeding years. Growth in sales for LAD firms in the proceeding year averages 48% and for HAD firms averages 425%. Growth in assets for the proceeding year is still highest for HAD firms.

Cash flows increase with accrual deciles, but then start decreasing around decile 4 and continue to decrease to the last accrual decile. For comparison, Sloan (1996) showed a negative relationship between cash flows and accruals and a positive relationship between next period earnings and accruals. However, the sample period of Sloan (1996) ends in 1991 while, in this thesis, the sample period ends in 2008.

The previous variables have been examined by Sloan (1996) and other studies that include Mashruwala et al. (2006) and Dechow and Ge (2006). However, since a major purpose of this thesis is to study the effects of conservatism on accrual persistence, I separately show how the drivers of conservatism and overall degree of conservatism vary between accrual deciles (Table 4, Panel B). Upon initial inspection, no major difference seems to exist in the mean values of overall degree of conservatism quintiles (CONSQ) within each accrual decile (approximately two for each accrual decile). Similarly, the drivers of conservatism (CNTRT, LIT, REG, TAX), do not show any apparent pattern in their mean values throughout the accrual deciles except that LIT is lowest in the extreme deciles.

Also in Table 4 is Panel C, which shows how cash flow and accrual persistence varied when broken down by accrual decile. Persistence being the respective coefficient in predicting one-period-ahead earnings. The data when plotted (Figure 2, below) shows steady persistence for cash flows, but varied persistence levels for accruals. Most striking is the sharp drop in accrual persistence for the last accrual decile. This may be due to HAD firms described as being growth firms in Zach (2004), Dechow and Ge (2006) and Zhang (2007).⁸³ In the sample of this thesis HAD firms are also depicted as high growth using sales and assets as growth proxies.

⁸³ Zach (2004) finds LAD firms to have a greater probability of bankruptcy. This seems consistent with Dechow and Ge (2006) describing LAD firms as being in the downsizing stage of operations. For the sample of this study, LAD firms have the highest deflated level of leverage.

4.2.3 Univariate Analysis of the Association Between Variables

Table 5 presents the Pearson (reported above the diagonal) and Spearman (reported below the diagonal) correlation coefficients among one-year-ahead earnings from operations (EFO), cash flow from operations (CFO), operating accruals (OAC), overall degree of conservatism (CONSQ), contracting (CNTRT), litigation (LIT), regulation (REG), and taxation (TAX) explanations of conservatism, and average total assets (AVGA). The sample of firms used is the same firms used in the overall degree of conservatism analysis. Interestingly, the conservatism drivers CNTRT, LIT, REG, and CONSQ (overall degree of conservatism) are positively related to each other.⁸⁴ This adds support to the suitability of the proxies for conservatism because the

⁸⁴ The taxation driver of conservatism is negatively related in the Pearson correlation but positively related in the Spearman correlation. Also, unless otherwise stated, all correlation coefficients listed in the body of thesis are Pearson correlation coefficients.

conservatism drivers can be thought of as subsets of the overall degree of conservatism. The univariate relationships of one-year-ahead earnings with cash flows and accruals are positive with correlation coefficients (ρ) of 0.750 and 0.168, respectively, and the univariate correlation between cash flows and accruals is -0.020, both consistent with prior research (Dechow, 1994). The negative relationship between accruals and cash flows is indicative of accruals mitigating the timing and matching problem of cash flows into earnings. The relationship between OAC and CONSQ is not clear because the $\rho=0.021$ for the Pearson coefficient and $\rho=-0.002$ for the Spearman coefficient. The Spearman correlation coefficient is statistically insignificant at the 5 percent level. I note that Givoly and Hayn (2000) also had a positive relationship between operating accruals and conservatism.

However, it is difficult to draw definitive implications since the univariate analysis ignores the potential impact of correlations between the explanatory variables. Multivariate analysis is required to address the main objectives and issues of this thesis, which is done in the next subsections.

4.2.4 Analysis of Regression Results – Accrual and Cash Flow Persistence in Predicting One-Year-Ahead Earnings – Equation (4a)

This section replicates tests of cash flow and accrual persistence in predicting next period earnings using the methods of pooled cross-sectional regressions and Fama and MacBeth (1973) annual regressions.⁸⁵ The latter is a two step process of estimated coefficients and t-statistics for each time period and then taking the average of all time periods to arrive at final coefficients and

⁸⁵ In the accounting literature, persistence is often used to describe how a variable can predict another variable in a future time period. Greater predictability is associated with greater persistence. For example, Dechow and Ge (2006) used the coefficient on current earnings obtained from regressing one-year-ahead earnings on current earnings as a measure for persistence.

t-statistics. Skoulakis (2006) recommended presenting both the pooled cross-sectional time-series regressions and the Fama-MacBeth regressions. He notes that in financial research, they both “produce equally reliable t-statistics”. Consequently, I present Fama-MacBeth (1973) regressions of Equations (4c), (4e), (5a), and (5b) in Tables 6 and 7, Panel B and Tables 11 and 12, Panel B, respectively.⁸⁶

The results of Equation (4a), for fiscal years 1982-2008, are found in the first two columns of Table 6 (Panel A). The main coefficients of interest are the persistence parameters π_1 and π_2 , from Equation (4a) on cash flows and accruals, respectively. They are in the direction expected, π_1 is positive with a value = 1.089 and π_2 is lower with a value = 0.576. Both are significant at below the 1 percent level. Therefore, for this sample period, accruals are still less persistent than cash flows, consistent with the greater subjectivity and transitory nature of accruals relative to cash flows (Sloan, 1996). Nevertheless, the magnitudes of the persistence coefficients are higher for cash flows and lower for accruals than in prior studies, though the explanatory power of the sample in this thesis is higher than prior studies. Sloan (1996) obtained 0.86 and 0.77, Collins et al. (2003) obtained 0.66 and 0.47 ($R^2 = 35$ percent), and Dechow and Ge obtained 0.83 and 0.47 ($R^2 = 36$ percent), for cash flow and accrual persistence, respectively. The Dechow and Ge study has the closest sample period of 1988-2002 to this dissertation. The adjusted $R^2 =$ approximately 59 percent for the sample of this dissertation (Table 6, Panel A).

⁸⁶ During my own investigation of the Fama-MacBeth (1973) regressions (e.g., Greene, 1997) and as noted by Skoulakis (2006), this method has not been analyzed in the econometrics literature.

4.2.5 Analysis of Regression Results – Overall Degree of Conservatism’s Effects on Accrual Persistence – Equation (4c)

I separately examine the effects of the overall degree of conservatism on accrual persistence because the four conservatism drivers do not capture all types of conservatism and Watts (2003a) points out that there are commonalities among these explanations of conservatism. The restriction to only four explanations of conservatism (CLRT) could cause an omitted variable problem, or more seriously, a correlated omitted variable may occur in the regression equation involving only the explanations of conservatism (Equation (4e), Section 4.2.6). Overall degree of conservatism is measured by taking an average of three proxies for degree of conservatism. These three proxies are asymmetric timeliness of earnings (AT), price-to-book ratio (PTB), and the magnitude of reserves deflated by net operating assets (RES). As detailed in Section 3.3.2 and 4.2.2, the average is taken after each of the three proxies has been converted to quintiles. This conversion is performed to ensure each of the proxies that make up overall degree of conservatism is given equal weight.

The results of examining how the overall degree of conservatism affects accrual persistence are shown in Table 6 (Panel A).⁸⁷ The second set of columns in Table 6 (Panel A) present the results for the whole sample including the overall degree of conservatism using Equation (4b) below. The coefficients on cash flows and accruals are similar in magnitude to the first set of columns. π_1 is positive with a value of 1.090 and π_2 , relative to π_1 , is lower with a value of 0.541. Both are significant at the 1 percent level. The coefficient π_3 , for overall degree of

⁸⁷ I also ran Equation (4c) with accruals being ranked as quintiles instead of deciles. This increased the sample size to 13,002 when examining only HAD and LAD firms. In untabulated results, the coefficient OAC*CONSQ*HAD was 0.374 with a p-value of <0.0001. This is lower than the coefficient of 0.532 obtained when accruals were ranked as deciles.

conservatism, is equal to 0.006 and statistically significant at the 1 percent level. This last coefficient indicates that overall degree of conservatism increases one-period-ahead earnings, but the coefficient is economically small. Of more interest to this thesis is the incremental affect conservatism has on accrual persistence. This is shown from the coefficient π_4 on the interaction of accruals (OAC) and overall degree of conservatism (CONSQ) resulting in a new variable labeled as OAC*CONSQ. The coefficient on OAC*CONSQ is positive with a value = 0.020, but statistically insignificant.

$$EFO_{i,t+1} = \alpha + \pi_1 CFO_{it} + \pi_2 OAC_{it} + \pi_3 CONSQ_{it} + \pi_4 (OAC_{it} * CONSQ_{it}) + \varepsilon_{i,t+1} \quad (4b)$$

The goal of this Section is to test whether overall degree of conservatism increases accrual persistence more in high accrual decile (HAD) firms compared to low accrual decile (LAD) firms, hypothesis H1a. To test hypothesis H1a, I ran Equation (4c) with all its variables, but with only LAD and HAD firms (Equation (4c) is reproduced below from Section 3.3.4).⁸⁸ A new variable HAD, which equals one if firm-year observation is in the highest accrual decile and zero otherwise, is included in the equation to represent the incremental difference from LAD firms. In other words, HAD is a dummy variable and LAD firms are the benchmark firms. The results of Equation (4c) are shown in the last set of columns in Table 6 (Panel A).⁸⁹ The last variable in Equation (4c), OAC*CONSQ*HAD, provides evidence to determine whether accrual persistence is increased by conservatism more in HAD firms than in LAD firms. Its coefficient, π_8 , equals 0.732 and is statistically significant at the 1 percent level.

⁸⁸ By only using LAD and HAD firms, the sample size decreased from 36,164 to 6,167 or decreased by 80 percent.

⁸⁹ The coefficient for OAC*CONSQ is equal to -0.216 and is now statistically significant at 1 percent level. This indicates that higher levels of accruals and conservatism imply lower persistence. This follows from the negative and statistically significant coefficient on CONSQ = -0.044. Nevertheless these relationships are only for LAD and HAD firms.

$$EFO_{i,t+1} = \alpha + \pi_1 CFO_{it} + \pi_2 OAC_{it} + \pi_3 CONSQ_{it} + \pi_4 (OAC_{it} * CONSQ_{it}) + \pi_5 (HAD_{it}) + \pi_6 (OAC_{it} * HAD_{it}) + \pi_7 (CONSQ_{it} * HAD_{it}) + \pi_8 (OAC_{it} * CONSQ_{it} * HAD_{it}) + \varepsilon_{i,t+1} \quad (4c)$$

Therefore, hypothesis H1a is supported, in that overall degree of conservatism increases accrual persistence in HAD firms more so than in LAD firms. This follows from the arguments made in Chapter 3 on how conservatism's greater reliability and verifiability requirements would increase accrual persistence in HAD firms. For example, Lobo et al. (2008) found that conservatism was associated with lower discretionary accruals, lending support to conservatism making accruals more reliable and persistent.

Conservatism was not expected to affect LAD firms as much because the greater reliability and verifiability requirements are far less for income decreasing accruals that are more common in LAD firms (Watts, 1993, 2003).⁹⁰ Further, SFAC No. 2 indicates that conservatism introduces bias which conflicts with other desirable qualities of financial reporting. These desirable qualities include representational faithfulness, neutrality, and comparability. This thesis is developed on the premise or assumption that the downward bias part of conservatism would adversely affect LAD firms' accrual persistence more than HAD firms' accrual persistence. This is because HAD firms are more likely associated with earnings managed upwards and gains that have not been realized. The downward bias part of conservatism would make these types of accruals more persistent to be realized.

Table 6 (Panel B) provides the results of running Equation (4c) using Fama-MacBeth (1973) regressions. The first two sets of columns are very similar to the pooled cross-sectional

⁹⁰ LAD firms have higher current liabilities and depreciation (Table 4, Panel A).

time series regressions. In the middle set of columns, the coefficient on $OAC*CONSQ = 0.020$ in Table 6 (Panel A) and 0.020 in Table 6 (Panel B), but the latter is statistically significant using Fama-MacBeth (1973) regressions. The last set of columns in Table 6 (Panel B) provides evidence to determine whether accrual persistence is increased by conservatism more in HAD firms than in LAD firms. The coefficient, π_8 , of variable $OAC*CONSQ*HAD$, equals 0.442 and is statistically significant at the 5 percent level. Therefore, hypothesis H1a is also supported using Fama-MacBeth regressions.

4.2.6 Analysis of Regression Results – Conservatism Drivers’ Effects on Accrual Persistence – Equation (4e)⁹¹

The results of examining how the conservatism drivers affect accrual persistence are shown in Table 7 (Panel A). The first set of columns in Table 7 (Panel A) report the results of cash flow and accrual persistence without any conservatism variables. They are in the direction expected, π_1 is positive with a value = 1.022 and π_2 is lower with a value = 0.655. Both are statistically significant at 1 percent level. Even though the sample size has decreased from 36,164 to 22,677 by using the conservatism drivers instead of the overall degree of conservatism, the values of cash flow and accrual persistence are similar in Tables 6 and 7.

The second set of columns in Table 7 (Panel A) show the results of how each of the conservatism drivers affects accrual persistence using Equation (4d) below. The contracting driver’s effect on accrual persistence is shown by the coefficient for the interaction of contracting driver and accruals $OAC*CNTRT$. The coefficient is negative with a value = -0.298 and is statistically significant at the 1 percent level. The other three conservatism drivers, LIT, REG,

⁹¹ Detailed descriptions of the conservatism drivers: contracting, litigation, regulation, and taxation are provided in Chapter 2, Sections 2.6.1, 2.6.2, 2.6.3, 2.6.4, respectively, and in Appendix B.

and TAX when interacted with OAC have coefficients -0.070, 0.026, and 0.054, respectively. However, only the coefficient on OAC*TAX is statistically significant. These results indicate that only conservatism from taxation increases accrual persistence because of the positive and statistically significant coefficient on OAC*TAX. Another important finding, even though not part of the formal hypotheses, is that conservatism from contracting reduces one-period-ahead earnings and decreases accrual persistence at statistically significant levels.

$$EFO_{i,t+1} = \alpha + \pi_1 CFO_{it} + \pi_2 OAC_{it} + \sum_{k=C}^T \pi_{3,k} (\omega_{k,it}) + \sum_{k=C}^T \pi_{4,k} (\omega_{k,it} \times OAC_{it}) + \varepsilon_{i,t+1} \quad (4d)$$

ω_k is a symbol used to simplify presentation of equations that include the drivers of conservatism. “k” is the type of conservatism driver and represents C,L, R,T.

Hypotheses H1d and H1e are non-directional hypotheses for the regulation and taxation drivers.⁹² Their only prediction was that they would affect accrual persistence. From Table 7 (Panel A, middle two columns) I can confirm that hypothesis H1d was not supported because the regulation driver of conservatism does not affect accrual persistence at statistically significant levels. However, hypothesis H1e was supported because the taxation driver of conservatism does affect accrual persistence at statistically significant levels. The coefficient for OAC*TAX is equal to 0.054 and is statistically significant at the 5 percent level, as presented in the middle two columns of Table 7 (Panel A). Failing to find support for hypothesis H1d is not surprising because part II of the article by Watts (2003b) states that the evidence for regulation and taxation was weak.⁹³

⁹² In addition, these two hypotheses were not presented as a comparison between HAD and LAD firms (Chapter 3, Section 3.1.5).

⁹³ Taxation induced conservatism on an international scale provided mixed evidence for differences in taxation

Hypotheses H1b and H1c are directional hypotheses for the contracting and litigation drivers of conservatism to affect accrual persistence. They predict that contracting and litigation will increase accrual persistence more in high accrual decile (HAD) firms than low accrual decile (LAD) firms. To test these hypotheses, I ran Equation (4e) using only LAD and HAD firm-year observations (Equation (4e) is reproduced below from Section 3.3.4). The results of Equation (4e) are shown in the last set of columns in Table 7 (Panel A).⁹⁴

$$EFO_{i,t+1} = \alpha + \pi_1 CFO_{it} + \pi_2 OAC_{it} + \sum_{k=C}^T \pi_{3,k} (\omega_{k,it}) + \sum_{k=C}^T \pi_{4,k} (\omega_{k,it} \times OAC_{it}) + \pi_5 (HAD_{it}) + \pi_6 (OAC_{it} * HAD_{it}) + \sum_{k=C}^T \pi_{7,k} (\omega_{k,it} * HAD_{it}) + \sum_{k=C}^T \pi_{8,k} (OAC_{it} * \omega_{k,it} * HAD_{it}) + \varepsilon_{i,t+1} \quad (4e)$$

The last four variables in Equation (4e) provide evidence to determine whether accrual persistence is increased by the conservatism drivers more in HAD firms than in LAD firms. The coefficients on these variables, OAC*CNTRT*HAD, OAC*LIT*HAD, OAC*REG*HAD, OAC*TAX*HAD, are 0.759, 0.463, -0.341, and 0.151, respectively. However, the latter two coefficients are statistically insignificant at the 10 percent level. Nevertheless, hypotheses H1b and H1c are supported, in that conservatism from contracting and litigation increases accrual persistence in HAD firms more so than in LAD firms at statistically significant levels.

The contracting hypothesis expectation was due to contracting conservatism's ability to constrain accruals that are managed upwards, which would make them less transitory (Kothari et al., 2008; LaFond and Watts, 2008). The findings also follow from debt contracting that restricts firms from inflating earnings (Ahmed et al., 2002; Zhang, 2008; Beatty et al., 2008). The results

between countries to affect accounting conservatism (Bushman and Piotroski, 2006).

⁹⁴ The coefficient for OAC*CNTRT is equal to -1.150 and statistically significant at the 1 percent level. This indicates that higher levels of accruals and contracting conservatism imply lower persistence. *Caution is advised because this relationship is only for LAD and HAD firms.*

for litigation are consistent with firms that are at risk of higher litigation tend to be more conservative and therefore their accruals are more persistent into the future. This connection is made because the risk of litigation would encourage firms to have accruals that are reliable and verifiable, which are the qualities that were premised to make accruals more persistent.

Table 7 (Panel B) provides the results of running Equation (4e) using Fama-MacBeth (1973) regressions. The first two sets of columns show that cash flow and accrual persistence is very similar to the pooled cross-sectional time series regressions. Nevertheless, there are minor differences in the other variables. The main coefficient that has changed between the two types of regressions is from variable $OAC * TAX$. It had a coefficient = 0.054 and statistically significant at the five percent level in Table 7 (Panel A), but using the Fama-MacBeth approach made it statistically insignificant.

The last set of columns in Table 7 (Panel B), provide evidence to determine whether accrual persistence is increased by any of the conservatism drivers more in HAD firms than in LAD firms. Using the sample of this thesis, none of the conservatism drivers affected accrual persistence more in HAD firms compared to LAD at statistically significant levels. Therefore, hypotheses H1b, H1c, H1d, and H1e are not supported using Fama-MacBeth regressions.

4.2.7 Summary

Generally, the empirical evidence supports overall degree of conservatism and conservatism from contracting and litigation increasing the persistence of accruals for forecasting one-period-ahead earnings when comparing HAD firm to LAD firms. These three findings support hypotheses H1a, H1b, and H1c. These results follow from the expectation of conservatism's increased reliability and verifiability requirements would also increase the

reliability and verifiability of accruals making them more persistent in predicting next-period earnings.

4.3 Overview of Accruals Anomaly Testing

4.3.1 Accruals Anomaly at the Firm-Level and Portfolio-Level

The majority of studies on examining the accruals anomaly (e.g., Sloan, 1996; Mashruwala et al., 2007; Palmon et al., 2008) used the portfolio approach, which I also examine in Section 4.5. The portfolio approach sorts stocks based on some criterion and assigns them to portfolios. A common example is size (Fama and French, 1992; Palmon et al. 2008). Indeed, Lo and MacKinlay (1990) state that size is a common sorting criterion for asset pricing models in general. In contrast, firm-level analysis does not involve assigning firms to a particular portfolio or group. Rather, each firm-year data is an individual observation, which provides its own magnitude and variance to the analysis.

Since the objective of this dissertation is not to prefer one method over the other; I examined conservatism's effect on the accruals anomaly using both approaches. Each has its advantages and disadvantages, which are described below. The firm-level analysis avoids the loss of information that occurs from averaging in the portfolio-generating process and averaging associated with some independent variables. For example, Vuolteenaho (2002, p. 235), in a study of explaining stock returns, finds that the firm-level variance of "cash-flow-news" is mostly diversified away in aggregate portfolios. In this thesis, the effect of cash flow information on explaining subsequent returns is very important and the portfolio approach may not provide the true effect. Another study by Bali et al. (2008) compares aggregate earnings and firm-level earnings in forecasting returns. They found that aggregate earnings did not have robust predictive

ability for market returns, but found that firm-level earnings had significant explanatory power for the time series and cross sectional variation in firm-level stock returns. Research often refers to Litzenberger and Ramaswamy (1979) and Lo and MacKinlay (1990) to support using the firm-level. The former article explains the loss in efficiency from a dramatic decrease in sample size from using the portfolio approach and the latter article explains that the choice of the selection criteria of firms to be included in various portfolios is not random, which can create significant biases in test statistics.⁹⁵ Finally, there is loss in information regarding the variation of the firms within the portfolios when using the portfolio approach.

Then there are researchers like Black, Jensen and Scholes (1972) that argue for the portfolio approach. They find the firm-level approach is inefficient because it uses only information on a single security and the residuals of each security are not independent. By assigning stocks to portfolios the standard errors will appropriately incorporate the non-independence of the residuals. Another advantage to using the portfolio approach is a reduction in the errors-in-variable problem.⁹⁶ If there are measurement errors in the variables and they are imperfectly correlated, then the portfolio generating process could provide more precise factor loadings when estimating subsequent returns. This is sometimes referred to as a reduction in idiosyncratic risk.

Within the firm-level approach, called approach 1, both overall degree of conservatism and its explanations are tested for their effects on accruals and abnormal returns. For the portfolio-level testing, called approach 2, I only examine overall degree of conservatism because it is used

⁹⁵ Many articles on the accruals anomaly sort accruals on deciles (Sloan, 1996; Dechow and Ge, 2006; Mashruwala et al., 2006), but some articles sort accruals on quintiles (e.g., Palmon et al., 2008). A reason is generally not provided for the choice.

⁹⁶ This term is also referred to as measurement error. If the measurement error is in the independent variable then the OLS estimators are not only biased but also inconsistent (Gujarati, 2003, p. 526)

as a secondary test and only examined one hypothesis, H3. The next two sections provide the results and analysis of both approaches.

4.4 Conservatism and the Accruals Anomaly at the Firm-Level (Approach 1)

4.4.1 Data Sources and Sample Selection

All available U.S. firm-level financial data was obtained from Standard & Poor's Research Insight Compustat Annual Industrial and Research files. Both the Active and Research file firms from the Compustat database were used. The latter Research file was included to reduce the survivorship bias inherent in the Active files. Stock return data and market capitalization data was obtained from the annual and monthly CRSP (Center for Research on Security Prices) files.

The selection process and sample period are the same as in Section 4.2. I only included December year-end firms, while excluding firm-year observations from the financial sector (SIC codes 6000-6999) and firm-year observations from the utility industry (SIC codes 4900-4949), and including firms traded in the New York, American, and Nasdaq stock exchanges. The sample spanned the fiscal years 1980-2008, though the results are based on fiscal years 1982-2008, since two prior years of data are required to calculate accruals.

The sample for this section, returns analysis, is further reduced by approximately 8,500 firm-year observations (23 percent) due to the matching of CRSP returns to the Compustat financial data. The final sample for examining abnormal returns at the firm-level is comprised of 27,681 firm-year observations for the overall degree of conservatism (Table 1, Panel C). The sample is further reduced for the conservatism drivers to 14,947 due to extra data requirements for the conservatism driver proxies. Both of the sample numbers include adjusted returns for firms that were delisted and did not have returns in CRSP (Section 4.4.1.1)

4.4.1.1 Delisting Bias in CRSP

Within the sample above are included average returns for firms that were delisted and had missing returns in CRSP. Shumway (1997) states that these missing CRSP monthly delisting returns from 1962 to 1993 biases the sample and has implications for prior studies (De Bondt and Thaler, 1985; Ritter, 1991; Fama and French, 1992). Following the recommendations of Shumway (1997) and Shumway and Warther (1999), firms that were delisted due to poor performance (CRSP codes 500 and 520 through 584 and returns in CRSP to indicate delisting) were assigned delisting returns of -30 percent for NYSE/AMEX firms and -55 percent for NASDAQ firms.⁹⁷ These percentages represent the average returns of the missing delisted returns. Within the current sample this resulted in 370 firm-year observations that were adjusted by the above percentages. This reduced the average BHR from 13.88 percent to 13.78 percent. Nevertheless, due to data requirements from Compustat and the return models, only 5 firm-year observations remained from NASDAQ and 18 from NYSE/AMEX that were adjusted de-listed returns as described above.

4.4.2 Descriptive Statistics

Table 8 (Panels A and B) reports the breakdown of the variables used in the models for determining abnormal returns. Panel A of Table 8 presents descriptive statistics for returns and control variables, and Panel B contains the conservatism variables and the operating accruals

⁹⁷ CRSP codes 500 and 520 through 584 are selected because they are the firms that account for the majority of firms that do not have delisting returns in CRSP (Shumway, 1997). Also, Shumway suggests that the bias is likely to be more pronounced in small stocks, stocks with low past returns, or stocks with low prices and firms that are surprise delists.

variable. All independent and dependent variables were winsorized at the top and bottom 1 percent of their respective distributions.

In Table 8 (Panel A), the one-year-ahead buy-and-hold size adjusted returns (SARs) for each firm is calculated using the formula below corrected for delisting returns. SARs used in the regression analysis have a mean (median) value of 0.6 percent (-9.5 percent). Since the mean SAR is close to zero, the sample used for testing abnormal returns does not seem to suffer from a survivorship bias. I also present statistics and comparison for buy-and-hold returns (BHR), which are raw returns including reinvestments of dividends. BHR has a mean (median) value of 14.6 percent (4.5 percent). For comparison, the CRSP equal-weighted index had an average return of 12.4 percent over the same period as the current sample, and in the accruals anomaly article by Zhang (2007), the author obtained a BHR of 13.6 percent over the 40-year period of 1964-2003. I chose the latter article for comparison because it reports returns for the whole sample and performed analyses at the firm-level.

$$SAR = BHR - \text{Size adjustment} = \prod_{m=1}^M (1 + R_{p,m}) - \prod_{m=1}^M (1 + R_{p,m})$$

Where:

First R_p is the monthly return of a firm for month, m , and M is the total number of months. The second R_p is the monthly return of the associated value weighted average CRSP return for firms in the same size-matched decile of a firm for month, m , and M is the total number of months for the firm.

BHR and size adjustment for each firm is calculated by multiplying each month's return+1 over the 12 month period May 1 to April 30.

The control variables used in this section are taken from previous accounting and finance studies for predicting one-year-ahead returns at the firm-level.⁹⁸ The eight control variables are:

⁹⁸ This model's explanatory variables (other than the conservatism, accrual variables, and dividend variables) are taken from Penman and Zhang (2002, p. 260). I use their variables because they also include a conservatism

dividend yield (DIVY), dividend yield squared (DIVY2), CAPM beta (BETA), natural logarithm of book value to market value (LnBTM), natural logarithm market value (LnMV), leverage (LEV), earnings to price ratio (EYLD), and a loss indicator variable (NEYLD) that equals one if EYLD is negative. Table 8 (Panel A) presents the mean (median) values of these variables: 1.020 (0.000), 4.373 (0.000), 1.209 (1.043), -0.754 (-0.701), 5.472 (5.393), 2.636 (1.895), -2.967 (3.879), and 0.290 (0.000), respectively.⁹⁹ The mean of 29 percent of firms having negative earnings is very close to the 28% of firms having negative earnings reported in Dopuch et al. (2010). Their sample period was 1988 to 2005.

Table 8 (Panel B) shows the mean (median) value of the deflated cash flows (CFO) and operating accruals (OAC), which are equal to 0.054 (0.082) and -0.038 (-0.040), respectively. For comparison, the mean (median) CFO was 0.019 (0.076) and OAC was -0.043 (-0.041) in the sample used for accrual persistence analysis (Table 2, Panel A). Also, Zhang (2007) reported an OAC mean of -0.023 and a median of -0.030. After accruals, the overall degree of conservatism converted to quintiles (CONSQ) and the drivers of conservatism - contracting (CNTRT), litigation (LIT), regulation (REG), and taxation (TAX) had mean (median) values as follows: 2.088 (2.000), 1.405 (1.473), 1.111 (1.000), 0.335 (0.000), and 0.605 (0.722), respectively. These

measure as an explanatory variable and their model is used at the firm-level instead of the portfolio-level. The Fama and French (1993) risk factors are not included because they can only be used for portfolios. I also include variables

for dividend yield because, in Dhaliwal's (2003, 2005) articles, they were significant variables in explaining realized/ex-post returns. Fama and French (1992) showed that when portfolios are sorted on size and market Beta, the market Beta becomes insignificant. This is why the market Beta or CAPM Beta is not used in their three-factor model. Nevertheless, to account for market risk, I do include the market Beta in Equations (5a) and (5b) because it was included in previous accounting research (Sloan, 1996; Botosan and Plumlee, 2002; Penman and Zhang, 2002; Dhaliwal, 2003, 2005; Francis et al., 2004; Jiang, 2007) that included returns models. Also Equation (5a) is at the firm level which is not applicable to the Fama and French factors.

⁹⁹ The mean beta of the current sample is 1.206. However, over the same period without data restrictions, the calculated mean beta was 1.037. It appears that the current sample has greater market risk than the market portfolio.

are very similar to the mean and median values obtained for the persistence regressions found in Table 2, Panel B.

To obtain further inspection of the data, similar to Table 4 (Panel A) of Section 4.2.2, I partitioned selected return regression variables into deciles, which are based on the operating accrual decile rank.¹⁰⁰ Table 9 (Panel A) reports the portfolio mean values by accrual decile for one-year-ahead buy-and-hold size adjusted return (SARs) and raw buy-and-hold return (BHR), dividend yield (DIVY), CAPM beta (BETA), market value (MV), leverage (LEV), earnings yield (EYLD), percentage loss firms (NEYLD), average assets (AVGA), and cash flows (CFO). In addition, a similar breakdown is provided for operating accruals (OAC), overall degree of conservatism (CONSQ) and the conservatism drivers (Table 9, Panel B). Patterns that emerge from the accrual decile breakdown of these variables are: one-period-ahead SARs and BHRs, LEV, and NEYLD decrease as accruals increase, and EYLD and TAX increase as accruals increase. Also, the extreme deciles have the lowest mean MV and AVGA. This is consistent with Lev and Nissim (2006) finding that trading on information in accruals involves investing in small firms. Further, DIVY is lowest for the HAD firms (0.425%), which is consistent with HAD firms being growth firms and having low payout ratios (Gruillon et al., 2002).

An interesting observation is that average SARs become negative at decile seven and at the same decile, AVGA start a significant decline to end up at their lowest level of an average of 478 million U.S. dollars. It is difficult to even conjecture as to the reasons for this relationship because the lowest accrual decile also has low AVGA, which have the highest SARs. Similarly, conservatism explained by regulation starts to decrease at decile seven. A reason for conservatism from regulation is because regulators would get less criticism from lower income

¹⁰⁰ The numbers of observations in each decile are different because they are the averages of the deciles by year. Each year had a different number of observations in the sample due to data restrictions.

firms. I conjecture that this is part of the reason that conservatism from regulation decreases when SARs become negative. No apparent pattern seems to exist between the other variables and accruals. The relationship between one-period-ahead SARs (Size adjusted returns) and accrual deciles is depicted below in Figure 3. It generally shows that SARs decrease as accrual deciles increase.

4.4.3 Univariate Analysis of the Association Between Variables

Table 10 presents the Pearson (reported above the diagonal) and Spearman (reported below the diagonal) correlation coefficients (ρ) among SARs, DIVY, DIVY2, BETA, LnBTM, LnMV, LEV, EYLD, NEYLD, CFO, OAC, CONSQ, CNTRT, LIT, REG, TAX, and AVGA. As in the univariate correlation results of the variables used in the persistence regressions (Table 5), the overall degree of conservatism (CONSQ) and conservatism drivers (CNTRT, LIT, REG) are positively related to each other (the taxation driver of conservatism is negatively related for a

Pearson correlation and positively related using a Spearman correlation). Since the correlations between CONSQ and the drivers of conservatism are positive, this adds support to the suitability of these proxies. The reasoning is that the conservatism drivers can be thought of as subsets of the overall degree of conservatism and a subset should move in the same direction as the whole.

Next, I present some selected univariate relationships between one-year-ahead size adjusted returns (SARs) and variables that are relevant to this thesis. DIVY is positive ($\rho=0.033$), but this is not consistent with agency theory that dividends signal a strong or undervalued company and therefore do not require as high returns (Fama and French, 1998; Dhaliwal et al., 2005).¹⁰¹ Second, BETA, which proxies for the market systematic risk, is negatively related to SARs. Again, this is not consistent with the CAPM which theoretically showed that investors require greater returns from firms with greater market risk. However, Penman and Zhang (2002) and Hanlon (2005) which use BETA in firm-level regressions obtained a negative relationship, again inconsistent with the CAPM, but similar to this thesis. Nevertheless, consistent with the accruals anomaly SARs are negatively related to OAC ($\rho=-0.029$). Further, it would seem that larger firms earn lower one-year-ahead returns because both the LnMV and AVGA are negatively related to SARs, consistent with the size effect of Banz (1981).¹⁰²

The relationship between OAC and CONSQ is slightly different from the mixed univariate correlation results of the variables used in the persistence regressions. The correlation coefficient is consistently negative and statistically significant at the 5 percent level for the Pearson ($\rho=-$

¹⁰¹ Another explanation is the “maturity hypothesis” referred to in Grullon et al. (2002). Mature firms have less investment opportunities, resulting in a decline in their future profitability and an increase in free cash flows. But this is offset by a decline in systematic risk. The positive market reaction seems to indicate that the systematic risk decrease dominates. Also, unless otherwise stated, all correlation coefficients listed in the body of thesis are Pearson correlation coefficients.

¹⁰² Banz (1981) uses a generalized asset pricing model, which includes a variable for the market value of a firm less average value of NYSE stocks all divided by average value of NYSE stocks, to determine any relationship between market value and returns of common stocks. Even after controlling for the market beta, size was negatively related to returns. Banz’s study suggests that the CAPM is misspecified. Banz notes that the size effect is not linear and is more concentrated in small firms.

0.031) and the Spearman coefficient ($\rho=-0.029$). In addition, there is a negative relationship between total assets and accruals and between cash flows and accruals.

However, it is difficult to draw definitive implications since the univariate analysis ignores the potential impact of correlations between the explanatory variables. Multivariate analysis is required to address the main objectives and issues of this thesis, which is done in the next subsections.

4.4.4 Multivariate Model of One-Year-Ahead Abnormal Returns (Without Conservatism Variables)

In this section, I perform analyses at the firm-level, with each firm-year observation being given equal weight and classified as a separate observation. In contrast, the portfolio-level approach averages the characteristics of firms into portfolios. The criteria for portfolio formation development in this thesis are by accrual decile and conservatism quintile.

Before examining the effects of conservatism on one-year-ahead returns, I ran Equation (5a)-(reproduced below) without any conservatism variables (Table 11, first two columns). This allows for an examination of how accruals are related to one-year-ahead returns and for the comparison with prior studies.

$$\begin{aligned}
 SAR_{i,t+1} = & \alpha + \beta_1 DIVY_{it} + \beta_2 DIVY2_{it} + \beta_3 BETA_{it} + \beta_4 LnBTM_{it} + \beta_5 LnMV_{it} + \beta_6 LEV_{it} + \\
 & \beta_7 EYLD_{it} + \beta_8 NEYLD_{it} + \beta_9 CFO_{it} + \beta_{10} OAC_{it} + \beta_{11} CONSQ_{it} + \\
 & \beta_{12} (OAC_{it} * CONSQ_{it}) + \beta_{13} HAD_{it} + \beta_{14} (OAC_{it} * HAD_{it}) + \beta_{15} (CONSQ_{it} * HAD_{it}) + \\
 & \beta_{16} (OAC_{it} * CONSQ_{it} * HAD_{it}) + \varepsilon_{i,t+1}
 \end{aligned} \tag{5a}$$

First, the ordinary least squares regression coefficient results, found in Table 11 (Panel A), of the eight control variables are: dividend yield (DIVY) = 0.012, dividend yield squared (DIVY2) = -0.001, CAPM beta (BETA) = -0.008, natural logarithm of book value to market value (LnBTM) = 0.070, natural logarithm market value (LnMV) = -0.026, leverage (LEV) = 0.010, earnings to price ratio (EYLD) = -0.001, and a loss indicator variable (NEYLD) (that equals zero if EYLD is negative) = -0.047. All of these control variables are significant at the 1 percent level except for BETA and DIVY2, which are insignificant. Additional support for this multivariate model is found from the direction of the control variables; they are the same as in the univariate relationships with SARs in Section 4.4.3.¹⁰³ This shows that even after controlling for other variables, the direction is the same as univariate relationship with SARs. Still the main support for the control variables is because they are suggested by theory and used in past research (Section 3.3.6 provides references for choice of control variables).

Second, in the first two columns of Table 11 (Panel A), the coefficient on deflated cash flows (CFO) and operating accruals (OAC) = 0.076 and -0.067, respectively.¹⁰⁴ However, the coefficient on OAC is statistically insignificant. The latter result is not consistent with the earnings fixation hypothesis of investors not properly differentiating between the higher persistence of cash flows relative to accruals (1.089 relative to 0.576, Table 6, Panel A) in forming expectations of one-year-ahead returns. However, in untabulated results when CFO is removed from the model then the coefficient on OAC becomes statistically significant with a value of -0.111. In prior research (Dechow and Ge, 2006, Jiang, 2007, Zhang, 2007) firm-level models examining the accruals anomaly often do not include CFO. Perhaps these studies have an

¹⁰³ In untabulated results, when BETA was calculated using 60 months of prior returns, the results of this thesis did not change materially.

¹⁰⁴ In Ahmed et al. (2006) the coefficient on CFO and OAC was 0.3 and -0.3 respectively. It is interesting that I also get coefficients on these variables that are approximately the negative of each other.

omitted variable bias or the accruals anomaly is less pronounced in the more recent years of this thesis.

I purposely used a continuous variable for OAC, instead of deciles, for two reasons: 1) to avoid the additional variation caused by arbitrarily transforming data into deciles, and 2) the decile transformation could eliminate useful information from extreme observations.¹⁰⁵ Also, most firm-level studies of the accruals anomaly since Sloan (1996) (e.g., Dechow and Ge, 2006; Zhang, 2007) have used continuous amounts for accruals rather than deciles. To investigate the robustness of the results; however, an analysis using deciles is performed in the supplementary analysis (Section 4.7.1).

4.4.5 Multivariate Model of One-Year-Ahead Abnormal Returns (Overall Degree of Conservatism)

The ordinary least squares regression results for the effect of the overall degree of conservatism on the accruals anomaly, or one-year-ahead size-adjusted returns (SARs), are shown in Table 11 (middle two columns). First, the coefficients (t-statistics) on deflated cash flows (CFO) and operating accruals are 0.051 (1.41) and -0.197 (-2.24), respectively. However, when including the overall degree of conservatism variable (CONSQ), the coefficient on CFO became statistically insignificant and the coefficient on OAC became statistically significant at the 5 percent level. The latter result supports the accruals anomaly of a negative relationship between one-period-ahead returns and accruals. Zhang (2007, model 1, p. 1347) and Cheng and

¹⁰⁵ When variable values are converted to deciles, their distribution is also changed to a uniform distribution. This gives all values of variables an equal probability of being observed, which causes the inferences based on the normal distribution to be invalid. Nevertheless, all variable values are winsorized at the 1 percent level in this thesis that also affects extreme values, but this is far less than the elimination of extreme observations by transforming to deciles.

Thomas (2006, p. 1159), using firm-level regressions, obtained negative coefficients of -0.293 and -0.014 on OAC, respectively, in predicting one-period-ahead returns.¹⁰⁶

Second, the overall degree of conservatism's (CONSQ) affect on SARs is shown from the coefficient (t-statistic) on $\text{CONSQ} = 0.034$ (9.86), which is statistically significant at the 1 percent level. This suggests that conservatism on its own increases one-year-ahead size-adjusted returns. However, of greater interest to this thesis is the combined effect of accruals and overall degree of conservatism, which is shown by the coefficient (t-statistic) on their interaction ($\text{OAC} \times \text{CONSQ}$). $\text{OAC} \times \text{CONSQ} = 0.066$ (1.92), which is statistically significant at the 10 percent level. Therefore, even though accruals are negatively related to SARs, the incremental effect of conservatism on accruals is positively related to SARs. This result is consistent with conservatism increasing the reliability and verifiability of accruals to reduce its affect on stock mispricing (Watts, 1993, 2003a; Richardson, Sloan, Soliman, and Tuna, 2005).

As indicated in Section 4.2.4, a major goal of this thesis is to test the difference in one-year-ahead size-adjusted returns, in relation to conservatism's incremental effect on accruals between high accrual decile (HAD) and low accrual decile (LAD) firms. Hypothesis H2a predicts that the overall degree of conservatism will increase abnormal returns from accruals to a greater extent in HAD firms compared to LAD firms. To test Hypothesis H2a, I ran Equation (5a) with all its variables, but using only LAD and HAD firm-year observations. A new variable HAD, which equals one if a firm-year observation is in the highest accrual decile and zero otherwise, is included in the equation to represent the incremental difference from LAD firms. In other words, HAD is a dummy variable and LAD firms are the benchmark firms.

¹⁰⁶ Dechow and Ge (2006, p. 290) is a firm-level study; however, I do not present a comparison of their coefficient on OAC because the authors only ran LAD firms in their SAR regressions because their study is mostly concerned with the effects of special items in LAD firms on the accruals anomaly.

The results of Equation (5a) are shown in the last set of columns in Table 11 (Panel A).¹⁰⁷ The coefficient on the last variable in Equation (5a), $OAC*CONSQ*HAD$, provides evidence for determining whether or not the overall degree of conservatism increases one-year-ahead size-adjusted returns of accruals more in HAD firms compared to that of LAD firms; i.e., Hypothesis H2a. The variable, $OAC*CONSQ*HAD$, has a positive coefficient (β_{16}) equal to 0.529, and statistically significant at the 5 percent level. Therefore, Hypothesis H2a is supported, because the positive coefficient indicates that the incremental affect of overall degree of conservatism on accruals increases SARs in HAD firms more than in LAD firms. This follows from the arguments made in Chapter 3 on how conservatism's greater reliability and verifiability requirements would increase accrual persistence in HAD firms more than in LAD firms. Conservatism was not expected to affect LAD firms to the same extent, since the greater reliability and verifiability requirements of conservatism are far less for the income-decreasing accruals that are more common in LAD firms. The same variable, $OAC*CONSQ*HAD$, had a positive and significant coefficient of 0.732 in the persistence regressions using Equation (4c) (Table 6, Panel A).

Table 11 (Panel B) provides the results of running Equation (5a) using Fama-MacBeth (1973) regressions. In comparison with the pooled cross-sectional time series regressions, the first two sets of columns coefficients provide less statistical significance. For example, in the Fama-MacBeth regressions only the control variables $LnBTM$ and LEV have statistically significant coefficients. In the pooled cross-sectional regressions all of the control variables were

¹⁰⁷ The coefficient (t-statistic) for $OAC = 0.332$ (0.80), but is statistically insignificant. Further, in contrast to the persistence regressions of Equation (4c), $CONSQ$ has a coefficient of 0.043, which is also statistically insignificant. It was negative and significant in explaining next period earnings in the persistence regressions (Table 6, Panel A). The coefficient (t-statistic) for the interaction of accruals and conservatism ($OAC*CONSQ$) is negative and equal to -0.036 (-0.24), but statistically insignificant. These insignificant results may be due to only including LAD and HAD firm-year observations ($n=3,870$). Also, caution is advised to their interpretation because the entire sample is not being used.

statistically significant. Still, the coefficients on OAC and CONSQ are statistically significant in both types of regressions.

The last set of columns in Table 11 (Panel B), provide evidence to determine whether conservatism increased SARs from accruals more in HAD firms than in LAD firms using Fama-MacBeth regressions. The variable, $OAC*CONSQ*HAD$, has a positive coefficient (β_{16}) equal to 0.245, but statistically insignificant (t-statistic = 0.86). Therefore, Hypothesis H2a is not supported using Fama-MacBeth (1973) regressions. In addition, the Fama-MacBeth regressions gave a lower positive coefficient than from the pooled-cross sectional regressions. As explained in Section 4.8, the Fama-MacBeth regressions do not correct for heteroscedasticity cross-sectionally. However, the objective of this thesis is not to choose the Rogers (also referred to as Huber-White or cluster-robust standard errors standard errors) over the Fama-MacBeth standard errors. The two methods are presented due to Skoulakis' (2006) recommendation of presenting both the pooled cross-sectional time-series regressions and the Fama-MacBeth regressions because in financial research, they both “produce equally reliable t-statistics” and both have been used in prior research, including accruals anomaly papers.

4.4.6 Multivariate Model of One-Year-Ahead Abnormal Returns (Drivers of Conservatism)

The ordinary least squares regression results for examining the effect of drivers (also known as explanations) of conservatism on the accruals anomaly, or one-year-ahead size-adjusted returns (SARs) are shown in Table 12 (Panel A, middle two columns). First, the coefficients (t-statistics) on deflated cash flows (CFO) and operating accruals are 0.094 (1.73) and 0.024 (0.10), respectively. However, the coefficient on OAC is statistically insignificant. In

contrast, the coefficient on $OAC = -0.197$ and is statistically significant at the 5 percent level in regressions that only use the overall degree of conservatism (Table 11, Panel A, middle two columns). It is difficult to explain why, when using the conservatism drivers instead of overall degree of conservatism, the significance of the coefficient on accruals (OAC) changes. In theory, the drivers can be considered subsets of overall degree of conservatism. One possible explanation is the interaction of accruals with contracting, litigation, and taxation are accounting for some of the negative returns from accruals. These interaction variables have negative coefficients.

Hypotheses H2d and H2e regarding conservatism from regulation and taxation's effects on accruals in predicting abnormal returns from accruals were presented in non-directional form. However, the coefficients on both interaction variables of accruals and regulation ($OAC_{it} \times REG$) and accruals and taxation ($OAC_{it} \times TAX$) were statistically insignificant. Therefore, I do not find support for hypotheses H2d and H2e using the sample of this thesis.

As indicated in Section 4.1, a major goal of this thesis is to test the difference in one-year-ahead size-adjusted returns in relation to conservatism's effect on accruals, between high accrual decile (HAD) and low accrual decile (LAD) firms. In this section, I investigate the drivers of conservatism. Hypotheses H2b and H2c suggest that conservatism from contracting and litigation will increase abnormal returns from accruals to a greater extent in HAD firms compared to LAD firms. To test these hypotheses, I ran Equation (5b-reproduced below) with all of its variables. The results of Equation (5b) are shown in the last set of columns in Table 12 (Panel A).

$$\begin{aligned}
SAR_{i,t+1} = & \alpha + \beta_1 DIVY_{it} + \beta_2 DIVY2_{it} + \beta_3 BETA_{it} + \beta_4 LnBTM_{it} + \beta_5 LnMV_{it} + \\
& \beta_6 LEV_{it} + \beta_7 EYLD_{it} + \beta_8 NEYLD_{it} + \beta_9 CFO_{it} + \beta_{10} OAC_{it} + \sum_{k=C}^T \beta_{11,k} (\omega_k)_{it} + \\
& \sum_{k=C}^T \beta_{12,k} (OAC_{it} \times \omega_{k,it}) + \beta_{13} (HAD_{it}) + \beta_{14} (OAC_{it} * HAD_{it}) + \\
& \sum_{k=C}^T \beta_{15,k} (\omega_{k,it} * HAD_{it}) + \sum_{k=C}^T \beta_{16,k} (OAC_{it} * \omega_{k,it} * HAD_{it}) + \varepsilon_{i,t+1} \quad (5b)
\end{aligned}$$

k represents C, L, R, T and ω_k represents the k th. conservatism driver.¹⁰⁸

The coefficients on the last four variables in Equation (5b): OAC*CNTRT*HAD, OAC*LIT*HAD, OAC*REG*HAD, OAC*TAX*HAD, are -0.002, -0.464, -2.942, and -0.605, respectively. However, only the coefficient on OAC*REG*HAD is statistically significant at conventional levels and it has a negative coefficient of -2.942. Therefore, hypotheses H2b and H2c are not supported for conservatism from contracting and litigation increasing one-year-ahead size-adjusted returns of accruals more in HAD firms compared to that of LAD firms.

The above results of conservatism from regulation increasing next period returns for LAD firms relatively more than for HAD firms could be related to the observation by Chung (1993) that low growth firms are generally associated with regulated firms.¹⁰⁹ From Fairfield et al. (2005) and Zhang (2007) it was implied that low growth firms would have low accruals. Second, Hribar and Yehuda (2008) found that firms in the maturity or decline stage of their life, i.e., low growth firms, are related to the persistence explanation of the accruals anomaly rather than the growth explanation. The latter argument is HAD firms will have negative future returns due to

¹⁰⁸ Equation (5b) in expanded form: $SAR_{i,t+1} = \alpha + \beta_1 DIVY_{it} + \beta_2 DIVY2_{it} + \beta_3 BETA_{it} + \beta_4 LnBTM_{it} + \beta_5 LnMV_{it} + \beta_6 LEV_{it} + \beta_7 EYLD_{it} + \beta_8 NEYLD_{it} + \beta_9 CFO_{it} + \beta_{10} OAC_{it} + \beta_{11,C} (CNTRT)_{it} + \beta_{11,L} (LIT)_{it} + \beta_{11,R} (REG)_{it} + \beta_{11,T} (TAX)_{it} + \beta_{12,C} (OAC_{it} \times CNTRT_{it}) + \beta_{12,L} (OAC_{it} \times LIT_{it}) + \beta_{12,R} (OAC_{it} \times REG_{it}) + \beta_{12,T} (OAC_{it} \times TAX_{it}) + \beta_{13} (HAD_{it}) + \beta_{14} (OAC_{it} * HAD_{it}) + \beta_{15,C} (CNTRT_{it} * HAD_{it}) + \beta_{15,L} (LIT_{it} * HAD_{it}) + \beta_{15,R} (REG_{it} * HAD_{it}) + \beta_{15,T} (TAX_{it} * HAD_{it}) + \beta_{16,C} (OAC_{it} * CNTRT_{it} * HAD_{it}) + \beta_{16,L} (OAC_{it} * LIT_{it} * HAD_{it}) + \beta_{16,R} (OAC_{it} * REG_{it} * HAD_{it}) + \beta_{16,T} (OAC_{it} * TAX_{it} * HAD_{it}) + \varepsilon_{i,t+1} \quad (5b)$

¹⁰⁹ Regulated firms have more long-term debt, are less risky and have less agency issues with respect to debt than non-regulated firms (Chung, 1993)

the decile being composed of relatively more growth firms rather than being of lower persistence. Since the value of conservatism from regulation in this thesis emphasizes the persistence argument, these articles taken together seem to indicate that conservatism from regulation would affect the persistence of LAD firms more so than HAD firms.

Further, the result for regulation can be partially explained by the insignificant results of REG's affects on accrual persistence (Table 7, Panel A). Since regulation did not affect accrual persistence it is likely not going to affect future returns from accruals in the current sample. Still, it is possible that the reason may be due to the exclusion of firms from the financial and utilities industries from the sample. These two industries are highly regulated and could affect the contribution of regulation on future returns from accruals if included.

In a like manner to overall degree of conservatism, Table 12 (Panel B) provides the results of running Equation (5b) using Fama-MacBeth (1973) regressions. Again, similar to the Fama-MacBeth (1973) regressions on the conservatism drivers' affects on accrual persistence, none of the conservatism drivers affect SARs from accruals at statistically significant levels. Therefore, hypotheses H2b, H2c, H2d, and H2e are also not supported using Fama-MacBeth regressions. In other words, firms' abnormal returns from accruals are not affected by the components of conservatism in Fama-MacBeth regressions.

4.4.7 Summary

In summary, only the prediction regarding the overall degree of conservatism's effects on abnormal returns from accruals (Hypotheses H2a) is supported. Hypotheses H2b, H2c, H2d, and H2e (contracting, litigation, regulation, and taxation) are not supported at conventional levels of statistical significance.

4.5 Conservatism's Effects on the Accruals Anomaly at the Portfolio-Level (Approach 2)

In the extant research (e.g., Sloan, 1996; Richardson et al., 2005; Lev and Nissim, 2006), the common method for assessing the accruals anomaly is to first assign stocks into portfolios with respect to annual accrual deciles. The accruals anomaly is shown from firms of higher accrual decile (HAD) portfolios to have lower one-year-ahead returns compared to low accrual decile (LAD) portfolios. This was depicted in figure 3 (Section 4.4.2), which confirms that using the SARs of the sample in this thesis also gave a negative sloping SARs curve when plotted against working capital accruals (OAC).

Equally important, studies have also demonstrated a trading strategy of investing long in portfolios of low accrual decile firms and shorting the portfolios of high accrual decile firms, to provide even more abnormal one-year-ahead returns. The latter method is called the hedge strategy approach. Similarly, in this thesis, firms are ranked on the basis of their fiscal year-end magnitude of scaled accruals and placed into 10 portfolios, or accrual deciles. In addition, I further sort firms within each annual accrual decile according to their ranking of annual overall conservatism quintile. This is the double-sort procedure used in this Section.

Sloan (1996) found that a trading strategy of investing in portfolios of low accrual decile firms and shorting the portfolios of high accrual decile firms provided abnormal returns in the range of 10 percent annually, during the sample period 1962-1991. Similar trading strategies provided returns of 13 percent in Richardson et al. (2005), during the sample period 1962-2001 and 8 percent in Lev and Nissim (2006), during the sample period 1988-2002. In this thesis, using a sample period of 1982-2008- 27 years, the abnormal returns of an accrual-only strategy provided returns that averaged between 6.5 and 10.5 percent depending on the asset pricing

model used to obtain abnormal returns (Table 13, Panels A, B, and C).¹¹⁰ Therefore, even by including recent years, the accruals hedge strategy still generated abnormal returns.

Similar to this thesis, Palmon et al. (2008) went further by doing a double-sort of accrual quintiles and size quintiles. Their results add to the research of Sloan by showing that the abnormal returns are concentrating in intersection of accruals and size. They found that a hedge portfolio long in low accrual small firms and short in high accrual large firms produced abnormal returns in the range of 15 percent. Similarly, in the next three sections, I expand the research of Sloan by doing an additional sort, based on conservatism quintiles, after sorting firms into accrual deciles, in the next paragraph.

For the portfolio-level approach, annual raw buy-and-hold returns (BHR) and abnormal returns were calculated for each firm in a given portfolio. Portfolios were formed annually by assigning firms into deciles based on the magnitude of accruals at fiscal-year-end. Within each of these annual accrual deciles, firms are further split into portfolios based on their overall degree on conservatism quintile. This produced 50 portfolios per year. Firm returns were equally averaged to arrive at portfolio returns.

The return period starts four months after the portfolios are formed; i.e., the return accumulation period begins on May 1 and ends on April 30 during the year after portfolio formation. The four-month lag is to ensure complete dissemination of accounting information in financial statements of the previous fiscal year. Thus, abnormal returns are computed over the post-ranking years (1982-2008), with April 2009 being the last month of return accumulation for portfolios formed on annual accrual deciles and conservatism quintiles from December, 2007.

¹¹⁰ The hedge portfolio returns are calculated as the return from a long portfolio of LAD firms minus the return from short portfolio of HAD firms. Using size-adjusted returns, Jensen's alpha from the market model, and the Fama and French four factor model, average annual abnormal hedge returns from accruals-only hedge were 10.5 percent, 8.4 percent, and 6.5 percent, respectively (Table 13, Panels A, B, and C).

Table 13 (Panels A, B, and C) shows the average one-year-ahead abnormal returns obtained by investing in portfolios formed annually on accrual deciles, and then by overall conservatism quintiles within each accrual decile.¹¹¹

The last hypothesis (H3), relates to comparing abnormal returns by investing in hedge portfolios. The prediction is a hedge portfolio that consists of a long position in low accrual decile firms and a short position in high accrual decile firms with lower degrees of conservatism (Low Cons Hedge) will earn greater abnormal returns than would a similar hedge portfolio that takes a long position in low accrual decile firms and a short position in high accrual decile firms with higher degrees of conservatism (High Cons Hedge). In the following sections, I use three methods to calculate and empirically examine and compare abnormal returns for this hypothesis: 1) size-adjusted returns; 2) Jensen's alpha from the market model; and 3) the Fama and French four-factor model.

4.5.1 One-Year-Ahead Abnormal Returns at the Portfolio-Level (Size-Adjusted Returns)

Table 13 (Panel A) uses size-adjusted returns (SARs) as the type of abnormal return. Consistent with prior research using SARs (e.g., Sloan, 1996; Richardson et al., 2005; Lev and Nissim, 2006), the accrual-only hedge strategy (Accrual Hedge D1-D10) averaged 10.5 percent SARs annually.^{112, 113} This average percentage includes abnormal returns up to April 2009 and is statistically significant at the 1 percent level.

¹¹¹ As stated in Section 3.3.7, the type of conservatism examined is the overall degree of conservatism.

¹¹²
$$SAR = BHR - \text{Size adjustment} = \prod_{m=1}^M (1 + Rp, m) - \prod_{m=1}^M (1 + Rp, m)$$

Where the first Rp is the monthly return of a firm for month, m, and M is the total number of months. The second

Also in Table 13 (Panel A) are the returns from portfolio sorted by overall degree of conservatism quintiles within each accrual decile. The Low Cons Hedge has, on average, five percent higher annual SARs than does the High Cons Hedge, suggesting that increased conservatism reduced the mispricing caused by the lower persistence of accruals in predicting one-year-ahead earnings; i.e., investing only in high conservatism firms leads to lower abnormal returns. Nevertheless, I am unable to support Hypothesis H3 at conventional statistical levels of significance.

Granted that the above difference is statistically insignificant at conventional levels, nevertheless, Figure 4, below, depicts a sharp decrease in SARs in LAD firms after the fourth quintile of overall degree of conservatism.¹¹⁴ It also shows a sharp increase in SARs in HAD firms after the fourth quintile of overall degree of conservatism. Visually, it seems that holding the accrual decile fixed SARs increase (decrease) for HAD (LAD) firms as the overall degree of conservatism increases.

R_p is the monthly return of the associated value weighted average CRSP return for firms in the same size-matched decile of a firm for month, *m*, and *M* is the total number of months for the firm. BHR and size adjustment for each firm is calculated by multiplying each month's return+1 over the 12 month period May 1 to April 30.

¹¹³ The standard hedge portfolio, when examining the accruals anomaly, is long in the lowest accrual decile of firms and short in the highest accrual decile of firms. This standard portfolio does not take account for the firm-level degree of conservatism. Note that the "Average by Decile" column does not account for degree of conservatism, and thus, includes all firms within the applicable accrual decile.

¹¹⁴ The insignificant results may also be because much of the variation in returns has been taken out by assigning average returns to yearly portfolios. The standard errors reported are calculated by making each portfolio an observation and not the individual firm-year an observation.

It is worth noting that LAD firms on average have positive SARs and HAD firms have negative SARs regardless of the degree of conservatism. Nevertheless, this thesis is interested in how conservatism changes the returns of HAD firms versus LAD firms.

As an additional test, I performed the analysis of portfolio hedge returns using accruals ranked by quintiles instead of deciles (Table 14, Panel A). The findings of Table 14 (Panel A) show less abnormal hedge returns from trading on accruals ranked as quintiles compared to when accruals were ranked by deciles (7.5 percent compared with 10.5 percent). Similarly, the hedge returns are lower when also trading using information on conservatism. The Low Cons Hedge portfolio has, on average, only two percent higher annual SARs than does the High Cons Hedge portfolio. These lower hedge returns were expected because the accrual rankings as quintiles are less extreme than rankings as deciles. For Table 14, the highest accruals include the top 20 percent of firms and the lowest accruals include the bottom 20 percent.

4.5.2 One-Year-Ahead Abnormal Returns at the Portfolio-Level–Market Model-Adjusted Returns

The second type of abnormal return using portfolios is obtained from estimating Jensen’s alphas using the market model, similar to Sloan (1996, p. 295), which is reproduced below from Chapter 3, as Equation 6:

$$Rp_{t+1} - Rf_{t+1} = \alpha + \beta_1(Rm - Rf)_{t+1} + \varepsilon_{p,t+1} \quad (6)$$

Where:

$Rp_{t+1} - Rf_{t+1}$ = one-year-ahead annual BHR on portfolio “p,” adjusted for the one-year-ahead annual risk-free rate;

$(Rm - Rf)_{t+1}$ = one-year-ahead equal-weighted annual return on all NYSE, AMEX, and NASDAQ stocks (from CRSP), minus the annualized one-month Treasury Bill rate (from Ibbotson Associates), obtained from the Fama and French website.

Table 13 (Panel B) presents the results of average annual portfolio abnormal returns, where the portfolio abnormal returns are the Jensen’s alphas obtained from Equation (6). The accrual-only hedge strategy averaged 8.4 percent annually and is statistically significant at the 5 percent level. Equation (6) is also used by Sloan (1996) and by Mashruwala et al. (2006) to calculate abnormal returns. Their accruals-only hedge strategy averaged 10.4 percent and 12 percent, respectively.

The Low Cons Hedge has, on average, 11.5 percent higher annual abnormal returns than does the High Cons Hedge, again suggesting that increased conservatism reduces the mispricing caused by the lower persistence of accruals in predicting one-year-ahead earnings; i.e., investing

only in high conservatism firms would lead to lower abnormal returns. However, once again, the difference is not statistically significant.

Next, I performed the same analysis using accruals ranked as quintiles instead of ranking accruals by deciles (Table 14, Panel B). The results show less abnormal hedge returns from trading on accruals ranked as quintiles compared to when accruals were ranked by deciles. When accruals were ranked as deciles the hedge return was 8.4 percent and decreased to 7.8 percent when accruals were ranked as quintiles (Table 14, Panels A and B). Similarly, the hedge returns are lower when also trading using information on conservatism. The Low Cons Hedge had, on average, only 4.9 percent higher annual SARs than does the High Cons Hedge. These lower hedge returns were expected because the accruals rankings are less extreme. For Table 14, the highest accruals include the top 20 percent of firms and the lowest accruals include the bottom 20 percent.

4.5.3 One-Year-Ahead Abnormal Returns at the Portfolio-Level – Fama and French Four-Factor Model

This Section considers whether or not average return predictability is robust to using the Fama and French (1993) three-factor asset pricing model enhanced by the momentum factor of Jegadeesh and Titman (1993) to compute abnormal returns (subsequently referred to as the FF 4-factor model). For the FF 4-factor model, I use a *monthly* portfolio-level approach, in contrast to the annual returns used in the market model, Equation 6 of Sub-Section 4.5.2 above. The FF 4-factor model was used by Mashruwala et al. (2006) and by Palman et al. (2008) in relation to the accruals anomaly.

In the model, $Rp_{t+1} - Rf_{t+1}$ is the monthly return on each portfolio, p , in excess of the monthly Treasury Bill rate; $Rm - Rf$ is the monthly return on the equal-weighted market index in excess of the monthly Treasury Bill rate; and SMB and HML are the monthly factors mimicking portfolios for size and book-to-market, respectively. In addition, the fourth factor is a momentum factor, UMD, which picks up the effect of returns in the prior 12 months. SMB, HML, and UMD are defined more formally below.¹¹⁵ Regressions are run monthly for each portfolio formed on accrual deciles and then on conservatism quintiles over the sample period to obtain Jensen's alphas for each portfolio. The Equation is reproduced below from Chapter 3 as Equation 7:

$$Rp_{t+1} - Rf_{t+1} = \alpha + \beta_1(Rm - Rf)_{t+1} + \beta_2(SMB)_{t+1} + \beta_3(HML)_{t+1} + \beta_4(UMD)_{t+1} + \varepsilon_{p,t+1} \quad (7)$$

Where:¹¹⁶

$Rp_{t+1} - Rf_{t+1}$ = monthly return on portfolio “ p ”, calculated for each 12-months, starting on May 1 of the year following accrual and conservatism ranking. Portfolios are formed annually by sorting on accrual deciles and a second sort is done on the degree of conservatism quintiles (at prior fiscal year-end, denoted as time, t), in excess of the monthly risk-free rate (Rf);

Rf = one month, US government Treasury Bill rate, obtained from Fama and French's website;

$Rm - Rf$ = excess return on a broad market portfolio; $Rm - Rf$, which in this section, is the excess return on the market value-weight return on all NYSE, AMEX, and

¹¹⁵ Jegadeesh and Titman(1993) found stocks with higher returns in the previous 12 months tend to have higher future returns than stock with lower returns in the previous 12 months.

¹¹⁶ The four-factor returns ($Rm - Rf$, SMB, HML, and UMD) can be obtained from Ken French's website: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html. Further, from Fama and French (1993, pgs. 55-56) it seems that the FF 4 factor model is only applicable to portfolios and not to individual firms

NASDAQ stocks (from CRSP), minus the one-month, Treasury Bill rate obtained from the Fama and French website;

SMB = the difference between the monthly returns on a portfolio of small stocks and the returns on a portfolio of large stocks (SMB, small minus big);

HML = the difference between the monthly returns on a portfolio of high-book-to-market stocks and the returns on a portfolio of low-book-to-market stocks (HML high, minus low);

UMD = also referred to as momentum, is the average of the returns on two (big and small) high prior return portfolios minus the average of the returns on two low prior return portfolios. The portfolios are constructed monthly. Big means a firm is above the median market cap on the NYSE at the end of the previous month; small firms are below the median NYSE market cap. Prior return is measured from month -12 to - 2. Firms in the low prior returns portfolio are below the 30th NYSE percentile. Those in the high portfolio are above the 70th NYSE percentile.

Using Equation (7) again provides support for the accruals-only hedge strategy. However, the average abnormal return is 6.5 percent annually. This is approximately three percent less than the abnormal returns obtained using SARs and the market model. In contrast, Mashruwala et al. (2006), Palmon et al. (2008), and Kothari et al. (2008) used the same model to obtain abnormal returns of approximately 10 percent. In addition, in Table 13 (Panel C), a difference of approximately 2.2 percent annually between the Low Cons Hedge (2.8 percent) and High Cons Hedge (0.6 percent).

Caution is advised for above results because SMB, from the FF 4-factor model, during the sample period 1982-2008 averaged negative 1.4 percent annually (Table 13, Panel C). This is opposite to the positive size effect documented in Banz (1981) for small firms. Also, both Pearson and Spearman correlation coefficients from Table 10 show that market value (the proxy for size) is negatively related to SARs. In other words, smaller firms are positively correlated to SARs. It is possible that this model is not appropriate for the sample period because of the conflicting average of SMB to the established lower return associated with large firms. Therefore, I do not continue to assess results based on the FF 4-factor model.¹¹⁷

4.5.4 Summary

The findings from using the portfolio-level approach are in the direction predicted by hypothesis H3; i.e., investment in a hedge portfolio that is long in low accrual decile and short in high accrual decile firms that also have a lower overall degree of conservatism, will have higher levels of the accruals anomaly relative to a similar hedge portfolio that invests in higher overall degree of conservatism firms. The higher abnormal returns ranged from 4.9 percent to 11.1 percent, using size-adjusted and market adjusted returns, respectively. However, the differences were not statistically significant at conventional levels.

Nevertheless, these results are not inconsistent with the results from Section 4.4. First, the portfolio-level approach shows the changes in abnormal returns from changes in the overall degree of conservatism. It does not isolate the effect of conservatism on accruals or its

¹¹⁷ I also ran the Fama and French 4 factor model using the 18-year sample period of 1990-2007. I excluded the year 2008 because of unusually low realized returns for that year (the market return from the CRSP index was approximately -40%) and I started at 1990 because there is relatively more missing data in years prior to 1990. Results for the Low Cons Hedge were 7.6% and for the High Cons hedge were 6.0%, for a difference of 1.6%. The abnormal returns for an accruals only hedge were 8.5%. Note that SMB for this period is still averaged – 1.3%.

incremental effect on abnormal returns. Second, the insignificant results may be due to a reduction in sample size from the aggregating of firms into portfolios. For example, when comparing the Low Cons Hedge with the High Cons Hedge, only 27 portfolios were considered for the sample size; i.e., only one hedge portfolio is used for each year in the sample (Table 13, Panels A and B). The sample size in the OLS regressions is approximately 28,000 firm-year observations.

A third explanation for the inconsistent results between the firm-level and portfolio-level approaches may be because the firm-level approach uses accruals at their actual values. Through the averaging process of the portfolio-level approach, we may not see the actual variation in returns due to accruals. Finally, Ahmed et al. (2006) also analysed the accruals anomaly using firm-level and portfolio-level approaches. The authors obtained coefficients for cash flows equal to 0.028, and for working capital accruals equal to -0.028, in a multivariate regression of other control variables and a dependent variable of one-period-ahead annual returns. When they used the portfolio-level approach; however, the magnitude of the effects from cash flows and accruals were different. The positive effect on one-year-ahead returns was 50 percent greater from cash flows than the negative effect from accruals, compared to the firm-level approach.

Fourth, if one uses Jensen's alpha to represent abnormal returns then one is assuming that they are using the correct benchmark model. If the model is missing some relevant variables then the intercept captures the average effect of these missing variables on top of abnormal returns. I use many more variables in the firm-level models.

4.6 Mishkin (1983) Test (Approach 3)

I supplemented the main tests of this thesis using Mishkin's (1983) methodology, to determine whether or not investors understand the effects conservatism and its explanations have on the persistence of accruals. The Mishkin framework has been used in previous studies examining the accruals anomaly (e.g., Sloan, 1996; Bradshaw et al., 2001; Xie, 2001; Hanlon, 2005) and similar to this thesis, as a supplemental test by Barth and Hutton (2004) and by Dechow and Ge (2006).

In this thesis, the two-Equation Mishkin test for overall degree of conservatism is specified as:

$$EFO_{i,t+1} = \alpha + \pi_1 CFO_{it} + \pi_2 OAC_{it} + \pi_3 CONSQ_{it} + \pi_4 (OAC_{it} * CONSQ_{it}) + \varepsilon_{i,t+1} \quad (4b)$$

$$SAR_{i,t+1} = \alpha^* + \beta^* [EFO_{i,t+1} - \alpha - \pi_1^* CFO_{it} - \pi_2^* OAC_{it} - \pi_3^* CONSQ_{it} - \pi_4^* (OAC_{it} * CONSQ_{it})] + U_{i,t+1} \quad (8a)$$

and the two-Equation Mishkin test for the drivers of conservatism is specified as:

$$EFO_{i,t+1} = \alpha + \pi_1 CFO_{it} + \pi_2 OAC_{it} + \sum_{k=C}^T \pi_{3,k} (\omega_{k,it}) + \sum_{k=C}^T \pi_{4,k} (\omega_{k,it} \times OAC_{it}) + \varepsilon_{i,t+1} \quad (4d)$$

$$SAR_{i,t+1} = \alpha^* + \beta^* [EFO_{i,t+1} - \alpha - \pi_1^* CFO_{it} - \pi_2^* OAC_{it} - \sum_{k=C}^T \pi_{3,k} (\omega_{k,it}) - \sum_{k=C}^T \pi_{4,k} (\omega_{k,it} \times OAC_{it})] + U_{i,t+1} \quad (8b)$$

Where:

Equation (4b) is the same as in Section 4.2 and Equation (4d) is the same as in Section 4.3.

EFO = (One-year-ahead) income before extra-ordinary items or earnings from operations;

SAR = annual buy-and-hold returns (BHR) from each portfolio by subtracting annual buy-and-hold returns on an equal-weighted portfolio of firms from size deciles of NYSE and AMEX firms. See Section 3.3.7 and Section 4.4.2;

CFO = cash flows from operations scaled by average total assets;

OAC = operating accruals scaled by average total assets;

CONSQ = proxy for overall degree of conservatism;

ω_k = k-type of conservatism driver in quintiles where k represents CLRT;

$\epsilon_{i,t}$ and $U_{i,t+1}$ = normally distributed error terms.

I first estimate Equation (4b), the forecasting equation, which determines the coefficients (or persistence factors) assigned to earnings and conservatism components for predicting one-year-ahead earnings, as developed in Section 3.3.4. The next step will be to substitute the same independent variables of Equation (4b) into an abnormal returns equation, giving rise to Equation (8a). This is the security pricing equation. Then, using the method of Mishkin (1983), I estimate the EFO and SARs models jointly in two stages, using iterative weighted nonlinear least squares. The formal testing to examine differences in coefficients of Equations (4b) and (8a), i.e., $\pi_1, \pi^*_1, \pi_2, \pi^*_2, \pi_3, \pi^*_3, \pi_4$, and π^*_4 , will be by comparing the sum of squared residuals restricted (SSRr) to the sum of squared residuals unrestricted (SSRu). The restricted model is used when the coefficients from Equation (8a), that have a *, are constrained to equal the coefficients from

Equation (4b). A likelihood ratio statistic of SSRr to SSRu is asymptotically distributed like a Chi Square, based on the increase in SSRr. If the overall joint tests show that the likelihood ratio(s) statistic is significant then the weights (coefficients) placed by investors on the persistence of earnings and conservatism measures differ from the ones in Equation (4b); i.e., mispricing is present. In the proceeding paragraphs are the results of this test.

Table 15 (Panel A) reports the results from estimating the first system of equations: the forecasting Equation (4b) and the security pricing Equation (8a). The results of Equation (4b), for fiscal years 1982-2008, are found in the first two columns of Table 15 (Panel A). The coefficients π_1 , π_2 , π_3 and π_4 , from Equation (4b) are 0.888, 0.518, 0.001, and 0.007, respectively. As expected, these coefficients are similar to those obtained using OLS in Table 6 (Panel A).¹¹⁸

Next, market efficiency implies that the different effects of cash flows, accruals, and conservatism on one-period-ahead earnings should be similarly reflected in security prices. The results from the security pricing Equation (8a), however, show that this does not hold. The coefficients π^*_1 , π^*_2 , π^*_3 and π^*_4 , from Equation (8a) are 0.766, 0.936, 0.016, and -0.085, respectively. Thus, the coefficient on cash flows is smaller than its counterpart in the forecasting equation, while the coefficient on accruals is larger than its counterpart in the forecasting equation. This is consistent with investors underestimating the persistence of cash flows and overestimating the persistence of accruals, because $\pi_1 > \pi^*_1$ and $\pi_2 < \pi^*_2$. In addition, this thesis adds the result that the overall degree of conservatism is not interpreted correctly by investors because $\pi_3 \neq \pi^*_3$ and $\pi_4 \neq \pi^*_4$. Specifically, the market overstates the effect of conservatism ($\pi_3 = 0.001$ and $\pi^*_3 = 0.016$) and understates the effect of conservatism on accruals ($\pi_4 = 0.007$ and $\pi^*_4 = -0.085$). This latter finding supports the market understating the effects conservatism has

¹¹⁸ They are not exactly the same because the sample size in the two-Equation regressions is reduced to 29,514 from 36,164 due to the additional requirement of available security returns in CRSP.

on future returns from accruals. In other words, higher future returns could be obtained from greater conservatism in firms with high accruals. The latter statement follows from the way cash flows are understated in the security pricing equation and provide higher future returns. Finally, in Table 15 (Panel A) are the likelihood ratio statistics for comparing the coefficients of the forecasting model to the returns model. The last comparison is for all coefficients being equal (i.e., $\pi_1 = \pi^*_1$ and $\pi_2 = \pi^*_2$ and $\pi_3 = \pi^*_3$ and $\pi_4 = \pi^*_4$). All are statistically significant at the 1 percent level. Therefore, market efficiency with respect to accrual and cash flow persistence, and conservatism is still rejected.

To be consistent with approach one (Section 4.4), I also tested whether the market correctly interprets how conservatism affects accruals in HAD firms relative to LAD using the Mishkin (1983) test. Equations (4b) and (8a) including variables for HAD, HAD's interaction with conservatism (CONSQ*HAD), accruals (OAC*HAD), and accruals and conservatism (OAC *CONSQ*HAD) were run using only HAD and LAD firms (sample size = 4,370). In Table 15 (Panel B) the coefficients on (OAC *CONSQ*HAD) from Equations (4b) and (8b) were 0.063 and -0.755, respectively. Once again indicating that the market understates the effect of conservatism on accruals when comparing HAD firms to LAD firms. The likelihood ratio statistic for comparing these two coefficients ($\pi_8 = \pi^*_8$) is equal to 7.60 with a p-value of 0.006.

Therefore, market efficiency with respect to conservatism's affect on accruals in predicted one-period-ahead returns when comparing HAD firm to LAD firms is rejected. These results add support to H2a, i.e., the market does not fully recognize conservatism's greater affect on accruals in predicted one-period-ahead returns in HAD firms relative LAD firms.

Next, I performed the Mishkin (1983) test for the drivers of conservatism. The results of the forecasting Equation (4d) and the security pricing Equation (8b) can be found in Table 15

(Panel C). The forecasting Equation (4d) produced weak results for the effects of the conservatism drivers and the effect of the drivers on accrual persistence. For example, the contracting and taxation drivers of conservatism actually reduce accrual persistence. The other two drivers, litigation and regulation, also decrease accrual persistence but are statistically insignificant for their effects on accrual persistence. These results seem to parallel the results from the single equation persistence regressions found in the middle two columns of Table 7 (Panel A).

The results of market efficiency testing of the conservatism drivers can be found in the second set of columns in Table 15 (Panel C). The likelihood ratio statistics for comparing the coefficients of the forecasting equation and the returns equation gave mixed results on which drivers of conservatism are understood by the market. First, market efficiency for the contracting driver of conservatism is not rejected, (LR= 1.200, p-value = 0.273) but market efficiency for the other three drivers of conservatism (litigation, regulation and taxation) is rejected because their likelihood ratios are statistically significant. Second, I cannot reject market efficiency with respect to any of the conservatism drivers' effects on accrual persistence being understood by the market ($\pi_{4,C} = \pi^*_{4,C}$, $\pi_{4,L} = \pi^*_{4,L}$, $\pi_{4,R} = \pi^*_{4,R}$, and $\pi_{4,T} = \pi^*_{4,T}$ all have likelihood ratios that are statistically insignificant at the 10 percent level). These findings are consistent with the multivariate OLS regression results of one-period-ahead size adjusted returns on the conservatism drivers. In the middle two columns of Table 12 (Panel A), the interaction of accruals and each of the conservatism drivers is statistically insignificant. The latter could be interpreted as these variables not effecting abnormal returns or one-period-ahead size adjusted

returns.¹¹⁹ Therefore, both the OLS and the Mishkin (1983) test do not provide evidence of the market misinterpreting the effect of the conservatism drivers on accruals.

To be consistent with approach one (Section 4.4), I also tested whether the market correctly interprets how conservatism affects accruals in HAD firms relative to LAD using the Mishkin (1983) test. Equations (4d) and (8b) including variables for HAD, HAD's interaction with each of the conservatism drivers, accruals, and accruals and conservatism drivers (OAC *CNTRT*HAD, OAC *LIT*HAD, OAC *REG*HAD, OAC *TAX*HAD) were run using only HAD and LAD firms (sample size = 2,404). In untabulated results, the coefficients on (OAC *CNTRT*HAD, OAC *LIT*HAD, OAC *REG*HAD, OAC *TAX*HAD) from Equations (4d) and (8b) when compared to each other had likelihood ratio statistics that were all statistically insignificant. Therefore, market efficiency with respect to the conservatism drivers affects on accruals in predicted one-period-ahead returns when comparing HAD firm to LAD firms is not rejected. These results are consistent with the lack of support for hypotheses H2b, H2c, H2d, and H2e, i.e., the Mishkin (1983) test also does not reject market efficiency with respect to the conservatism drivers affect on accruals in predicting one-period-ahead returns when comparing HAD relative LAD firms.¹²⁰

In conclusion, the Mishkin test does support the market not understanding how overall degree of conservatism affects accruals in predicting one-period-ahead earnings. It also supported the statistically insignificant results obtained from the multivariate OLS regressions that included SARs and the conservatism drivers (Section 4.4.6).

¹¹⁹ Market efficiency is rejected for all parameters being properly recognized by the market. However, this may be due to the high likelihood ratio of cash flows, rejecting market efficiency with respect to cash flows. Also, market efficiency is not rejected with respect to accruals (LR= 0.250, p-value = 0.620).

¹²⁰ In the persistence regression of Equation (4e), the coefficient on OAC *REG*HAD = -0.341 but statistically insignificant. In contrast, the returns regression of Equation (5b), the coefficient on OAC *REG *HAD = -2.942 and is statistically significant. The difference in statistical significance between the two could be the reason why the Mishkin (1983) test cannot reject market efficiency with respect to the conservatism drivers.

4.7 Supplemental and Robustness Analysis

4.7.1 Regression Testing Using Alternate Specification of Variables as Deciles

I supplement the primary firm-level analysis (Equation 5a) by estimating size-adjusted returns using OLS regressions that have all independent variables converted to deciles, with values ranging from zero to one. This process involves ranking each variable into deciles (0 to 9), and then dividing the decile number by nine (Pincus et al., 2007).¹²¹ “This scaling permits the interpretation of the variables’ respective coefficients as the return to a 0 investment portfolio with a long position in stocks of the firm-years with positive weights and a short position in the stocks of the firm-years with negative weights” (Hanlon, 2005). As in Hanlon (2005), I also refer to these variables as scaled decile variables.

Equation 5a, with all independent variables, including accruals and conservatism, converted to deciles with values ranging from 0.1 to 1 is reproduced below as Equation (9):

$$\begin{aligned}
 SAR_{i,t+1} = & \alpha + \beta_1 DIVY^{dec}_{it} + \beta_2 BETA^{dec}_{it} + \beta_3 LnBTM^{dec}_{it} + \beta_4 LnMV^{dec}_{it} + \beta_5 LEV^{dec}_{it} + \\
 & \beta_6 EYLD^{dec}_{it} + \beta_7 NEYLD_{it} + \beta_8 CFO^{dec}_{it} + \beta_9 OAC^{dec}_{it} + \beta_{10} CONSQ^{dec}_{it} + \\
 & \beta_{11} (OAC^{dec}_{it} * CONSQ^{dec}_{it}) + \beta_{12} HAD_{it} + \beta_{13} (OAC^{dec}_{it} * HAD_{it}) + \\
 & \beta_{14} (CONSQ^{dec}_{it} * HAD_{it}) + \beta_{15} (OAC^{dec}_{it} * CONSQ^{dec}_{it} * HAD_{it}) + \varepsilon_{i,t+1}
 \end{aligned} \tag{9}$$

¹²¹ For this Section, independent variable values are ranked into deciles (1 to 10) and then divided by number 10.

This gives them ranked values from 0.1 to 1. I do this to avoid perfect multicollinearity between the intercept and some independent variables, which would lead to a singular matrix that is not invertible. Further, to compare HAD to LAD firms, HAD firms are from the top two deciles and LAD firms are from the bottom two deciles. Using only one decile of firms to represent HAD and LAD did not provide enough observations for an invertible matrix. Also, perfect multicollinearity would result if DIVY2 were left in the model because it has the same decile ranking as DIVY. Therefore Equation (9) has one less variable.

The results of Equation (9) are shown in Table 16. Inconsistent with higher accrual firms having negative one-year-ahead SARs, the coefficient on $OAC = -0.020$ and statistically insignificant (Table 16, middle two columns). Hanlon (2005), using a similar model but without the conservatism variables and without including cash flows, obtained a coefficient on accruals equal to -0.038 for the sample period 1994-2000. Of greater interest to this thesis is how conservatism incrementally affects accruals in predicting SARs. Once again, similar to the results when using continuous variables, the effect on SARs from the affect of conservatism on accruals is higher when comparing HAD to LAD firms. This is shown from the coefficient (β_{15}) on $OAC^{dec} * CONSQ^{dec} * HAD = 1.984$ with a t-statistic of 2.09. It is statistically significant at the 5 percent level.

Finally, I do not do testing of the conservatism drivers using decile rankings because the proxies for two of the drivers are already indicator or categorical variables. For example, litigation is proxied by whether the firm is audited by a “BIG” auditor and regulation is proxied by a dummy variable equal to one if a firm’s sales are in the top quartile within its industry. Conversion of these proxies to deciles would not be meaningful and without their proper effects, there is likely to be an omitted variable problem.

4.7.2 Regression Testing Using Total Accruals

Throughout this thesis, the accruals used were operating accruals (the convention in accrual accounting research).¹²² They are called operating accruals because they relate to short-term items only (Sloan, 1996; Richardson et al. 2005; Jiang, 2007; and F. Zhang 2007). Also, Richardson et al. (2005) empirically show that operating accruals are the least reliable

¹²² Richardson et al. (2005) state an important observation that without accrual accounting, the only item in the Balance Sheet would be cash. Net assets would equal cash as would owners’ equity.

component of total accruals and it is predicted that it is these accruals that could benefit the most from conservatism.

Operating accruals were defined in Section 3.3.1 - basically, change in working capital- and their calculation is reproduced below as Equation (1):

$$OAC = [(\Delta CA - \Delta CL - \Delta CASH + \Delta STD + \Delta TP) - DEP] / AVGTA \quad (1)$$

Total accruals (TACC) include current and non-current assets and liabilities.¹²³ TACC in Dechow and Ge (2006) is simply the difference between net income and free cash flows, where free cash flows are cash flow from operations plus cash flow from investing activities (CFI- Compustat Item #311), as reported on the statement of cash flows. I do not use their definition of TACC because CFI is not available for years prior to 1987 in my Compustat database. However, a more comprehensive definition or measure of total accruals is given in Richardson, Sloan, Soliman, and Tuna (2005) as Equation (10) below:

$$TACC = \Delta WC + \Delta NCO + \Delta FIN \quad (10)$$

Δ represents the change from prior period.

TACC is total accruals from the balance sheet approach (Richardson et al., 2005) composed of:

1. ΔWC is change in working capital: Δ [current assets (Compustat Item #4) – cash and short term investments (Compustat Item #1)] minus Δ [current liabilities (Compustat Item #5) – debt in current liabilities (Compustat Item #34)].

¹²³ The term total accruals has been used to mean operating accruals in prior research (e.g., Desai et al., 2004; Cheng and Thomas, 2006; Ali and Gurun, 2009).

2. ΔNCO is change in non-current operations: Δ [total assets (Compustat item #6) – current assets (Compustat Item #4) – investments and advances (Compustat Item #32)] minus Δ [total liabilities (Compustat Item #181) – current liabilities (Compustat Item #5) – long-term debt (Compustat Item #9)].
3. ΔFIN is change in financial assets: Δ [short term investments (Compustat Item #193) + long term investments (Compustat Item #32)] minus Δ [(long term debt (Compustat Item #9) + debt in current liabilities (Compustat Item #34) + preferred stock (Compustat Item #130)].

All of the above three types of accruals are deflated by average total assets.

The mean (median) values of TACC, ΔWC , ΔNCO , and ΔFIN were 0.041 (0.032), 0.009 (0.006), 0.042 (0.015), -0.011 (0.000), respectively. These amounts are similar to the mean values in Richardson et al. (2005). For their sample period of 1962 to 2001, the mean values for TACC, ΔWC , ΔNCO , and ΔFIN were 0.052, 0.022, 0.051, and -0.021, respectively. In both studies, non-operating accruals (ΔNCO) are the largest component of TACC and financial accruals (ΔFIN) are negative. It should be noted that the main difference between ΔWC and operating accruals (OAC) is that the latter has depreciation deducted from it. This is the reason OAC tends to have a negative mean value.¹²⁴

¹²⁴ In Section 3.1.1 of this study, it was predicted that TACC's relationship with overall degree of conservatism would be negative. In untabulated results, the relationship in this sample is negative and statistically significant at the 10 percent level. However, when TACC had depreciation taken out, the relationship remained negative but became statistically insignificant.

Next, I ran ordinary least squares regressions similar to be consistent with Section 4.4.5, except TACC was used in place of OAC (Equation (11), Table 17).¹²⁵ The results for the effect of the overall degree of conservatism on one-year-ahead size-adjusted returns (SARs) using total accruals are shown in Table 17. In the first set of columns the coefficient (t-statistic) on deflated cash flows (CFO) and total accruals (TACC) = 0.098 (2.36) and -0.081 (-2.55), respectively. Both are statistically significant at the 5 percent level. This finding suggests that the accruals anomaly holds even when using total accruals. However, this negative relationship between TACC and one-year-ahead SARs is statistically insignificant when conservatism variables were included (Table 17, middle two columns). Also, in the middle two columns of Table 17, the overall degree of conservatism's (CONSQ) affect on SARs is shown from the coefficient (t-statistic) on CONSQ = 0.032 (8.01). In comparison, the coefficient (t-statistic) on CONSQ in regressions using OAC (Table 11, Panel A) was 0.034 (9.86). This suggests that conservatism on its own increases one-year-ahead size-adjusted returns. However, in contrast to Table 11 (Panel A), the combined effect of TACC and overall degree of conservatism is not statistically significant. The coefficient (t-statistic) on their interaction (TACC*CONSQ) = -0.027 (-1.17). This result is consistent with conservatism increasing the reliability and verifiability of operating accruals (OAC), but not total accruals (TACC) because OAC are the ones that have the least reliability of the three components of accruals (ΔWC , ΔNCO , and ΔFIN).

To compare high total accrual decile and low total accrual decile firms, I ran Equation (11) with all of its variables using only LAD and HAD firm-year observations. The results of Equation (11) are shown in the last set of columns in Table 17. The coefficient (t-statistic) on

¹²⁵ $SAR_{i,t+1} = \alpha + \beta_1 DIVY_{it} + \beta_2 DIVY2_{it} + \beta_3 BETA_{it} + \beta_4 LnBTM_{it} + \beta_5 LnMV_{it} + \beta_6 LEV_{it} + \beta_7 EYLD_{it} + \beta_8 NEYLD_{it} + \beta_9 CFO_{it} + \beta_{10} TACC_{it} + \beta_{11} CONSQ_{it} + \beta_{12} (TACC_{it} * CONSQ_{it}) + \beta_{13} (HAD_{it}) + \beta_{14} (TACC_{it} * HAD_{it}) + \beta_{15} (CONSQ_{it} * HAD_{it}) + \beta_{16} (TACC_{it} * CONSQ_{it} * HAD_{it}) + \varepsilon_{i,t+1}$ (11)

TACC = 0.525 (1.95) and is statistically significant at the 10 percent level. Next, the last variable in Equation (11), TACC*CONSQ*HAD, provides evidence for determining whether or not the overall degree of conservatism's (CONSQ) effect on total accruals increases SARs more in HAD firms compared to that of LAD firms. The variable, TACC*CONSQ*HAD,¹²⁶ has a positive coefficient (β_{16}) equal to 0.078, but statistically insignificant. These findings support the premise of this thesis that conservatism would increase the reliability and verifiability of operating accruals because the increase in reliability and verifiability does not hold when using TACC given the above statistically insignificant results. TACC already includes accruals that have a high degree of reliability, so conservatism should not affect its reliability and verifiability as much as it does operating accruals.

4.7.3 Industry Analysis and Lagged Returns

To control for industry effects, I re-ran Equation (5a) but included a mean risk premium for each industry, based on the Fama and French (1997) industry classifications (reproduced in Appendix C) and lagged size adjusted returns. The new equation is presented below as Equation (12). Fama and French's method to estimate the risk percentages listed in Appendix C were as follows: Obtain regression slopes for each industry using the Fama and French (1993) three factor model. Then substitute the average monthly Fama and French three factor (Rm-Rf, SMB, and HML defined in Section 4.5.3) returns into the each industry model obtained (average is from July 1963 to December 1994). The return obtained is then multiplied by 12 to arrive at an annual industry risk premium.

¹²⁶ HAD = High accrual dummy variable, which equals 1, if firm belongs to the highest accrual decile, and 0 otherwise. LAD = Low accrual dummy variable, which equals 1, if firm belongs to the lowest accrual decile, and 0 otherwise.

$$\begin{aligned}
SAR_{i,t+1} = & \alpha + \beta_1 DIVY_{it} + \beta_2 DIVY2_{it} + \beta_3 BETA_{it} + \beta_4 LnBTM_{it} + \beta_5 LnMV_{it} + \beta_6 LEV_{it} + \\
& \beta_7 EYLD_{it} + \beta_8 NEYLD_{it} + \beta_9 CFO_{it} + \beta_{10} OAC_{it} + \beta_{11} CONSQ_{it} + \\
& \beta_{12} (OAC_{it} * CONSQ_{it}) + \beta_{13} HAD_{it} + \beta_{14} (OAC_{it} * HAD_{it}) + \beta_{15} (CONSQ_{it} * HAD_{it}) + \\
& \beta_{16} (OAC_{it} * CONSQ_{it} * HAD_{it}) + \beta_{17} IND_{it} + \beta_{18} SARlag_{it} + \varepsilon_{i,t+1}
\end{aligned} \tag{12}$$

The results of Equation (12) are shown in Table 18. The coefficient on the industry risk premium variable (IND), β_{17} , is approximately zero and statistically insignificant (Table 18). However, the coefficient on lagged SARs is equal to -0.040 and statistically significant at the 1 percent level.¹²⁷ The negative coefficient on lagged SARs is consistent with return reversals (Klien, 2001). In addition, the other variables remained similar to running Equation (5a) without the industry risk premium variable and lagged SARs (Table 11). Therefore, the additional variables do not change the main results of this thesis or the explanatory power of the main abnormal return equations. Further, in untabulated results, I verified that the regression results reported using the conservatism drivers are also generally unchanged when including a mean risk premium for each industry, based on the Fama and French (1997) industry classifications, and lagged SARs to Equation (5b) (Table 12).

4.7.4 Sample related problems with Accrual related Anomalies

Kraft et al. (2006) is a paper that re-examined the accruals anomaly to test whether investors are functionally fixated on earnings. Their objective is to determine if the reason holds up to three sample robustness tests or sample selection bias: 1) Per Kraft et al., most researchers

¹²⁷ The coefficient on lagged SARs is equal to -0.042 and statistically significant at the 1 percent level when only HAD and LAD firms were used.

limit their analyses to NYSE/AMEX exchange firms. However, some firms that were once on these two exchanges could have moved to the NASDAQ exchange. This would create a sample selection bias that would tend to give abnormal returns an upward bias because these firms likely switched due to bad performance and the NASDAQ exchange has less restrictive requirements. Second they would be included in NYSE/AMEX if they had good performance, again giving an upward bias. 2) Excluding firm year observations that have missing values for one-period-ahead earnings. 3) Firms having return data in the first month of the return accumulation period, but missing a return in one or more of the subsequent 11 months. Most researchers choose to exclude these observations. It is again likely that these were troubled firms. Since this thesis includes firms in the NYSE, AMEX, and NASDAQ exchanges, the first sample selection bias is not applicable. Further, I do not put in the restriction of excluding firms which do not have one-year-ahead earnings to be used in the return models. In the next paragraph I do provide the main results of this thesis that are robust to the third selection bias described above.

The third selection bias can be avoided by making missing monthly returns zero. This further increased the sample from 27,681 to 27,998 for a difference of 317 firm-year observations (Table 19). However, the increase in sample size did not materially change any of the main results regarding conservatism's affect on accruals in predicting one-year-ahead returns from Section 4.4.

In the same article, Kraft et al. (2006) also perform two additional robustness tests. Following Knez and Ready (1997), they drop one percent of observations with the largest

squared residuals and re-estimate the model reproduced below with the remaining 99 percent of the sample.¹²⁸ Their model is a regression of one-period-ahead size adjusted returns on operating accrual deciles at the firm-level. It is presented below as Equation (13a).

$$SAR_{i,t+1} = \alpha + \beta_1 LAD_{it} + \beta_2 Decile2_{it} + \beta_3 Decile3_{it} + \beta_4 Decile4_{it} + \beta_5 Decile7_{it} + \beta_6 Decile8_{it} + \beta_7 Decile9_{it} + \beta_8 HAD_{it} + \varepsilon_{i,t+1} \quad (13a)$$

The results of Equation (13a) without the trimming of the top one percent of squared residuals are presented in the first two columns of Table 20. Next, in the middle two columns are the results of Equation (13a) with the trimming of the top one percent of squared residuals. The sample size decreased from 27,998 to 27,701, which is 297 firm-year observations or approximately one percent. Comparison of the first two sets of columns reveals differences due to a reduction in the top one percent of residuals. In fact, using the sample of this thesis increased the positive effect of LAD firms and increased the negative effect of HAD firms on one-period-ahead size adjusted returns. This indicates that by removing the extreme residual observations actually adds to the accruals anomaly.

In the last two columns of Table 20 are the results of Equation (13b) below, which includes a variable for overall degree of conservatism and its interaction with HAD and LAD firms. The coefficient on CONSQ = -0.014 and is statistically significant at the one percent level. This is in sharp contrast to the coefficient on CONSQ = 0.034 and statistically significant from the main multivariate Equation (5a) used in this thesis (Table 11, Panel A, middle two columns).

¹²⁸ The second robustness test that is used by Kraft et al. (2006) on Equation (11) is the Belsley, Kuh, and Welsch (1980) regression diagnostic procedures to identify influential observations. The Kraft et al. Paper does not detail what the criteria was used to exclude influential observations. Nevertheless, their results by excluding influential observations were very similar to the residual trimming procedure.

Two major differences between Equations (5a) and (13b) are that the former used continuous amounts for accruals and included control variables that have been used in previous returns models.

$$\begin{aligned}
 SAR_{i,t+1} = & \alpha + \beta_1 LAD_{it} + \beta_2 Decile2_{it} + \beta_3 Decile3_{it} + \beta_4 Decile4_{it} + \beta_5 Decile7_{it} + \\
 & \beta_6 Decile8_{it} + \beta_7 Decile9_{it} + \beta_8 HAD_{it} + \beta_9 CONSQ_{it} + \beta_{10} (CONSQ_{it} * LAD_{it}) + \\
 & \beta_{11} (CONSQ_{it} * HAD_{it}) + \varepsilon_{i,t+1}
 \end{aligned} \tag{13b}$$

The last two variables in the last two columns of Table 20 show the effect of conservatism on HAD and LAD firms on one-period-ahead size adjusted returns. The results of the affects of conservatism on accruals in predicting one-period-ahead returns are in the direction as predicted. That is, conservatism decreases returns in LAD firms and increases them in HAD firms. However, the results are statistically insignificant at conventional levels. Perhaps the insignificant coefficients are due to not using continuous amounts for accruals and not including control variables. Another difference from the Kraft et al. equation to the main equation of this thesis is the very low explanatory power of the Kraft et al. equations. The R squared ranges from 0.1 percent to 0.4 percent. In comparison, the main returns equation of this thesis, Equation (5a), had R squares that ranged from 2.9 percent to 4.4 percent. It is likely that the control variables in Equation (5a) were adding to the increased explanatory power.

4.8 Econometric Issues

The most common econometric issues in financial research that involve regression analysis are violations of any of the assumptions of ordinary least squares. Assumptions of the

classical linear regression model include¹²⁹: 1) independent variables are fixed or non-stochastic; 2) the error term has zero mean or $E[\varepsilon|X]=0$, where E is the expectation operator; 3) homoskedasticity, which is defined as equal variance of error term, or $E[\varepsilon^2|X] = \text{constant}$; 4) no autocorrelation (also called serial correlation), or $E[(\varepsilon_i|X_i)(\varepsilon_j|X_j)] = 0$ for both cross-sectional and time series dependence; 5) no correlation between the independent variables and the error term, or $E[\varepsilon_i X_i] = 0$; and 6) no perfect multicollinearity.

The main model of this thesis is multivariate Equation (5a) because it shows how conservatism affects the accruals anomaly at the firm-level and includes other variables to control for confounding factors. A major contribution of this thesis is that the analysis is performed at the firm-level instead of just at the portfolio-level. In addition, it contains all the variables and conditions required to provide evidence for the main hypotheses. Therefore, I performed the econometric testing on this model.¹³⁰

Assumption one is satisfied because I use financial data for observations which are fixed and do not have distributions. Further, assumption 2, that the error term has a zero mean is given by construction of the OLS model because the parameters/coefficients are determined by setting the error term to zero. Next, a priori, I do not expect the independent variables to have a constant variance because of the large sample of firms with different “sizes” and risk attributes. I performed the Breusch-Pagan heteroskedasticity test on Equation (5a). The test rejects the assumption of a constant variance (homoskedasticity) at the 5 percent significance level. Nevertheless, since in this thesis I use Rogers standard errors, which are White (1980) standard

¹²⁹ The assumptions are taken from Gujarati (2003, Section 3.2). Assumptions not listed above are linear parameters, observations are greater than the number of parameters, X , a matrix of independent variables, must have a variance, and the regression model is correctly specified.

¹³⁰ $SAR_{i,t+1} = \alpha + \beta_1 DIVY_{it} + \beta_2 DIVY2_{it} + \beta_3 BETA_{it} + \beta_4 LnBTM_{it} + \beta_5 LnMV_{it} + \beta_6 LEV_{it} + \beta_7 EYLD_{it} + \beta_8 NEYLD_{it} + \beta_9 CFO_{it} + \beta_{10} OAC_{it} + \beta_{11} CONSQ_{it} + \beta_{12} (OAC_{it} * CONSQ_{it}) + \beta_{13} HAD_{it} + \beta_{14} (OAC_{it} * HAD_{it}) + \beta_{15} (CONSQ_{it} * HAD_{it}) + \beta_{16} (OAC_{it} * CONSQ_{it} * HAD_{it}) + \varepsilon_{i,t+1}$ (5a)

Firm fixed effects are still performed on Equation (5b) that has the drivers of conservatism substituted for CONSQ.

errors robust to within cluster correlation autocorrelation, the issues of heteroskedasticity and autocorrelation have already been addressed (Petersen, 2006 and Gow et al., 2009).

Support for using Rogers standard errors can be found in Petersen (2006). Petersen's results indicate that for comparisons of OLS, Newey-West (modified for panel data sets), and Fama-MacBeth (1973) regressions, the Rogers standard errors are unbiased with respect to cross-sectional correlation of the error term (or the firm effect, as indicated by Petersen). For autocorrelation over time, the Fama-MacBeth regressions produce unbiased standard errors, for which the test is designed. Rogers standard errors are close to being unbiased for autocorrelation when many clusters are present (minimum of 500).¹³¹ Gow et al. (2009) state that if clustering is performed along cross-sectional and time series lines then the Rogers standard errors are robust to both cross-sectional and time series dependence.

The fourth assumption of no autocorrelation is tested using the Durbin-Watson (DW) test statistic on Equation (5) without Rogers standard errors. The DW statistics are close to 2 for Equation (5a), indicating that autocorrelation is not an issue. This is not surprising because Equation (5a) is a returns equation and market efficiency implies that returns are not correlated over time to a high degree.

The fifth assumption is related to an endogeneity problem, where not only is the dependent variable related to the independent variables, but one or more of the independent variables are related to the dependent variable. This also indicates the presence of some independent variable(s) correlated to the error term, which is a violation of the fifth OLS assumption ($E[\varepsilon|X] = 0$) and makes the coefficients and standard errors consistently biased.

¹³¹ Petersen (2006) cautions that Rogers standard errors could be biased if too few clusters are present, where a cluster is interpreted as being multiple observations per firm, industry, year, or geographical region. In this thesis, I have approximately 1,300 and 1,000 firms per year (clusters) for the persistence and returns regressions that use Rogers standard errors, respectively.

In this thesis, there is a possibility of an endogeneity problem if firms realize or believe that their returns can be affected by the level of conservatism and vice versa. In other words, conservatism may be a function of the future returns a firm wants. This sets up another Equation where the level of conservatism is the dependent variable and SARs is an independent variable.

A recent article on how management forecasts are related to conservatism addresses the issue of conservatism being an endogenous variable (Hui et al., 2009). They use a two-stage instrumental variables approach with R&D expenditures, leverage, and dividends as the instrumental variables. Their main findings, of a negative association between management forecast frequency and conservatism, still hold when including these instrumental variables. Their testing of endogeneity adds some support for conservatism not being endogenous in this thesis because management forecasts would be under greater management discretion than one-period-ahead SARs, i.e., there is likely less feedback between conservatism and SARs. Still, this is merely anecdotal support. In addition, Hui et al.'s instrumental variable choices are not given any justification in their article.¹³² Larcher and Rusticus' (2009) first requirement, after describing the nature of the endogeneity problem, is to justify the choice of the instrumental variables.

As motivated by Wooldridge (2002), an approach to test the model in this thesis for its robustness to endogeneity is to find a regime or policy change that affects conservatism. One such occurrence was the 1995 Private Securities Litigation Reform Act (ACT) that affected all public companies. "In December 1995, Congress enacted the Private Securities Litigation Reform Act of 1995 (PSLRA), concluding a long, and often controversial, legislative effort to reform federal securities laws. Considered by some to be the most significant securities legislation in several decades, the PSLRA contains a wide variety of measures intended to

¹³² I am reluctant to use their three instrumental variables because all three are already part of Equation (5a).

protect publicly traded firms, their auditors, and other professional advisers from abusive class action litigation” (Johnson et al., 2000). Since the policy change affected all companies, it can be thought of as an exogenous change to the firm. Johnson et al. also pointed out the elimination of joint and several liability associated with investor class action lawsuits for defendants who do not knowingly commit securities fraud. Included in these were auditors. Since the cost for auditors and firms being sued was now reduced, it is likely that their conservatism would also decrease. The connection being that litigation is one of the drivers or explanations of conservatism, and litigation risk or cost has now decreased. The reduction in conservatism, using the Basu (1997) AT measure, during the post PSLRA ACT period is documented in a working paper by Liu and Thornton (2008).

Therefore, I test whether conservatism’s effects on one-period-ahead returns from accruals is different before and after the ACT. To do this, I add in indicator variable, ACT, to Equation (5a) for years 1996 and 1997 and also interact this variable with ($OAC_{it} * CONSQ_{it}$). This is shown below as Equation (14):

$$\begin{aligned}
 SAR_{i,t+1} = & \alpha + \beta_1 DIVY_{it} + \beta_2 DIVY2_{it} + \beta_3 BETA_{it} + \beta_4 LnBTM_{it} + \beta_5 LnMV_{it} + \beta_6 LEV_{it} + \\
 & \beta_7 EYLD_{it} + \beta_8 NEYLD_{it} + \beta_9 CFO_{it} + \beta_{10} OAC_{it} + \beta_{11} CONSQ_{it} + \\
 & \beta_{12} (OAC_{it} * CONSQ_{it}) + \beta_{13} ACT + \beta_{14} ACT * (OAC_{it} * CONSQ_{it}) + \varepsilon_{i,t+1}
 \end{aligned} \tag{14}$$

Since litigation is expected to decrease in the post ACT period, I expect conservatism to also decrease. Therefore, I predicted that the coefficient on the post period interaction variable $ACT * (OAC_{it} * CONSQ_{it})$ to be negative.

In untabulated results, the coefficient on $ACT * (OAC_{it} * CONSQ_{it})$ was equal to -0.217 and had a p-value of 0.167 when post ACT years were set to 1996 and 1997. Since the

coefficient was statistically insignificant at the 10 percent level, I decided to include two more years in the post ACT period. This time the coefficient (p-value) = 0.091 (0.535) when post ACT years were set to 1996 to 1999. Given that I once again obtained insignificant results, I ran the above equation with ACT set to include all post PSLRA ACT years. The coefficient (p-value) = -0.040 (0.279). Therefore, in all scenarios of post ACT years, statistically insignificant results were obtained. It is possible that this is due to other policy or macroeconomic changes that are mixed in with the post PSLRA ACT years that also affect conservatism or accruals.

Another method to test a model's robustness to endogeneity is to include firm fixed effects. The reasoning is that likely not all specific characteristics to the firm have been controlled for and perhaps a correlated variable is missing.¹³³ By using fixed effects in the model, it is possible to control for all possible characteristics of the firm as long as those characteristics do not change over time (SAS/58348.pdf). These unobservable firm effects would have been included in the error term (residuals). By capturing the firm effects, the correlation of all independent variables, with the error term decreases, including conservatism.

The results of including firm fixed effects can be found in the in Table 21 (Panel A). Now the coefficient (β_{16}) on (OAC *CONSQ *HAD) is equal to 0.595 and very close to the coefficient (β_{16}) of 0.529 in the regression without firm fixed effects (Table 11, Panel A). Both with and without firm fixed effects, the coefficient is statistically significant at the 5 percent level. Nevertheless, F-statistic =1.45 rejects that there are no firm fixed effects. But, since the coefficients including firm fixed effects are not very different from OLS regressions with the

¹³³ Cov (X,c) $\neq$ 0, where c is a correlated omitted variable. c would be in the error term, rendering the inability to estimate consistent parameter estimates (Wooldridge, p. 248). I do not use a random effects approach because it assumes that c is orthogonal to the independent variable(s). However, for this study I am considering that c is not orthogonal, i.e., is correlated with the independent variable(s). The fixed effects analysis is more appropriate.

constant firm specific effect taken out, this adds support to the endogeneity issue not being a serious problem.

To supplement the results of Table 12 (Panel A) on the drivers of conservatism, I also ran firm fixed effects regressions using Equation (5b). The results are shown in Table 21 (Panel B). In contrast to the overall degree of conservatism regressions using firm fixed effects, the coefficients on the interaction of (OAC *HAD) and the conservatism drivers are different from regressions without firm fixed effects. The major change is the coefficient on (OAC*REG*HAD) is equal to -0.854 and statistically insignificant at conventional levels with firm fixed effects. In Table 12 (Panel A), the coefficient on (OAC*REG*HAD) was equal to -2.942 and statistically significant at the 1 percent level. Further, the F-statistic =1.21 rejects that there are no firm fixed effects and since the coefficients are different from OLS regressions without firm fixed effects, it is better to use the results of Table 21 (Panel B) for the hypotheses on the conservatism drivers affects on SARs. Still, the hypotheses regarding SARs and the conservatism drivers are not supported due to statistically insignificant results (H2b, H2c, H2d, and H2e).

Finally, solutions to simultaneity include two stage least squares (2SLS) or instrumental variables (IVs). However, if a simultaneity problem does not exist, then the estimates achieved using these methods have consistent estimators, though they are not efficient: i.e., they do not have the smallest variance (Gujarati, 2003, p. 753). Further, Larcher and Rusticus (2009) demonstrate that when an IV is weakly correlated with the variable in question, or is partially endogenous, then once again OLS could be better than the above solutions. Therefore, as suggested by Gujarati and Larcher and Rusticus, the Hausman (1978) specification error test is used to first determine if a simultaneity problem exists.

The two Equations examined for the Hausman test are the following reduced form Equations:¹³⁴

$$\begin{aligned} CONSQ_{it} = & \alpha + \beta_1 DIVY_{it} + \beta_2 DIVY2_{it} + \beta_3 BETA_{it} + \beta_4 LnBTM_{it} + \beta_5 LnMV_{it} + \beta_6 LEV_{it} + \\ & \beta_7 EYLD_{it} + \beta_8 NEYLD_{it} + \beta_9 OAC_{it} + \beta_{10}(OAC_{it} * CONSQ_{it}) + \varepsilon_{it} \end{aligned} \quad (R1)$$

$$\begin{aligned} SAR_{i,t+1} = & \alpha + \beta_1 CONSQ_{it} + \beta_2 DIVY_{it} + \beta_3 BETA_{it} + \beta_4 LnBTM_{it} + \beta_5 LnMV_{it} + \beta_6 LEV_{it} + \\ & \beta_7 EYLD_{it} + \beta_8 NEYLD_{it} + \beta_9 OAC_{it} + \beta_{10}(OAC_{it} * CONSQ_{it}) + u_{i,t+1} \end{aligned} \quad (R2)$$

When I ran the Equation R2 that also contained the residuals from R1 ($\varepsilon^{\wedge}$), the coefficient on the residual was found to be insignificant at conventional levels ($t=-1.17$, $p\text{-value}=0.242$).¹³⁵ Therefore, it is not likely that there is an endogeneity problem between conservatism and future returns because I cannot reject the null hypothesis of no simultaneity/endogeneity.

¹³⁴ Equation R1 includes the suspected endogenous variable CONSQ set as the dependent variable and regressed on all the other exogenous variables. Equation R2 has SARs as the dependent variable as in the multivariate return models used in this chapter. For Equation R2, DIVY2 is excluded because it is just DIVY squared; including DIVY2 results in a singular matrix when doing the Hausman test.

¹³⁵ The residuals from R1 will be uncorrelated with CONSQ and control variables by construction. All that remains is to show that future SARs are not related to the residuals to prove that $E(\varepsilon_{it}, u_{i,t+1}) = 0$ (following Wooldridge, 2002, p. 119).

CHAPTER 5

CONCLUSIONS, LIMITATIONS, FUTURE RESEARCH

5.1 Introduction

This thesis examined the abnormal returns that can be earned by using the information in accruals, also coined the accruals anomaly. Research on the accruals anomaly was extended by investigating how accounting conservatism, the tendency of a firm to record losses in a timelier manner and specific accounting rules that reduce the reported value of the firm, affect accrual persistence and, in turn, the accruals anomaly. The focus is on conservatism's effect on accrual persistence, since it is the prominent reason for the ability to earn abnormal returns from information about accruals, and conservatism, through its increased reliability and verification requirements, is premised to affect accrual persistence. In addition, this thesis is the first to examine the effects of individual explanations (interchangeably referred to as drivers) of conservatism on the accruals anomaly. The conservatism drivers are: contracting, litigation, accounting regulation, and taxation (CLRT), as described by Watts (2003a).

The results of this thesis will be of interest to investors and accounting standard-setters. The former group will benefit from how conservatism affects the accruals anomaly, which will allow them to optimize their investment portfolios. Also, the increase in market efficiency will benefit all players in the market. The latter group (accounting standard-setters) has recently moved away from considering conservatism as a quality of financial statements. The results of this thesis show that, in some aspects, conservatism can be a positive characteristic of financial

statements, which supports the concerns of introducing less reliable information, like fair values and cash flow estimates in financial statements.

5.2 Summary and Conclusions

Watts (1993, 2003a) suggested that conservatism leads to greater reliability of accruals and Richardson et al. (2005) empirically showed that greater reliability of accruals also increased their persistence in predicting one-year-ahead earnings and returns. This thesis predicted and found that greater overall degree of accounting conservatism increased accrual persistence to a greater extent in high accrual decile (HAD) firms than in low accrual decile (LAD) firms. Similarly, as predicted, overall degree of conservatism's effects on accruals was higher for HAD firms relative to LAD firms, in predicting one-year-ahead returns. On the other hand, statistically significant results were only obtained for the contracting and litigation drivers of conservatism for increasing accrual persistence. Nevertheless, none of the conservatism drivers provided statistically significant results for increasing one-year-ahead returns from accruals. In fact, the regulation driver of conservatism's effects on accruals was lower for HAD firms relative to LAD firms in predicting one-year-ahead returns using the sample of this study.

This thesis can be divided into two parts: conservatism's effect on accrual persistence and conservatism's effect on one-year-ahead returns from accruals. In each part, the individual drivers of conservatism were also examined. The following paragraphs describe the empirical findings and their implications.

The two main drivers, or explanations, of conservatism are contracting and litigation. The contracting explanation of conservatism reduces the agency cost of asymmetric information to parties external to the firm and thereby reduces their information costs, which increases contract

efficiency. Ahmed et al. (2002) and Zhang (2008) document that conservatism is used by firms to receive lower borrowing rates in debt contracts by reducing the downside risk of creditors. Conservatism due to debt contracting would increase the reliability of high accrual firms because these managers are constrained from inflating accruals, making them more persistent. The reasoning is that high accruals are more likely to be associated with unrealized gains than unrealized losses, and conservatism requires greater reliability and verification requirements for unrealized gains. This prediction is supported by Watts' (2003a) definition of conservatism for unrealized gains requiring greater degrees of verification.¹³⁶ In addition, conservative accounting's asymmetric requirements for high accruals are a means of addressing the moral hazard issue of inflated earnings caused by management (Watts, 2003a). LaFond and Watts (2008) argued that "...conservative financial reporting is a governance mechanism that reduces the managers' ability to manipulate and overstate financial performance and increases the firm's cash flows and value." Similarly, Kothari et al. (2008) gave an agency theory explanation for high accrual firms having accruals that are managed upwards, and therefore, are more transitory. Therefore, conservatism should reduce the information asymmetry of high accrual firms, thereby making their accruals more permanent because conservatism requires greater reliability and verification requirements from unrealized gains.

Conservatism induced from litigation, the other major reason for firms to be conservative, is due to managers, auditors, and directors being more likely to be sued if earnings are overstated than if they are understated (Beaver, 1993; Watts, 1993, 2003a), which gives them a greater incentive to only record high accruals that are likely to materialize.

¹³⁶ It is both the increased reliability and verification requirements of conservatism that lead to the prediction of conservatism increasing accrual persistence.

The results of this study showed that overall degree of conservatism incrementally increased the persistence of accruals in predicting one-period-ahead earnings. Nevertheless, given the current sample, this relationship was statistically insignificant at conventional levels. Ultimately, the goal of this thesis was to compare conservatism's effects on accrual persistence between high accrual and low accrual decile firms. This prediction was supported at statistically significant levels indicating that the increased reliability and verifiability requirements of conservatism increase accrual persistence more in high accrual decile firms than in low accrual decile firms. With respect to the drivers of conservatism, when comparing high accrual firms to low accrual firms, greater accrual persistence in predicting one-period-ahead earnings is only supported by conservatism coming from contracting and litigation. The other two drivers of conservatism did not provide statistically significant findings. The insignificant results for regulation and taxation are consistent with Watts (2003b), who found that the evidence for regulation and taxation explaining conservatism is weak.

This thesis demonstrates that overall degree of conservatism and conservatism explained by contracting and litigation, affect accrual persistence in predicting one-year-ahead earnings differently in HAD firms than in LAD. These types of conservatism increased accrual persistence relatively more in HAD firms compared to LAD firms. These findings contribute to our understanding of conservatism's effects on accrual persistence in that conservatism not only increases accrual reliability and verifiability but depends on the magnitude of the accruals. This aspect of conservatism has not been established before and will aid in explaining why accruals have lower persistence than cash flows in predicting one-year-ahead earnings.

The second part of this thesis explored conservatism's effect on one-year-ahead abnormal returns from accruals. Overall degree of conservatism incrementally increased the effect of

accruals in predicting one-period-ahead abnormal returns. In addition, this increase was greater for high accrual firms than for low accrual firms. By implication, future abnormal returns not only depend on a firm's magnitude of accruals but also on the overall degree of conservatism. Nevertheless, statistically insignificant results were obtained for conservatism, explained by contracting, litigation, and taxation increasing the effect of accruals in predicting one-period-ahead abnormal returns. The regulation driver of conservatism actually reduced returns of accruals in predicting one-period-ahead abnormal returns when HAD firms were compared to LAD firms.

The explanations of conservatism (contracting, litigation, regulation, and taxation) did not provide evidence that they contribute to affecting abnormal returns from accruals. Possible explanations for this include: unsuitable proxies for the explanations; for example, size is used as a proxy for regulation. Size is a proxy for many other firm characteristics; for example, risk of a firm. In Section 5.4, I explain how further research is still needed to develop better proxies for conservatism.

In conclusion, overall degree of conservatism is shown to increase accrual persistence in predicting one-period-ahead earnings, which in turn, reduced the negative one-year-ahead abnormal returns from firms in high accrual deciles. In other words, the abnormal hedge returns documented for the accruals anomaly would not be as large if the high accrual decile firms also had higher degrees of overall conservatism.

The above result can be interpreted as increasing market efficiency because the ability to earn abnormal returns is associated with market inefficiency (Daniel and Titman, 1999; Schwert, 2003). These results will be of interest to investors because they show that conservatism indeed affects abnormal returns. Further, since the main analysis of this study is done on a firm-level

basis, and conservatism should be stable over periods of time (Givoly et al., 2007, p. 83; Hui et al., 2009), this information can be used ex-ante and prior to the release of financial statements. Second, even though the goal of this study was not to evaluate accounting regulations and standards, the results are still relevant to regulators. Current accounting standards are moving towards fair value accounting, which is a departure from conservatism. The results; however, show that this long-standing accounting principle of conservatism needs to be part of fair value accounting and international accounting standards because conservatism is shown to increase accrual persistence in predicting one-period-ahead earnings and reduce negative one-period-ahead abnormal returns from accruals of firms in the highest accrual decile.

5.3 Limitations

The major limitations of this study include lower significance levels when regressions were performed on an annual basis compared to pooled regressions of all years combined. Still, the overall results of this study were not materially changed. Moreover, when firms were assigned into portfolios (portfolio-level approach), most of the results were not statistically significant (Section 4.5). These portfolio-level results do not necessarily refute the prior conclusions of Section 5.2. First, the portfolio-level approach shows the changes in abnormal returns from changes in the overall degree of conservatism. It does not isolate the effect of conservatism on accruals or conservatism's incremental effect on abnormal returns via accruals. Second, the insignificant results may be due to a reduction in sample size from the aggregating of firms into portfolios. A third reason for the inconsistent results between the firm-level and portfolio-level approaches may be because the firm-level approach uses accrual values individually. Through

the averaging process of the portfolio-level approach, one may not see the actual variation in returns due to accruals.

The most important limitation of this study is the lack of a suitable proxy for conservatism. Previous research has developed different metrics to measure a firm's overall degree of conservatism (e.g., Basu, 1997; Penman and Zhang, 2002; Mason, 2004). Givoly et al. (2007) even go as far as to say that no authoritative definition of conservatism exists. When Givoly et al. (2007) compared Basu (1997)'s asymmetric timeliness (AT) measure to three other conservatism measures (book-to-market (BTM) ratio, cumulative discretionary accruals over time, and the persistence of current period accounting losses) they found that the AT measure was less stable than these three measures for conservatism. Further, the BTM ratio has been used as a control variable for growth in return models. To compensate for this deficiency, I used the average of three measures for overall firm degree of conservatism: AT, BTM ratio, and specific reserves. Still, other measures could have been used, and an average may not be better than an individual proxy.

In addition to the above major issues, a common limitation of empirical studies using regression is that the models may be mis-specified. The main model in this thesis is one-period-ahead returns regressed on accruals, conservatism, the interaction of accruals and conservatism, and control variables. The control variables were chosen from the most common ones used in previous accounting literature on accruals and conservatism. Nevertheless, variables may be omitted, or an incorrect functional relationship may be used.¹³⁷ The latter is crucial, because the effect on returns depends on the asset pricing model chosen. Another issue of empirical studies is the possibility that the results only apply to the current sample and will not apply to out of

¹³⁷ Other econometric issues are discussed in Section 4.8, for example, endogeneity. Strength of the models used in this thesis is that there is strong evidence against endogeneity between one-year-ahead returns and conservatism.

sample periods. An advantage of this study is that it spans 27 years. The long period should reduce the out of sample inapplicability. Another sample-related problem is the survivorship bias of firms included in the sample. Nevertheless, the returns of the sample in this study are similar to the market returns during the same sample period. It seems that this problem is also minimal. Likely, including inactive firms in the sample reduced the survivorship bias.

Finally, investors should keep in mind that the analysis in this thesis does not consider transaction costs. Lev and Nissim (2006) point out that an investing strategy trying to take advantage of accrual mispricing would need to rebalance approximately 40 stocks annually. They conclude that these transaction costs are the reason why the accruals anomaly still exists (and will continue). This limitation may be mitigated by using information of how conservatism affects abnormal returns. The rebalancing would be less, since conservatism does not change as much as does accruals.

5.4 Future Research

Future research would greatly benefit from studies that point to a clear proxy for overall degree of conservatism, and more research on suitable proxies for the explanations of conservatism. This would not only strengthen the present study, but other accounting research that uses conservatism.

This study concentrates on how conservatism, through its effect on accrual persistence, affects one-period-ahead incremental returns from accruals. The multivariate results also revealed that conservatism on its own, both overall and its drivers, was positively related (and statistically significant) in predicting one-period-ahead returns. This was not expected because

prior research is not consistent on conservatism's effect on returns. Thus, a rigorous study is warranted to strengthen the consensus on conservatism's relationship with future stock returns.

Another large area of research in accounting that involves accruals is earnings management. Authors often use discretionary accruals (accruals are split between discretionary and non-discretionary) as a measure for earnings management. This study was about how conservatism affected accruals. A natural progression would be to split accruals between discretionary and non-discretionary and examine the different effects that conservatism plays on each type of accrual.

Finally, since standard-setters are leaning towards taking conservatism out of accounting, it would be interesting to see what the effects are to firms that still practice conservatism. Some firms will still practice conservatism outside of standards requirements, because of its economic benefits, for example, in reducing the asymmetry in contracting. Therefore, conservatism may be valued even more by these firms because of the possible reduction of firms using conservatism.

Appendix A: Listing of Hypotheses and Findings

Hypothesis Number and Description	Finding
H1a: A higher overall degree of conservatism will increase the persistence of accruals in high accrual decile firms relatively more than in low accrual decile firms.	Supported Table 6
H1b: Higher degrees of conservatism from the contracting driver will increase the persistence of accruals in high accrual decile firms relatively more than in low accrual decile firms.	Supported Table 7
H1c: Higher degrees of conservatism from the litigation driver will increase the persistence of accruals in high accrual decile firms relatively more than in low accrual decile firms.	Supported Table 7
H1d: The regulation driver of conservatism is related to the persistence of accruals.	Not Supported Table 7
H1e: The taxation driver of conservatism is related to the persistence of accruals.	Supported Table 7
H2a: Higher overall degree of conservatism will increase one-year-ahead returns of accruals in high accrual decile firms relatively more than in low accrual decile firms.	Supported Table 11
H2b: Higher degrees of conservatism from the contracting driver will increase one-year-ahead returns in high accrual decile firms relatively more than in low accrual decile firms.	Not Supported Table 12
H2c: Higher degrees of conservatism from the litigation driver will increase one-year-ahead returns in high accrual decile firms relatively more than in low accrual decile firms.	Not Supported Table 12
H2d: The regulation driver of conservatism is related to the accruals anomaly.	Not Supported Table 12
H2e: The taxation driver of conservatism is related to the accruals anomaly.	Not Supported Table 12
H3: Investment in a hedge portfolio that is long in low accrual decile and short in high accrual decile firms, that also have a lower overall degree	Not Supported

of conservatism, will have higher levels of the accruals anomaly relative to a similar hedge portfolio that invests in higher overall degree of conservatism firms.	Table 12
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Appendix B: Listing and Detailed Explanations of Variables Used

AT	=	sensitivity of earnings to negative returns ($\beta_2 + \beta_3$), relative to positive returns (β_2), where the coefficients are obtained from Equation (2) reproduced below: $X_{it}/P_{it-1} = \alpha + \beta_1 DR_{it} + \beta_2 R_{it} + \beta_3 (R_{it} \times DR_{it}) + \varepsilon_{it} \quad (2)$ <p>the quotient $(\beta_{2,it} + \beta_{3,it} / \beta_{2,it})$ is calculated for each firm i for fiscal year t using a minimum of five firm-year observations;</p>
AVGA	=	average of beginning and end of fiscal year book value of total assets in millions of dollars [Compustat item #6];
AVGS	=	average of total sales at end of fiscal year in millions of dollars [Compustat item #12];
BHR	=	one-year-ahead annual buy-and-hold stock returns, calculated for 12 months starting on May 1 of the year following accrual and conservatism ranking for each firm and corrected for delisting returns. Firms that were delisted due to poor performance (delisting codes 500 and 520–584) were assigned delisting returns of -35 percent for NYSE/AMEX firms and -55 percent for NASDAQ firms for these delisting codes, as in Hanlon (2005).
BETA	=	capital asset pricing model (CAPM) beta for firm i ; BETA is estimated from a regression of 48 monthly raw returns on the CRSP value-weighted monthly stock returns up to the last month of fiscal-year t ;
CFO	=	cash flow from operations [Compustat item #308], deflated by AVGA (for years 1986 and prior CFO = EFO - OAC);
CA	=	change in current assets [Compustat item #4 excluding change in Cash (Compustat item #1)], deflated by AVGA;
CL	=	change in current liabilities [Compustat item #5 excluding change in short term debt (Compustat item #34) and Change in income tax payable (Compustat item #71)], deflated by AVGA;
CNTRT	=	contracting conservatism driver proxy is equal to the percentage of institutional ownership (Compustat Mnemonic IOTSHRO; none available for years 1986 and prior, so assigned a value of zero for those years) plus the ratio of private long-term debt (Compustat #81 + #84 + 83) to total long-term debt (Compustat #82 + #81 + #84 + #83);
CONSQ	=	Proxy for overall degree of conservatism. Determined by the average of AT, PTB, and RES. The average is obtained by first converting each of these 3 prior measures to quintiles, which gives each measure an equal weight. A weight of 1/3 is applied to each measure to arrive at a proxy for the overall degree of conservatism. At least two of the 3 proxies: AT, PTB, and RES must have a value for the firm-year conservatism measure to be assigned an overall degree of conservatism, i.e., CONSQ. If only two measures are used then each measure is given a weight of 1/2 to arrive at CONSQ.
DIVY	=	dividend yield (in percent) [Compustat Mnemonic DVYDF], and equals 0 for firm-years with no annual dividends for firm i ;
DIVY2	=	dividend yield (DIVY) squared;
DEPN	=	depreciation and amortization expenses [Compustat item #14], deflated by AVGA;
EFO	=	one-year-ahead income before extra-ordinary items [Compustat item #A123], deflated by AVGA. AVGA is defined below;
EYLD	=	earnings-to-price ratio for firm i ; this variable is calculated as Earnings per Share Basic – Excluding Extraordinary Items [Compustat item #A123] divided by the year end price [Compustat item #A199], and then <i>multiplied</i> by 100;
FYR	=	December fiscal year end. All of the variables below are measured at the firm level at the firm's fiscal year end;

HAD	=	high accrual dummy variable, which equals 1 if firm belongs to highest accrual decile;
Ln(MV)	=	the natural logarithm of CRSP market value of common stock (in millions) for firm i ;
Ln(BTM)	=	the natural logarithm of the inverse of Price to Book Ratio (Compustat Mnemonic MKBKF) - Fiscal Year-End for firm i ;
LIT	=	litigation conservatism driver proxy is an indicator variable equal to one if a firm's auditor (Compustat #149) is from 1 to 8 – “Big” auditor, and zero otherwise <i>plus</i> one, if the firm belongs to SIC codes codes 2833-2836, 3570-3577, 3600-3674, 5200-5961, and 7370-7374. Therefore values of LIT would be 0, 1, or 2 with higher values indicating greater litigation risk; approximately 80% are audited by “BIG” auditors and 20% are in high litigation industries;
LEV	=	leverage, calculated as book value of total assets to book value of equity [Compustat item #A60], for firm i ;
LAD	=	low accrual dummy variable, which equals 1 if firm belongs to lowest accrual decile;
NEYLD	=	negative earnings indicator for firm i ; 1, if earnings are negative, 0 otherwise;
NOA	=	Net Operating Assets is the sum of Property, Plant, and Equipment (Net) plus Total Current Assets less Total Current Liabilities in millions of dollars [Compustat Mnemonic NOA]
NSales	=	Net Sales in millions of dollars [Compustat item #12]
OAC	=	operating accruals [computed as CA – CL – DEPN as defined above], deflated by AVGA;
OAC_COMP	=	difference between OAC and its components, i.e., OAC –(CA- CL -DEPN. Since OAC makes up its components, the variables should be close to zero.
REG	=	regulation conservatism driver proxy is an indicator variable, equal to 1 if sales (Compustat #12), deflated by industry total sales, divided by the number of firms in the industry, is of the top quartile; and 0 otherwise; Industry is based on the two-digit SIC codes;
PTB	=	Price to Book Ratio - Fiscal Year-End [Compustat Mnemonic MKBKF], or, the close price for the fiscal year multiplied by the company's common shares outstanding, divided by Common Equity as Reported, which represents the common shareholders' interest in the company;
RES	=	the sum of LIFO inventory reserves reported in the financial statement footnotes [Compustat item #240], estimated unamortized advertising expense [Compustat item #45] using the sum of years digits amortization over two years, ¹³⁸ and estimated unamortized research and development expense [Compustat item #46] using a uniform amortization over five years. ¹³⁹ The sum is then divided by Net operating assets, or equivalently, the book value of operating assets minus the book value of operating liabilities; ¹⁴⁰
SAR	=	one-year-ahead annual size-adjusted buy-and-hold stock returns, calculated for 12 months starting in May of the year following accrual and conservatism ranking for firm i ; size adjustment is the associated value weighted average CRSP return for firms in the same size-matched decile, where size is measured as the market value at the beginning of the return cumulation period;

¹³⁸ $ADVres_t = \text{Advertising expense}_t + 1/3 (\text{Advertising expense}_{t-1})$

¹³⁹ $RNDres_t = 0.9 \times RND_t + 0.7 \times RND_{t-1} + 0.5 \times RND_{t-2} + 0.3 \times RND_{t-3} + 0.1 \times RND_{t-4}$. This method is obtained from Amir et al. (2003).

¹⁴⁰ I calculate NOA as described in Penman and Zhang (2002), i.e., net operating assets is Common Equity (Compustat item #60 + Preferred Treasury Stock (Compustat item #227)) - Preferred Dividends in Arrears (Compustat item #242) + Financial Obligations (Debt in Current Liabilities (Compustat item #34) + Total Long-Term Debt (Compustat item #9) + Preferred Stock (Compustat item #130) – Preferred Treasury Stock (Compustat item #227) + Preferred Dividends in Arrears (Compustat item #242)) - Financial Assets (Cash and Short-Term Investments (Compustat item #1) + Investments and Advances - Other (Compustat item #32)) + Minority Interest on Balance Sheet (Compustat item #38).

TAX = taxation conservatism driver proxy is the association between book income and tax income estimated from time series regressions of income taxes (Compustat #16 - #50) on tax expense (Compustat #16, which includes foreign taxes); all taxation variables are deflated by lagged total assets;

ω_q = Symbol used for the various types of conservatism drivers to simplify equations. “k” is the type of conservatism driver and represents C, L, R, T.

All variables were winsorized at 1 percent and 99 percent of their respective distributions.

Appendix C: Fama-French (1997) Industry Classifications

<u>Risk percent</u>	<u>Industry</u>	<u>4 digit SIC code</u>
6.51	Agriculture	0100-0799,2048-2048
4.09	Food Products	2000-2046,2050-2063,2070-2079,
8.46	Candy and Soda	2090-2095,2098-2099
2.99	Alcoholic Beverages	2064-2068,2086-2087,2096-2097
5.56	Tobacco Products	2080-2085
10.0	Recreational Products	2100-2199 0900-0999,3650-3652,3732-3732, 3930-3949
8.43	Entertainment	7800-7841,7900-7999
6.96	Printing and Publishing	2700-2749,2770-2799
3.19	Consumer Goods	2047-2047,2391-2392,2510-2519,2590-2599,2840-2844, 3160-3199, 3229-3231, 3260-3260, 3262-3263, 3269-3269,3630-3639,3750-3751, 3800-3800,3860-3879, 3910-3919, 3960-3961,3991-3991,3995-3995
8.85	Apparel	2300-2390,3020-3021,3100-3111, 3130-3159,3965-3965
6.14	Healthcare	8000-8099
2.64	Medical Equipment	3693-3693,3840-3851
0.09	Pharmaceutical Products	2830-2836
6.58	Chemicals	2800-2829,2850-2899
7.78	Rubber and Plastic Products	3000-3000,3050-3099
9.18	Textiles	2200-2295, 2297-2299, 2393-2395, 2397-2399
6.40	Construction Materials	0800-0899,2400-2439,2450-2459,2490-2499,2950-2952,3200-3219, 3240-3259,3261-3261,3264-3264,3270-3299,3420-3442,3446-3452, 3490-3499,3996-3996
6.42	Construction	1500-1549,1600-1699,1700-1799
9.61	Steel Works, Etc.	3300-3369,3390-3399
9.69	Fabricated Products	3400-3400,3443-3444,3460-3479
6.46	Machinery	3510-3536,3540-3569,3580-3599
5.98	Electrical Equipment	3600-3621,3623-3629,3640-3646, 3648-3649,3660-3660,3691-3692, 3699-3699
9.56	Miscellaneous	3900-3900,3990-3990,3999-3999, 9900-9999
9.39	Automobiles and Trucks	2296-2296,2396-2396~3010-3011, 3537-3537,3647-3647,3694-3694, 3700-3716, 3790-3792,3799-3799
7.54	Aircraft	3720-3729
8.63	Shipbuilding, Railroad Eq	3730-3731,3740-3743
6.25	Defense	3480-3489,3760-3769,3795-3795
5.35	Precious Metals	1040-1049
7.65	Non-metallic Mining	1000-1039,1060-1099,1400-1499
5.97	Coal	1200-1299
4.93	Petroleum and Natural Gas	1310-1389,2900-2911,2990-2999
5.41	Utilities	4900-4999
5.17	Telecommunications	4800-4899
7.26	Personal Services	7020-7021,7030-7039,7200-7212, 7215-7299,7395-7395,7500-7500, 7520-7549, 7600-7699,8100-8199, 8200-8299,8300-8399,8400-8499, 8600-8699,8800-8899
6.51	Business Services	2750-2759,3993-3993,7300-7372, 7374-7394,7397-7397,7399-7399, 7510-7519, 8700-8748, 8900-8999
2.49	Computers	3570-3579,3680-3689,3695-3695, 7373-7373

6.01	Electronic Equipment	3622-3622,3661-3679,3810-3810, 3812-3812
5.80	Measuring and Control Equip	3811-3811,3820-3830
7.78	Business Supplies	2520-2549,2600-2639,2670-2699, 2760-2761,3950-3955
5.77	Shipping Containers	2440-2449,2640-2659,3210-3221, 3410-3412
7.39	Transportation	4000-4099, 4100-4199, 4200-4299, 4400-4499,4500-4599,4600-4699, 4700-4799
7.52	Wholesale	5000-5099,5100-5199
5.88	Retail	5200-5299,5300-5399,5400-5499, 5500-5599,5600-5699,5700-5736, 5900-5999
6.81	Restaurants, Hotel, Motel	5800-5813,5890-5890,7000-7019, 7040-7049,7213-7213
8.08	Banking	6000-6099,6100-6199
5.72	Insurance	6300-6399,6400-6411
11.1	Real Estate	6500-6553
6.72	Trading	6200-6299,6700-6799

REFERENCES

- Ahmed, A., B. Billings, R. Morton, and M. Stanford. 2002. The Role of Accounting Conservatism in Mitigating Bondholder-Shareholder Conflicts over Dividend Policy and in Reducing Debt Costs. *The Accounting Review* 77(4): 867–890.
- Ahmed, A., S. Khalid Nainar, and F. Zhang. 2006. Further evidence on analyst and investor misweighting of prior period cash flows and accruals. *The International Journal of Accounting* 41: 51-74.
- Ahmed, A. and S. Duellman. 2007. Accounting conservatism and board of director characteristics: An empirical analysis. *Journal of Accounting and Economics* 43: 411-437.
- AICPA. 2009. AICPA Media Center — FAQs About Fair Value Accounting. http://www.aicpa.org/MediaCenter/fva_faq.htm
- Allen, E., C. Larson, and R. G. Sloan. 2009. Accrual Reversals, Earnings and Stock Returns. Working paper. University of California at Berkeley.
- Ali, A., X. Chen, T. Yao, and T. Yu. 2007. Do Mutual Funds Profit from the Accruals Anomaly? *Journal of Accounting Research* 46(1): 1-26.
- Ali, A. and U. Gurun. 2009. Investor Sentiment, Accruals Anomaly, and Accruals Management. *Journal of Accounting, Auditing and Finance* 24(3).
- Balachandran, S. V. and P. S. Mohanram. 2006. Conservatism and the Value Relevance of Accounting Information. Working paper. Columbia Business School.
- Ball, R., S.P. Kothari, and A. Robin. 2000. The effect of international institutional factors on properties of accounting earnings. *Journal of Accounting and Economics* 2(1): 1-51.
- , R., A. Robin, and J. S. Wu. 2003. Incentives versus standards: Properties of accounting income in four East Asian countries. *Journal of Accounting and Economics* 36: 235–270.
- and L. Shivakumar. 2005. Earnings quality in U.K. private firms: Comparative loss recognition timeliness. *Journal of Accounting and Economics* 39: 83–128.
- and L. Shivakumar. 2005. The Role of Accruals in Asymmetrically Timely Gain and Loss Recognition. Working paper. University of Chicago and London Business School.
- Bali., T., K. Demirtas, and H. Tehranian. 2008. Aggregate Earnings, Firm-Level Earnings, and Expected Stock Returns. *Journal of Financial and Quantitative Analysis* 43(3): 657-684.
- Banz, R. W. 1981. The Relation Between Return and Market Value of Common Stocks. *Journal of Financial Economics* 9: 3-18.

- Barber, B. M., and J. D. Lyon. 1997. Firm Size, Book-to-Market Ratio, and Security Returns: A Holdout Sample of Financial Firms. *Journal of Finance* LII (2): 875-883.
- Barth, M. and A. Hutton. 2004. Analyst Earnings Forecast Revisions and the Pricing of Accruals. *Review of Accounting Studies* 9: 59–96.
- Basu, S. 1997. The conservatism principle and the asymmetric timeliness of earnings. *Journal of Accounting and Economics* 24: 3-37.
- Beatty, A., J. Weber, and J. J. Yu. 2008. Conservatism and Debt. *Journal of Accounting and Economics* 45: 154-174.
- Beaver, W. 1993. Conservatism. Stanford University (presented at the American Accounting Association Annual Meeting, San Francisco, CA). Working paper.
- and S. Ryan. 2005. Conditional and unconditional conservatism: concepts and modeling. *Review of Accounting Studies* 10: 269 – 309.
- Belsley, D., E. Kuh, and R. Welsch. 1980. Regression Diagnostics: Identifying Influential Data and Sources of Collinearity. New York, NY: John Wiley and Sons.
- Berle, A. and G. Means. 1932. *The Modern Corporation and Private Property*. New York: Harcourt, Brace & World.
- Black, F., M. Jensen, and M. Scholes. 1972. Studies in the Theory of Capital Markets, *Praeger Publishers Inc.*
- Bliss, J. H. 1924. *Management though accounts*. The Ronald Press Company, New York, NY.
- Blokdijk, H., F. Driehuisen, D. Simunic, and M. Stein. 2003. Factors Affecting Auditors' Assessments of Planning Materiality. *Auditing: A Journal of Practice & Theory* 22(2): 297-307.
- , Driehuisen, D. Simunic, and M. Stein. 2006. An Analysis of Cross-Sectional Differences in Big and Non-Big Public Accounting Firms' Audit Programs. *Auditing: A Journal of Practice & Theory* 25(1): 27-48.
- Bradshaw, M., S. Richardson, and R. Sloan. 2001. Do Analysts and Auditors Use Information in Accruals? *Journal of accounting Research* 39: 43-74.
- Brealey, R., S. Myers, G. Sick, and R. Whaley. 1986. Principles of Corporate Finance, 1st. Canadian Edition. McGraw-Hill Ryerson Limited.
- Bushman, R. and J. Piotroski. 2006. Financial reporting incentives for conservative accounting: The influence of legal and political institutions. *Journal of Accounting and Economics*

42: 107-148.

- Cahan, S. and W. Zhang. 2006. After Enron: Auditor Conservatism and Ex-Andersen Clients. *The Accounting Review* 81(1): 49-82.
- Campbell, J.Y. and T. Vuolteenaho. 2004. Bad beta, good beta. *American Economic Review* 94 (5): 1249–1275.
- Carhart, M. 1997. On Persistence in Mutual Fund Performance. *Journal of Finance* 52(1):57-82.
- Chen, S., X. Chen, Q. Cheng, and A. Hutton. 2008. Conservative Financial Reporting in Family Firms. Working Paper DNC. University of British Columbia, University of Washington, University of Boston.
- Cheng, A. and W. Thomas. 2006. Evidence of the Abnormal Accrual Anomaly Incremental to Operating Cash Flows. *The Accounting Review* 81(5): 1151-1167.
- Christian, H. and V. Nilolaev. 2009. Who uses fair value accounting for non-financial assets after IFRS adoption? Working Paper. University of Chicago.
- Chung, K. H. 1993. Asset Characteristic and Corporate Debt Policy: An Empirical Test. *Journal of Business Finance and Accounting*. Vol. 20(1): 83-98.
- Chung, R., J. Kim, and M. Firth. 2003. Auditor Conservatism, Asymmetric Monitoring, and Earnings Management. *Contemporary Accounting Research* 20(2): 323-359.
- Collins, D. and P. Hribar, 2000. Earnings-based and accrual-based market anomalies: one effect or two? *Journal of Accounting & Economics* 29: 101-123.
- Collins, D., G. Gong, and P. Hribar. 2003. Investor Sophistication and the Mispricing of Accruals. *Review of Accounting Studies* 8: 251–276.
- Constantinides, G., H. Milton and R. Stulz. 2003. Handbook of the Economics of Finance. Elsevier North Holland.
- Copeland, Thomas E., J. Fred Weston, and Kuldeep Shastri. 2005. Financial Theory and Corporate Policy 4th. Ed. Pearson Addison-Wesley Publishing Company, World Wide.
- Core, J., W. Guay, S. Richardson, and R. Verdi. 2006. Stock market anomalies: what can we learn from repurchases and insider trading? *Review of Accounting Studies* 11: 49-72.
- Daniel K. and S. Titman. 1999. Market Efficiency in an Irrational World. *Financial Analysts Journal* Vol. 55, No. 6: 28-40.
- Daniel, K. and S. Titman. 1997. Evidence on the characteristics of cross-sectional variation in common stock returns. *Journal of Finance* 52: 1-33.

- De Bondt, W. and R. Thaler. 1985. Does the stock market overreact? *Journal of Finance* 40: 793-808.
- Dechow, P. 1994. Accounting earnings and cash flows as measures of firm performance: The role of accounting accruals. *Journal of Accounting and Economics* 18: 3-42
- , and C. Schrand. 2004. Earnings quality. *CFA Digest* Vol. 34 Issue 4: 82-85.
- , and W. Ge. 2006. The persistence of earnings and cash flows and the role of special items: Implications for the accrual anomaly. *Review of Accounting Studies* 11: 253-296.
- , S. Richardson, and R. Sloan. 2008. The Persistence and Pricing of the Cash Component of Earnings. *Journal of Accounting Research* 46(3): 537-566.
- Defond, M., K. Raghunandan, and K. Subramanyam. 2002. Do non-audit service fees impair auditor independence? Evidence from going concern opinions. *Journal of Accounting Research* 40(4) : 1247-1274.
- Desai, M. 2003. The Divergence between Book Income and Tax Income. *Tax Policy and the Economy* 17: 169-206
- Desai, H., S. Rajgopal, and M. Venkatachalam. 2004. Value-glamour and accruals mispricing: one anomaly or two? *The Accounting Review* 79: 355-385.
- Dhaliwal, Dan, Oliver Zhen Li, and Robert Trezevant. 2003. Is a dividend tax penalty incorporated into the return on a firm's common stock? *Journal of Accounting and Economics* : 155-178.
- Dhaliwal, Dan, L. Krull, O. Li, and W. Moser. 2005. Dividend Taxes and Implied Cost of Equity Capital. *Journal of Accounting Research* 43(5): 675-708.
- Dichev, I. D. and D. J. Skinner. 2002. Large sample evidence on the debt covenant hypothesis. *Journal of Accounting Research* 40: 1091–1123.
- Dopuch, N., C. Seethamraju, and W. Xu. 2010. The pricing of accruals for profit and loss firms. *Review of Quantitative Finance and Accounting* 34: 505-516.
- Elgers, P., M. Lo, and R. Pfeiffer. 2003. Analysts vs. investors weightings of accruals in forecasting annual earnings. *Journal of Accounting and Public Policy* 22: 25-280.
- Elton, E.J. and M.J. Gruber. 1970. Marginal Stockholders' Tax Rates and the Clientele Effect. *Review of Economics and Statistics* 52: 68-74.
- Fairfield, P., J. Whisenant, and T. Yohn. 2003. Accrued Earnings and Growth: Implications for Future Profitability and Market Mispricing. *The Accounting Review* 78 (1): 353–371.

- . 2006. Discussion of “The persistence of earnings and cashflows and the role of special items: Implications for the accrual anomaly”. *Review of Accounting Studies* 11: 297-303.
- Fama, E. and K. French. 1992. The Cross-Section of Expected Stock Returns. *Journal of Finance* XLVII (2):427-465.
- , and K. French. 1993. Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics* 33: 3–56.
- , and K. French. 1996. Multifactor Explanations of Asset Pricing Anomalies. *Journal of Finance* 11(1): 55–84.
- , and K. French. 1997. Industry costs of equity. *Journal of Financial Economics* 43: 153-193.
- , and K. French. 1998. Taxes, Financing Decisions, and Firm Value. *Journal of Finance* LIII (3): 819-843.
- , and K. French. 2006. Profitability, investment and average returns. *Journal of Financial Economics* 82: 491–518
- Feltham, J. and J. Ohlson. 1995. Valuation and clean surplus accounting for operating and financial activities. *Contemporary Accounting Research* 11(2): 689- 731.
- Financial Accounting Standards Board (FASB). 1978. Statement of Financial Accounting Standards No. 1: Objectives of financial reporting by business enterprises. Stamford, CT.
- Financial Accounting Standards Board (FASB). 1990. Statement of Financial Accounting Standards No. 106: Employers' Accounting for Postretirement Benefits Other Than Pensions.
- Financial Accounting Standards Board (FASB). 1991. Disclosures about Fair Value of Financial Instruments. Statement of Financial Accounting Standards No. 107. Norwalk, CT.
- Financial Accounting Standards Board (FASB). 2001. Statement of Financial Accounting Standards 141: Business Combinations. Norwalk, CT.
- Financial Accounting Standards Board (FASB). 2001. Statement of Financial Accounting Standards 142: Goodwill and Other Intangible Assets. Norwalk, CT.
- Financial Accounting Standards Board (FASB). 2006. Fair Value Measurements. Statement of Financial Accounting Standards No. 157. Norwalk, CT.

- Francis, J. R., E. Maydew, H. C. Sparks. 1999. The role of big 6 auditors in the credible reporting of accruals. *Auditing: A Journal of Practice and Theory* 18(2): 17-34.
- and J. Krishnan. 1999. Accounting Accruals and Auditor Reporting Conservatism. *Contemporary Accounting Research* 16(1): 135-165.
- , LaFond, P. Olsson, and K. Schipper. 2004. Costs of equity and earnings attributes. *The Accounting Review* (79): 967–1010.
- , R. LaFond, P. Olsson, and K. Schipper. 2005. The market pricing of accruals quality. *Journal of Accounting and Economics* (39): 295-327.
- and M. Smith. 2005. A re-examination of persistence of accruals and cash flows. *Journal of Accounting Research* (43): 413-451.
- Givoly, D. and C. Hayn. 2000. The changing time-series properties of earnings, cash flows and accruals: Has financial reporting become more conservative? *Journal of Accounting and Economics* 29: 287–320.
- Givoly, D. and C. Hayn. 2002. Rising Conservatism: Implications for Financial Analysis. *Financial Analysts Journal* 58(1):56-74.
- Givoly, D., C. Hayn, and A. Natarajan. 2007. Measuring Reporting Conservatism. *The Accounting Review* 82(1):65-106.
- Gow, D., G. Ormazabal, and D. J. Taylor. 2009. Correcting for Cross-Sectional and Time-Series Dependence in Accounting Research. Working Paper. Stanford University.
- Grullon, G., R. Michaely, and B. Swaminathan. 2002. Are dividend changes a sign of firm maturity? *The Journal of Business* 75:387-424.
- Gu, Z. and P. Jain. 2006. Can the Accrual Anomaly be Explained Away by Operating Cash Flows: A Component Level Analysis. Working Paper. Carnegie Mellon University, Georgetown University.
- Guenther, D. 1994. Earnings Management in Response to Corporate Tax Rate Changes: Evidence from the 1986 Tax Reform Act. *The Accounting Review* 69(1): 230-243.
- Gujarati, D. N. 2003. *Basic Econometrics, 4th. Ed.* McGraw-Hill/Irwin, New York, NY.
- Hand, J. 1990. A Test of the Extended Functional Fixation Hypothesis. *The Accounting Review* 65:740-763.
- Hanlon, M. 2005. The Persistence and Pricing of Earnings, Accruals, and Cash Flows When Firms Have Large Book-Tax Differences. *The Accounting Review* 80: 137–166.

- Hausman, J. 1978. Specification Tests in Econometrics. *Econometrica* (1978): 1251-1271.
- Hirshleifer, D., K. Hou, and S. Teoh. 2010. The accrual anomaly: Risk or mispricing? Working Paper. UC Irvine.
- Hribar, P. and N. Yehuda. 2008. Reconciling Growth and Persistence as Explanations for Accrual Mispricing. Working Paper. Cornell University, University of Iowa.
- Holthausen, R. and R. Watts. 2001. The relevance of the value-relevance literature for financial accounting standard setting. *Journal of Accounting and Economics* 31: 3-75.
- Hui, K, S. Matsunaga, and D. Morse. 2009. The impact of conservatism on management earnings forecasts. *Journal of Accounting and Economics* 47: 192-207.
- Jegadeesh, N. and S. Titman. 1993. Returns to buying winners and selling losers: Implications for stock market efficiency. *Journal of Finance* 48: 65–91.
- Jiang G. 2007. Stock performance and the mispricing of accruals. *The International Journal of Accounting* 42: 153–170
- Johnson, M. F., Kasznik, R., & Nelson, K. K. (2000). Shareholder wealth effects of the Private Securities Litigation Reform Act of 1995. *Review of Accounting Studies* 5 , 217-233.
- Johnston, J. and J. DiNardo, *Econometric Methods*, 4th. Ed., McGraw-Hill, New York, NY.
- Kaserer , C. and C. Klingler. 2008. The Accrual Anomaly Under Different Accounting Standards – Lessons Learned from the German Experiment. *Journal of Business Finance & Accounting* 35(7) & (8): 837–859.
- Khan, M. 2008. Are accruals mispriced? Evidence from tests of an intertemporal capital asset pricing model. *Journal of Accounting and Economics* 45: 55-77.
- Khan, M. and R. Watts. 2009. Estimation and empirical properties of a firm-year measure of accounting conservatism. *Journal of Accounting and Economics* 48: 132–150.
- Kinney, W. and W. Uecker. 1982. Mitigating the consequences of anchoring in auditor judgements. *The Accounting Review* LVII(1): 55-69.
- Klein, A. 2002. Audit committee, board of director characteristics, and earnings management. *Journal of Accounting and Economics* 33: 375–400.
- Knez, P. and M. Ready. 1997. On the Robustness of Size and Book-to-Market in Cross-Sectional Regressions. *Journal of Finance* 101: 1355–82.
- Kothari, S. P., E. Loutskina, and V. Nikolaev. 2008. Agency Theory of Overvalued Equity as an

- Explanation for the Accrual Anomaly. Working Paper. MIT, University of Virginia, Tilburg University.
- , K. Ramana, and D. J. Skinner. 2009. What Should GAAP Look Like? Working Paper. MIT.
- Kraft, A., A. Leone, and C. Wasley . 2006. An Analysis of the Theories and Explanations Offered for the Mispricing of Accruals and Accrual Components. *Journal of Accounting Research* 44: 297–339.
- , A. Leone, and C. Wasley. 2007. Regression-Based Tests of the Market Pricing of Accounting Numbers: The Mishkin Test and Ordinary Least Squares. *Journal of Accounting Research* 45(5): 1081-114.
- Krishnan, G. 2003. Audit quality and the pricing of discretionary accruals. *Auditing: A Journal of Practice & Theory* 22(1): 109-126.
- Krishnan, G. 2007. Did Earnings Conservatism Increase for Former Andersen Clients? *Journal of Accounting, Auditing & Finance* 22(2):141-163.
- Krishnan, G. and G. Vishvanathan. 2008. Does the SOX Definition of an Accounting Expert Matter? The Association between Audit Committee Directors' Accounting Expertise and Accounting Conservatism. *Contemporary Accounting Research* 25(3): 827-57.
- Khurana, I. K., and K. K. Raman. 2004. Litigation risk and the financial reporting credibility of Big 4 versus Non-big 4 audits: Evidence from Anglo-American countries. *The Accounting Review* 79: 473–495.
- LaFond R. 2005. Is the Accrual Anomaly a Global Anomaly? Working Paper. MIT.
- , and S. Roychowdhury. 2008. Managerial Ownership and Accounting Conservatism. The Information Role of Conservatism. *Journal of Accounting Research* 46(1): 101-135.
- , and R. Watts. 2008. The Information Role of Conservatism. *The Accounting Review* 83(2): 447-478.
- Lara J., B. Osma, and F. Penalva. 2006. Cost of Equity and Accounting Conservatism. DNC Working Paper. Universidad Carlos III de Madrid, Universidad Autónoma de Madrid, Lancaster University, University of Navarra.
- Larcher, D. and T. Rusticus. 2010. On the use of instrumental variables in accounting research. *Journal of Accounting and Economics* 49: 186-205.
- Leone, A., J. Wu, and J. Zimmerman. 2006. Asymmetric sensitivity of CEO cash

- compensation to stock returns. *Journal of Accounting and Economics* 42: 167-192.
- Lev and Nissim. 2006. The Persistence of the Accruals Anomaly. *Contemporary Accounting Research* 23(1): 193-226.
- Litzenberger, R., and K. Ramaswamy. 1979. The Effects of Personal Taxes and Dividends on Capital Asset Prices: Theory and Empirical Evidence. *Journal of Financial Economics* 7(2): 163-195.
- Liu, Z. and D. Thornton. 2008. Litigation Risk, Price-to-Book and Conservatism in Financial Reporting. Working paper. University of Saskatchewan, Queens University.
- Lo, A.W. and A.C. MacKinlay. 1990. Data-Snooping Biases in Tests of Financial Asset Pricing Models. *The Review of Financial Studies* 3(3): 431-467.
- Lobo, G., K. Parthasarathy, and K. Sivaramakrishnan. 2008. Growth, Managerial Reporting Behavior, and Accounting Conservatism. Working paper. University of Houston.
- Lobo, G. and J. Zhou. 2006. Did Conservatism in Financial Reporting Increase after the Sarbanes-Oxley Act? Initial Evidence. *Accounting Horizons* 20(1): 57-73
- Mashruwala, C., S. Rajgopal, and T. Shevlin. 2006. Why is the accrual anomaly not arbitrated away? The role of idiosyncratic risk and transaction costs. *Journal of Accounting and Economics* 42: 3-33.
- Mason, L. 2004. The impact of accounting conservatism on the magnitude of the differential information content of cash flows and accruals. *Journal of Accounting, Auditing & Finance* 19: 249-282.
- Mills, L and G. Plesko. 2003. Bridging the Reporting Gap: A Proposal for More Informative Reconciling of Book and Tax Income. *National Tax Journal* LVI(4): 865-893.
- Mishkin, S. 1983. A rational expectations approach to macro-econometrics: Testing policy effectiveness and efficient market models. Chicago, IL: University of Chicago Press.
- Moreira, J. A. and P. Pope. 2006. Unequal Impact of Conservatism on Accrual Measures and Drivers: Implications for the Specification of Accrual Models. CETE Discussion Papers 0604, Universidade do Porto, Faculdade de Economia do Porto.
- Pae, J., D. Thornton and M. Welker. 2003. The Link between accounting conservatism in balance sheets and income statements: empirical implications. Working paper. Queen's University.
- Pae, J., D. Thornton, and M. Welker. 2005. The Link between Earnings Conservatism and the Price-to-Book Ratio. *Contemporary Accounting Research* 22(3): 693-717.

- Pae, J. and D. Thornton. 2010. The Association between Accounting Conservatism and Analysts' Forecast Inefficiency. Working paper. Korea University, Queen's University.
- Paek, W., Chen, L. H., and H. Sami. 2007. Accounting Conservatism, Earnings Persistence and Pricing Multiples on Earnings. Working Paper. Sungkyunkwan University, Arizona State University, Lehigh University.
- Palmon, D., E. Sudit and A. Yezegel. 2008. The Accruals Anomaly and Company Size. *Financial Analysts Journal* 64(5): 47-60.
- Palmrose, Z-V. 1988. An analysis of auditor litigation and audit service quality. *The Accounting Review* 63: 55-73.
- Penman, S. and X. Zhang. 2002. Accounting conservatism, the quality of earnings, and stock returns. *The Accounting Review* 77: 237-264.
- Petersen, M. 2006. Estimating Standard Errors in Finance Panel Data Sets: Comparing Approaches. Working paper. NBER.
- Phillips, J., M. Pincus, and S. O. Rego. 2003. Earnings Management: New Evidence Based on Deferred Tax Expense. *The Accounting Review* 78(2): 491-521.
- Pincus M., S. Rajgopal, and M. Venkatachalam. 2007. The Accrual Anomaly: International Evidence. *The Accounting Review* 82 (1): 169-203.
- Plesko, G. 2004. Corporate Tax Avoidance and the Properties of Corporate Earnings. *National Tax Journal* Vol. LVII(3): 729-737.
- Pontiff, J. 1996. Costly arbitrage: evidence from closed-end funds. *The Quarterly Journal of Economics* 111: 1135-1152.
- Qiang, X. 2007. The Effects of Contracting, Litigation, Regulation, and Tax Costs on Conditional and Unconditional Conservatism: Cross-Sectional Evidence at the Firm Level. *The Accounting Review* 82(3):759-796.
- Raith, M. 2009. An Agency Theory of Conservative Accrual Accounting. Working Paper. University of Rochester.
- Rajan, V. M. and S. Reichelstein. 2009. Depreciation Rules and the Relation between Marginal and Historical Cost. *Journal of Accounting Research*. 47(3).
- Resutek, R. 2010. Intangible Returns, Accruals, and Return Reversal: A Multiperiod Examination of the Accrual Anomaly. *The Accounting Review* 85(4): 1347-1374.
- Richardson, S., R. Sloan, M. Soliman, and I. Tuna. 2005. Accrual reliability, earnings persistence and stock prices. *Journal of Accounting and Economics* 39: 437-485.

- Ritter, J. R. 1991. The long-run performance of initial public offerings. *Journal of Finance* 46: 3-27.
- Roychowdhury, S. and R. Watts. 2007. Asymmetric timeliness of earnings, market-to-book and conservatism in financial reporting. *Journal of Accounting and Economics* 44: 2-31.
- Schwert, W. 2001. Anomalies and market efficiency, in Handbook of the Economics of Finance, chapter 17.
- Schwert, G. 2003. Anomalies and market efficiency, Chapter 15. In George Constantinides, Milton Harris, and René Stulz (Eds.) Handbook of the economics of finance (pp. 937–972). North-Holland.
- Shackelford, D. and T. Shevlin. 2001. Empirical tax research in accounting. *Journal of Accounting and Economics* 31: 321-387.
- Shleifer, A. and R. Vishny. 1986. Large Shareholders and Corporate Control. *Journal of Political Economy* V94: 461-488.
- Shumway, T. 1997. The delisting bias in CRSP data. *Journal of Finance* 52: 327–340.
- Shumway, T and V. Warther. 1999. The delisting bias in CRSP's Nasdaq data and its implication for the size effect. *Journal of Finance* 54: 2361–2379.
- Skoulakis, G. 2006. Panel Data Inference in Finance: Least-Squares vs Fama-MacBeth. Working paper. University of Maryland.
- Sloan R. 1996. Do Stock Prices Fully Reflect Information in Accruals and Cash Flows about Future Earnings? *The Accounting Review* 71 (3): 289-315.
- Statement of Financial Accounting Concepts No. 2. 1980. Qualitative Characteristics of Accounting, Financial Accounting Standards Board.
- Vuolteenaho, T. 2002. What Drives Firm-Level Stock Returns? *Journal of Finance* 57(1): 233-264.
- Watts, R.L. 1977. Corporate financial statements, a product of the market and political processes. *Australian Journal of Management* 2 (April): 53-75.
- Watts, R.L. and J.L. Zimmerman. 1986. *Positive Accounting Theory*. Englewood Cliffs, NJ, Prentice-Hall.
- Watts, R. and J. Zimmerman. 1990. Positive accounting theory: A ten year perspective. *The Accounting Review* 65(1): 131-156.
- . 1993. A Proposal for Research on Conservatism. Financial Research and Policy

Working Paper Series. University of Rochester.

———. 2003a. Conservatism in accounting part1: Explanations and Implications. *Accounting Horizons* 17 (3): 207-221.

———. 2003b. Conservatism in accounting part II: Evidence and Research Opportunities. *Accounting Horizons* 17 (4): 287-301.

Wooldridge, J.M., 2002. Econometric analysis of cross section and panel data. The MIT Press.

Wu, J., L. Zhang, X. F. Zhang. 2010. The q -Theory Approach to Understanding the Accrual Anomaly. *Journal of accounting Research* 48(1): 177-224.

Xie, H. 2001. The Mispricing of Abnormal Accruals. *The Accounting Review* 76 (8): 357-373.

Zach, T. 2004. Evaluating the ‘accrual-fixation’ hypothesis as an explanation for the accrual anomaly. Working paper. Washington University.

Zhang, F. 2007. Accruals, Investment, growth, and the Accrual Anomaly. *The Accounting Review* 82(5): 1333-1364

Zhang, J. 2008. The contracting benefits of accounting conservatism to lenders and borrowers. *Journal of Accounting and Economics* 45: 27–54.

Zhang, X. 2000. Conservative accounting and equity Valuation. *Journal of Accounting and Economics* 29: 125-149.

Table 1 Sample Selection Procedure
Sample Period: 1982 to 2008

Panel A: Overall Degree of Conservatism

Potential number of firm-year observations from Compustat with a fiscal year end	233,364
Exclusion of observations from financial and utilities industries	59,844
Exclusion of non-calendar year end observations	74,698
Potential number of firm-year observations before data requirements	98,822
Firm-year observations with required data for conservatism calculations	45,527
Less: firm-year observations with missing data for persistence regressions	9,363
Final Sub-Sample	36,164

Panel B: Conservatism Explanations

Potential number of firm-year observations from Compustat with a fiscal year end	233,364
Exclusion of observations from financial and utilities industries	59,844
Exclusion of non-calendar year end observations	74,698
Potential number of firm-year observations before data requirements	98,822
Firm-year observations with required data for conservatism calculations	28,492
Less: firm-year observations with missing data for persistence regressions	5,815
Final Sub-Sample	22,677

Panel C: Abnormal Returns- Overall Degree of Conservatism

Buy-and-Hold return firm-year observations from CRSP	165,431
Firm-year observations with required data for conservatism calculations	45,527
Less: firm-year observations with missing data for abnormal return regressions	17,846
Final Sub-Sample	27,681

Data obtained from compustat starts in 1980 and ends in 2008. However, one year is reduced due to lagged values and another year for lagged values requiring prior year total assets. This results in observations starting in 1982. Also, the size of the sample observations for overall degree of conservatism is greater than for the conservatism drivers mostly due to unavailable data regarding institutional ownership, required for conservatism from contracting, in Compustat. Buy-and-Hold return firm-year observations from CRSP include 370 observations that are adjusted delisted returns.

Table 2 Descriptive Statistics for Earnings Persistence and Conservatism Variables
Sample Period: 1982 to 2008

Panel A Earnings Persistence Variables

Variable	Obs.	Mean	Std. Dev.	Median	25th percentile	75th percentile
EFO*	36,164	-0.064	0.378	0.034	-0.047	0.080
CFO*	36,164	0.019	0.261	0.076	-0.003	0.136
OAC*	36,164	-0.043	0.120	-0.041	-0.086	0.004
CA*	36,164	0.029	0.113	0.018	-0.013	0.066
CL*	36,164	0.021	0.090	0.013	-0.009	0.044
DEPN*	36,164	0.051	0.036	0.043	0.028	0.063
AVGA	36,164	1,992	5,766	185	42	938
NOA	34,134	970	2,805	101	23	488
Nsales	34,143	1,686	4,655	176	33	891

Panel B Conservatism Variables

Variable	Obs.	Mean	Std. Dev.	Median	25th percentile	75th percentile
CONSQ	36,164	2.010	1.396	2.000	1.000	3.000
AT	31,630	1.082	30.450	0.179	-1.805	2.911
PTB	70,815	2.835	5.654	1.844	1.001	3.384
RES	32,908	0.280	4.125	0.110	0.028	0.374
CNTRT	22,677	1.351	0.439	1.360	1.001	1.731
LIT	22,677	1.077	0.558	1.000	1.000	1.000
REG	22,677	0.311	0.463	0.000	0.000	1.000
TAX	22,677	0.583	0.898	0.699	0.264	0.923

* These variables have been deflated by average total assets. Both the variable and average total assets are in millions of dollars.

EFO is	one-year-ahead income before extra-ordinary items [Compustat item #A 123] deflated by AVGA, AVGA is defined below;
CFO is	cash flow from operations [Compustat item #308] deflated by AVGA;
OAC is	operating accruals [computed as CA – CL – DEPN as defined below], deflated by AVGA;
CA is	change in current assets [Compustat item #4 less Compustat item #1], deflated by AVGA;
CL is	change in current liabilities [Compustat item #5 less change in short term debt (Compustat item #34) and change in income tax payable (Compustat item #71)], deflated by AVGA;
DEPN is	depreciation and amortization expense [Compustat item #14], deflated by AVGA;
AVGA is	average of beginning and end of fiscal year book value of total assets [Compustat item #6];
NOA is	Net Operating Assets is the sum of Property, Plant, and Equipment (Net) plus Total Current Assets less Total Current Liabilities in millions of dollars [Compustat Mnemonic NOA]
NSales is	Net Sales in millions of dollars [Compustat item #12]
CONSQ is	proxy for overall degree of conservatism determined by the average of AT, PTB, and RES (defined below) converted to quintiles;
AT is	asymmetric timeliness of recorded earnings proxied by incremental sensitivity of earnings to to negative returns relative to positive returns;
PTB is	price to book ratio [Compustat Mnemonic MKBKF];
RES is	the sum of LIFO inventory reserves, estimated unamortized advertising expense, and estimated unamortized research and development expense. The sum is then divided by Net operating assets; [See appendix B for Compustat item numbers]
CNTRT is	contracting conservatism driver proxy equal to the percentage of institutional ownership plus the ratio of private debt to total debt; [See appendix B for Compustat item numbers]
LIT is	litigation conservatism driver proxy is an indicator variable equal to one if a firm had a "BIG" auditor plus one if it was in a high litigation industry; approximately 80% are audited by "BIG" auditors and 20% are in a high litigation industry; [See appendix B for Compustat item numbers]
REG is	regulation conservatism driver proxy is an indicator variable, equal to 1 if firm was in the top sales quartile within its industry;
TAX is	taxation conservatism driver proxy equal to the association between book income and tax income estimated from time series regressions of income taxes on tax expense;

See Appendix B for further detailed descriptions.

All variables were winsorized at 1 percent and 99 percent of their respective distributions.

Table 3
Industry Classification
Sample Period: 1982 to 2008

Panel A	All Sample Firms*		HAD Firms		LAD Firms		Compustat Population		Compustat -Sample
Industry	n	%	n	%	n	%	n	%	% DIFF
Other	530	1.5	49	1.4	63	2.1	2579	2.6	1.1
Chemicals	1341	3.7	86	2.5	67	2.3	2815	2.8	-0.9
Computers	5411	15.0	581	16.8	731	24.7	14318	14.5	-0.5
Extractive	2103	5.8	41	1.2	241	8.2	7723	7.8	2.0
<i>Financial</i>	0	<i>0.0</i>	268	<i>7.8</i>	0	0.0	0	0.0	0.0
Food	951	2.6	45	1.3	47	1.6	2390	2.4	-0.2
<i>Insurance/Realestate</i>	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Manf:ElectricalEqpt	2125	5.9	285	8.2	176	6.0	4496	4.5	-1.3
Manf:Instruments	2952	8.2	427	12.3	201	6.8	6635	6.7	-1.4
Manf:Machinery	1688	4.7	189	5.5	110	3.7	3539	3.6	-1.1
Manf:Metal	1653	4.6	122	3.5	68	2.3	3519	3.6	-1.0
Manf:Misc.	428	1.2	65	1.9	29	1.0	1017	1.0	-0.2
Manf:Rubber/glass/etc.	1193	3.3	90	2.6	40	1.4	2496	2.5	-0.8
Manf:TransportEqpt	869	2.4	92	2.7	47	1.6	2166	2.2	-0.2
Mining/Construction	896	2.5	44	1.3	53	1.8	4202	4.3	1.8
Pharmaceuticals	3037	8.4	314	9.1	251	8.5	7053	7.1	-1.3
Retail:Misc.	1147	3.2	179	5.2	69	2.3	2807	2.8	-0.3
Retail:Restaurant	541	1.5	4	0.1	32	1.1	1346	1.4	-0.1
Retail:Wholesale	1165	3.2	186	5.4	87	2.9	3773	3.8	0.6
Services	3198	8.8	202	5.8	313	10.6	11445	11.6	2.7
Textiles/Print/Publ	2280	6.3	133	3.8	88	3.0	5150	5.2	-1.1
Transportation	2656	7.3	56	1.6	242	8.2	9353	9.5	2.1
<i>Utilities</i>	0	<i>0.0</i>	0	<i>0.0</i>	0	<i>0.0</i>	0	<i>0.0</i>	<i>0.0</i>
Totals	36,164	100	3,458	100	2,955	100	98,822	100	100

* The sample is all firms that were included in the accrual persistence sample.

The classification of the above industries are based on four digit Compustat SIC codes transformed to 22 industries.

Firms with non-calendar year-ends and firms from the financial and utilities industries were excluded from both the sample and Compustat population.

HAD represents high accrual decile firms and LAD represents low accrual decile firms. The last column reports the percentage difference between firms of this sample and the Compustat population (excluding financial and utilities industries).

Table 4 **Mean Values of Selected Variables for 10 Portfolios of Firms Formed Annually by Assigning Firms into Deciles Based on the Magnitude of Deflated Operating Accruals**
Sample Period: 1982 to 2008

Panel A: Components of Earnings

Variable	Lagged Portfolio Accrual Ranking*									
	Lowest	2	3	4	5	6	7	8	9	Highest
Observations	2955	3532	3707	3778	3812	3868	3754	3830	3715	3213
EFO	-0.361	-0.081	-0.033	-0.016	-0.015	-0.004	-0.012	-0.011	-0.030	-0.153
CFO	-0.102	0.061	0.076	0.076	0.063	0.058	0.043	0.030	-0.010	-0.161
OAC	-0.289	-0.131	-0.092	-0.069	-0.051	-0.034	-0.017	0.006	0.044	0.175
CA	-0.095	-0.027	-0.010	0.004	0.012	0.021	0.034	0.053	0.094	0.200
CL	0.093	0.029	0.018	0.017	0.015	0.012	0.012	0.011	0.015	0.003
DEPN	0.086	0.074	0.063	0.055	0.048	0.043	0.038	0.036	0.035	0.035
OAC_COMP	-0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013
AVGA	597	1,812	2,688	2,996	3,153	3,005	2,291	1,528	876	384
NOA	364	1,063	1,503	1,566	1,500	1,396	965	688	431	203
Growth-assets	0.121	0.099	0.104	0.126	0.118	0.128	0.162	0.186	0.264	0.505
Growth-sales	4.464	0.359	0.177	0.343	0.386	0.230	0.226	2.473	0.564	0.963

Panel B: Conservatism Proxies

Variable	Lagged Portfolio Accrual Ranking*									
	Lowest	2	3	4	5	6	7	8	9	Highest
Observations	2955	3532	3707	3778	3812	3868	3754	3830	3715	3213
OAC	-0.289	-0.131	-0.092	-0.069	-0.051	-0.034	-0.017	0.006	0.044	0.175
CONSQ	1.989	2.049	2.002	2.036	2.008	1.999	2.017	2.002	1.979	2.017
CONSQ x OAC	-0.576	-0.268	-0.184	-0.140	-0.102	-0.068	-0.034	0.011	0.087	0.353
CNTRT	1.27	1.35	1.36	1.36	1.34	1.37	1.37	1.37	1.38	1.32
LIT	1.03	1.08	1.08	1.08	1.08	1.10	1.10	1.11	1.08	1.01
REG	0.16	0.29	0.31	0.36	0.40	0.40	0.36	0.32	0.26	0.16
TAX	0.44	0.50	0.59	0.58	0.61	0.61	0.61	0.62	0.64	0.60

Panel C: Persistence

Variable	Lagged Portfolio Accrual Ranking*									
	Lowest	2	3	4	5	6	7	8	9	Highest
OAC	-0.289	-0.131	-0.092	-0.069	-0.051	-0.034	-0.017	0.006	0.044	0.175
CFO_PERS	1.054	1.070	1.059	1.080	1.123	0.941	1.081	0.988	1.051	1.083
OAC_PERS	0.718	0.451	0.759	0.398	0.447	0.837	0.947	1.011	0.928	-0.093

*The average number of observations in each decile is 3,616 except for the conservatism drivers and growth variables.

The conservatism drivers average 2,268 per decile and they growth variables average 3000 per decile. Each decile has a slightly different number of observations because they are averages of deciles by year and each year had a different number of observations.

OAC_COMP is the difference between OAC and its components, CA, CL, and DEPN. Since OAC makes up its components, this variable should be close to zero. Variation from zero is because each component is put into deciles by year, which could be different from the OAC decile. Growth-assets and Growth-sales are the percentage changes for total assets and net sales, respectively.

All other variable descriptions are the same as listed in Table 2 and detailed in Appendix B.

All variables were winsorized at 1 percent and 99 percent of their respective distributions.

Table 5 Correlation Matrix for Earnings Persistence Variables
Sample Period: 1982 to 2008

Pearson (above) / Spearman (below)

Variable	EFO	CFO	OAC	CONSQ	CNTRT	LIT	REG	TAX	AVGA
EFO		0.750	0.168	0.064	0.097	-0.010 *	0.182	0.083	0.103
CFO	0.596		-0.020	0.056	0.116	-0.027	0.216	0.104	0.127
OAC	0.125	-0.262		0.021	-0.004 *	-0.013 *	-0.006 *	0.054	-0.024
CONSQ	0.147	0.120	-0.002 *		0.036	0.152	0.081	-0.026	0.021
CNTRT	0.063	0.106	-0.011 *	0.044		0.148	0.150	-0.025	-0.055
LIT	-0.028	-0.015 *	-0.012 *	0.153	0.157		0.142	-0.022	0.079
REG	0.197	0.231	-0.012 *	0.081	0.177	0.135		0.041	0.406
TAX	0.281	0.170	0.120	0.009 *	-0.030	-0.054	0.036		0.008 *
AVGA	0.282	0.370	-0.040	0.006 *	0.284	0.140	0.662	0.023	

All correlations are significant at below the 5 percent level except ones marked with an *, which are insignificant at the 5 percent level.

Sample size is 36,164 for all correlations except for correlations with the conservatism drivers. The latter have a sample size of size of 14,503 to properly match with CONSQ and in the regression analysis.

All variable descriptions are the same as listed in Table 2 and detailed in Appendix B.

All variables were winsorized at 1 percent and 99 percent of their respective distributions.

Table 6 Ordinary Least Squares Regressions of One-Year-Ahead Earnings on Cash Flows, Operating Accruals, and Overall Degree of Conservatism

$$\text{Equation (4c): } EFO_{i,t+1} = \alpha + \pi_1 CFO_{it} + \pi_2 OAC_{it} + \pi_3 (CONSQ_{it}) + \pi_4 (OAC_{it} * CONSQ_{it}) + \pi_5 (HAD_{it}) + \pi_6 (OAC_{it} * HAD_{it}) + \pi_7 (CONSQ_{it} * HAD_{it}) + \pi_8 (OAC_{it} * CONSQ_{it} * HAD_{it}) + \varepsilon_{i,t+1}$$

Panel A Pooled Cross-Sectional Time Series Regressions
Sample Period: 1982 to 2008

Variable	Prediction					HAD & LAD ONLY	
		Coefficient Estimate	Standard Error	Coefficient Estimate	Standard Error	Coefficient Estimate	Standard Error
intercept		-0.059 *** (-34.10)	0.002	-0.070 *** (-20.52)	0.003	0.000 (-0.01)	0.042
CFO	+	1.089 *** (71.14)	0.015	1.090 *** (70.90)	0.015	1.035 *** (38.80)	0.027
OAC	+	0.576 *** (21.08)	0.027	0.541 *** (10.05)	0.054	0.964 *** (6.43)	0.150
CONSQ	?			0.006 *** (4.51)	0.001	-0.044 *** (-2.70)	0.016
OAC*CONSQ	+			0.020 (1.00)	0.020	-0.216 *** (-3.60)	0.060
HAD	?					0.162 *** (3.17)	0.051
OAC*HAD	-					-2.031 *** (-7.35)	0.276
CONSQ*HAD	?					-0.024 (-1.19)	0.020
OAC*CONSQ*HAD	+					0.732 *** (7.19)	0.102
Number of observations		36,164		36,164		6,167	
Adjusted R-squared		59.5%		59.6%		58.9%	

Panel B Annual Fama-MacBeth Regressions
Sample Period: 1982 to 2008

Variable	Prediction					HAD & LAD ONLY	
		Coefficient Estimate	Standard Error	Coefficient Estimate	Standard Error	Coefficient Estimate	Standard Error
intercept		-0.044 *** (-6.62)	0.035	-0.052 *** (-6.05)	0.044	-0.032 (-0.75)	0.222
CFO	+	0.937 *** (25.85)	0.188	0.938 *** (26.03)	0.187	0.827 *** (19.87)	0.216
OAC	+	0.533 *** (24.50)	0.113	0.496 *** (14.36)	0.179	0.671 *** (4.08)	0.855
CONSQ	?			0.004 ** (2.43)	0.008	-0.028 (-1.45)	0.101
OAC*CONSQ	+			0.020 * (1.75)	0.060	-0.125 (-1.56)	0.417
HAD	?					0.097 ** (2.21)	0.229
OAC*HAD	-					-1.099 *** (-3.25)	1.758
CONSQ*HAD	?					-0.014 (-0.95)	0.079
OAC*CONSQ*HAD	+					0.442 ** (2.59)	0.888
Average observations per year		1,339		1,339		228	
Adjusted R-squared		53.7%		53.9%		50.1%	

*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

The first set of columns represent the results for Equation (4c) without any conservatism variables.

The Standard errors are clustered standard errors, which are White (1980) standard errors adjusted and robust to firm and fiscal year correlation, also known as Rogers standard errors. The t-statistics are in parentheses and t-statistics in Panel B are Fama-MacBeth t-statistics.

HAD is an indicator variable, which equals 1 if a firm belongs to highest accrual decile and 0 otherwise. LAD represents the lowest accrual decile.

OAC*CONSQ is an interaction variable of accruals multiplied by overall degree of conservatism. A positive coefficient would represent that CONSQ increases accrual persistence in explaining EFO.

OAC*HAD is an interaction variable of accruals multiplied by HAD. A negative coefficient would represent lower accrual persistence in explaining EFO for HAD firms relative to LAD firms.

CONSQ*HAD is an interaction variable of CONSQ multiplied by HAD. A positive coefficient would mean an increase in CONSQ increases EFO more in HAD firms relative to LAD firms.

OAC*CONSQ*HAD is an interaction variable of accruals multiplied by overall degree of conservatism multiplied by HAD. A positive coefficient would mean that CONSQ increases accrual persistence more in HAD firms relative to LAD firms.

The third set of columns are run using only firm-year observations from LAD and HAD firms. Parameter estimations, other than the triple interaction, are to be interpreted with caution.

All other variable descriptions are the same as listed in Table 2 and detailed in Appendix B.

All variables were winsorized at 1 percent and 99 percent of their respective distributions.

Table 7 Ordinary Least Squares Regressions of One-Year-Ahead Earnings on Cash Flows, Operating Accruals, and Conservatism Drivers

$$\text{Equation (4e): } EFO_{i,t+1} = \alpha + \pi_1 CFO_{it} + \pi_2 OAC_{it} + \sum_{k=1}^K \pi_{3,k} (\omega_{k,it}) + \sum_{k=1}^K \pi_{4,k} (\omega_{k,it} \times OAC_{it}) + \pi_5 (HAD_{it}) + \pi_6 (OAC_{it} \times HAD_{it}) + \sum_{k=1}^K \pi_{7,k} (\omega_{k,it} \times HAD_{it}) + \sum_{k=1}^K \pi_{8,k} (OAC_{it} \times \omega_{k,it} \times HAD_{it})$$

Panel A Pooled Cross-Sectional Time Series Regressions
Sample Period: 1982 to 2008

Variable	Prediction	Coefficient		Standard Error	Coefficient		Standard Error	HAD & LAD ONLY	
		Estimate	Error		Estimate	Error		Coefficient Estimate	Standard Error
intercept		-0.046 *** (-24.02)	0.002		-0.050 *** (-7.58)	0.007		0.132 (1.29)	0.102
CFO	+	1.022 *** (51.35)	0.020		1.018 *** (49.52)	0.021		1.017 *** (28.83)	0.035
OAC	+	0.655 *** (21.51)	0.030		1.072 *** (10.99)	0.098		2.143 *** (4.85)	0.442
CNTRT	?				-0.007 *** (-2.64)	0.003		-0.189 ** (-2.54)	0.074
LIT	?				0.006 * (1.77)	0.004		0.000 (0.01)	0.044
REG	?				0.017 *** (7.30)	0.002		0.066 (1.09)	0.061
TAX	?				0.000 (-0.01)	0.006		0.041 * (1.85)	0.022
OAC*CNTRT	+				-0.298 *** (-5.30)	0.056		-1.150 *** (-3.34)	0.345
OAC*LIT	+				-0.070 (-1.48)	0.047		-0.179 (-1.05)	0.170
OAC*REG	?				0.026 (0.66)	0.039		0.246 (0.83)	0.296
OAC*TAX	?				0.054 * (1.69)	0.032		0.121 ** (2.12)	0.057
HAD	?							-0.184 (-1.57)	0.117
OAC*HAD	-							-1.519 *** (-2.69)	0.565
CNTRT*HAD	?							0.239 *** (2.97)	0.080
LIT*HAD	?							-0.042 (-0.83)	0.050
REG*HAD	?							-0.039 (-0.59)	0.066
TAX*HAD	?							-0.081 *** (-2.98)	0.027
OAC*CNTRT*HAD	+							0.759 * (1.90)	0.400
OAC*LIT*HAD	+							0.463 ** (2.00)	0.232
OAC*REG*HAD	?							-0.341 (-1.00)	0.340
OAC*TAX*HAD	?							0.151 (1.58)	0.096
Number of observations		22,677			22,677			3,689	
Adjusted R-squared		60.0%			61.0%			60.0%	

Panel B Annual Fama-MacBeth Regressions
Sample Period: 1982 to 2008

Variable	Prediction	Coefficient		Standard Error	Coefficient		Standard Error	HAD & LAD ONLY	
		Estimate			Estimate	Error		Coefficient Estimate	Standard Error
intercept		-0.039 *** (-7.23)		0.028	-0.079 *** (-8.28)	0.048		-0.115 (-0.98)	0.599
CFO	+	0.954 *** (27.72)		0.175	0.933 *** (26.97)	0.176		0.839 *** (13.47)	0.318
OAC	+	0.590 *** (18.15)		0.166	0.786 *** (8.52)	0.470		1.408 ** (2.47)	2.905
CNTRT	?				0.013 *** (2.91)	0.023		-0.082 (-0.71)	0.587
LIT	?				0.000 (0.12)	0.019		0.046 (0.59)	0.395
REG	?				0.016 *** (7.50)	0.011		4.311 (1.02)	21.551
TAX	?				0.019 *** (3.30)	0.029		0.023 (0.20)	0.588
OAC*CNTRT	+				-0.136 *** -(3.14)	0.221		-0.985 (-1.52)	3.306
OAC*LIT	+				-0.045 -(0.94)	0.245		0.107 (0.30)	1.820
OAC*REG	?				0.013 (0.38)	0.174		23.811 (1.01)	119.883
OAC*TAX	?				0.010 (0.15)	0.339		-0.270 (-0.62)	2.214
HAD	?							-0.012 (-0.08)	0.760
OAC*HAD	-							-0.853 (-1.49)	2.912
CNTRT*HAD	?							0.134 (1.07)	0.642
LIT*HAD	?							-0.058 (-0.76)	0.387
REG*HAD	?							-4.807 (-1.01)	24.295
TAX*HAD	?							0.014 (0.12)	0.578
OAC*CNTRT*HAD	+							0.886 (1.31)	3.444
OAC*LIT*HAD	+							-0.088 -(0.21)	2.178
OAC*REG*HAD	?							-17.264 -(1.03)	85.132
OAC*TAX*HAD	?							0.271 (0.56)	2.471
Average observations per year		872			872			142	
Adjusted R-squared		59.7%			61.4%			61.0%	

*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

The first set of columns represent the results for Equation (4e) without any conservatism variables.

The Standard errors are clustered standard errors, which are White (1980) standard errors adjusted and robust to firm and fiscal year correlation, also known as Rogers standard errors. The t-statistics are in parentheses and t-statistics in Panel B are Fama-MacBeth t-statistics.

HAD is an indicator variable, which equals 1 if a firm belongs to highest accrual decile and 0 otherwise. LAD represents the lowest accrual decile. equals 1 if a firm belongs to lowest accrual decile, otherwise 0.

OAC*HAD is an interaction variable of accruals multiplied by HAD. A negative coefficient would represent lower accrual persistence in explaining EFO for HAD firms relative to LAD firms.

OAC*CNTRT is an interaction variable of accruals multiplied by overall degree of conservatism. A positive coefficient would represent that CONSO increases accrual persistence in explaining EFO. Similar interpretations can be made for OAC*LIT, OAC*REG, and OAC*TAX.

CNTRT*HAD is an interaction variable of CNTRT multiplied by HAD. A positive coefficient would mean an increase in CNTRT increases EFO more in HAD firms relative to LAD firms. Similar interpretations can be made for LIT*HAD, REG*HAD, and TAX*HAD.

OAC*CNTRT*HAD is an interaction variable of accruals multiplied by overall degree of conservatism multiplied by HAD. A positive coefficient would mean that CNTRT increases accrual persistence more in HAD firms relative to LAD firms. Similarly for LIT*HAD, REG*HAD, and TAX*HAD.

ω_k is a symbol used to represent the “k” type of conservatism driver where k represents C, L, R, T.

The third set of columns are run using only firm-year observations from LAD and HAD firms. Parameter estimations, other than the triple interaction, are to be interpreted with caution.

All other variable descriptions are the same as listed in Table 2 and detailed in Appendix B.

All variables were winsorized at 1 percent and 99 percent of their respective distributions.

Table 8 Descriptive Statistics for Returns, Conservatism, and Control Variables
Sample Period: 1982 to 2008

Panel A Abnormal Returns Variables

Variable	Obs.	Mean	Std. Dev.	Median	25 th percentile	75 th percentile
SAR	27,681	0.006	0.612	-0.095	-0.375	0.231
BHR	27,681	0.146	0.612	0.045	-0.235	0.371
DIVY	27,681	1.020	1.825	0.000	0.000	1.533
DIVY2	27,681	4.373	13.350	0.000	0.000	2.350
BETA	27,681	1.209	0.909	1.043	0.652	1.592
BTM	27,681	0.654	0.579	0.496	0.291	0.822
LnBTM	27,681	-0.754	0.866	-0.701	-1.235	-0.196
MV	27,681	1,710	4,246	231	55	1,052
LnMV	27,681	5.472	2.057	5.393	3.990	6.890
LEV	27,681	2.636	3.093	1.895	1.419	2.677
EYLD	27,681	-2.967	33.048	3.879	-1.861	6.961
NEYLD	27,681	0.290	0.454	0.000	0.000	1.000

Panel B Cash Flows, Operating Accruals, and Conservatism Variables

Variable	Obs.	Mean	Std. Dev.	Median	25 th percentile	75 th percentile
CFO*	27,681	0.054	0.174	0.082	0.015	0.139
OAC*	27,681	-0.038	0.096	-0.040	-0.082	0.003
CONSQ	27,681	2.088	1.370	2.000	1.000	3.000
CNTRT	14,947	1.405	0.439	1.473	1.035	1.775
LIT	14,947	1.111	0.535	1.000	1.000	1.000
REG	14,947	0.335	0.472	0.000	0.000	1.000
TAX	14,947	0.605	0.750	0.722	0.324	0.922

* These variables have been deflated by total assets. Both the variable and total assets are in millions of dollars.

SAR is	one-year-ahead annual size-adjusted buy-and-hold stock returns, calculated for 12 months starting in May of the year following accrual and conservatism ranking for firm <i>i</i> ; size adjustment is the associated value weighted CRSP return for the same size-matched decile;
BHR is	one-year-ahead annual buy-and-hold stock returns, calculated for 12 months starting on May 1 of the year following accrual and conservatism ranking for firm <i>i</i> obtained from CRSP;
DIVY is	dividend yield (in percent), and equals 0 for firm-years with no annual dividends; [Compustat Mnemonic DVYDF]
DIVY2 is	dividend yield (DIVY) squared;
BETA is	capital asset pricing model (CAPM) beta for firm <i>i</i> ; BETA is estimated from a regression of 48 monthly CRSP raw returns on the CRSP value-weighted monthly stock returns up to the last month of fiscal year <i>t</i> ;
MV is	CRSP market value of common stock (in millions);
LnMV is	the natural logarithm of CRSP market value of common stock (in millions);
LnBTM is	the natural logarithm of the inverse of price to book ratio [Compustat Mnemonic MKBKF];
LEV is	leverage, calculated as book value of total assets to book value of equity [Compustat item #A60];
EYLD is	earnings-to-price ratio multiplied by 100; [Compustat item #A123] divided by the year end price [Compustat item #A199];
NEYLD is	negative earnings indicator equal to 1, if EYLD is negative, 0 otherwise;
OAC is	operating accruals [computed as CA – CL – DEPN as defined in Table 2], deflated by AVGA;
CONSQ is	proxy for overall degree of conservatism determined by the average of AT, PTB, and RES (defined in Table 2) converted to quintiles;
CNTRT is	contracting conservatism driver proxy equal to the percentage of institutional ownership plus the ratio of private debt to total debt; [See appendix B for Computstat item numbers]
LIT is	litigation conservatism driver proxy is an indicator variable equal to one if a firm had a "BIG" auditor plus one if it was in a high litigation industry; approximately 80% are audited by "BIG" auditors and 20% are in a high litigation industry; [See appendix B for Computstat item numbers]
REG is	regulation conservatism driver proxy is an indicator variable, equal to 1 if firm was in the top sales quartile within its industry;
TAX is	taxation conservatism driver proxy equal to the association between book income and tax income estimated from time series regressions of income taxes on tax expense;

See Appendix B for further detailed descriptions.

All variables were winsorized at 1 percent and 99 percent of their respective distributions.

Table 9 **Mean Values of Selected Variables for 10 Portfolios of Firms Formed Annually**
by Assigning Firms into Deciles Based on the Magnitude of Deflated Operating Accruals
Sample Period: 1982 to 2008

Panel A: Return Related Variables Average of 2,768 observations per decile

Variable	Lowest	Lagged Portfolio Accrual Ranking*								Highest
		2	3	4	5	6	7	8	9	
Observations	1685	2629	2940	2998	3062	3131	3058	3109	2884	2185
SAR	0.046	0.032	0.020	0.020	0.018	0.001	-0.001	-0.004	-0.026	-0.035
BHR	0.186	0.172	0.160	0.160	0.158	0.141	0.139	0.136	0.114	0.105
DIVY	0.611	0.912	1.273	1.318	1.390	1.197	1.107	0.903	0.692	0.425
BETA	1.336	1.237	1.155	1.142	1.121	1.143	1.184	1.248	1.282	1.341
MV	515	1,295	1,976	2,259	2,623	2,485	2,007	1,419	984	594
LEV	3.328	2.848	2.861	2.756	2.774	2.539	2.492	2.470	2.246	2.273
EYLD	-26.658	-11.219	-4.280	-1.213	-0.508	0.665	0.210	1.111	1.372	-0.036
NEYLD	0.630	0.443	0.329	0.279	0.248	0.228	0.235	0.220	0.212	0.227
AVGA	504	1,505	2,317	2,567	2,878	2,774	2,143	1,322	822	478
CFO	0.070	0.090	0.095	0.089	0.075	0.066	0.051	0.042	0.010	-0.076

Panel B: Accrual and Conservatism Variables Average of 2,768 observations per decile

Variable	Lowest	Lagged Portfolio Accrual Ranking*								Highest
		2	3	4	5	6	7	8	9	
OAC	-0.246	-0.130	-0.092	-0.069	-0.051	-0.034	-0.017	0.006	0.044	0.158
CONSQ	2.335	2.142	2.073	2.092	2.069	2.058	2.040	2.038	2.047	2.104
CNTRT	1.336	1.420	1.404	1.411	1.399	1.418	1.413	1.414	1.419	1.372
LIT	1.102	1.103	1.101	1.107	1.105	1.120	1.131	1.135	1.118	1.075
REG	0.177	0.300	0.333	0.365	0.416	0.413	0.379	0.330	0.282	0.210
TAX	0.467	0.524	0.597	0.609	0.617	0.619	0.621	0.622	0.667	0.642

*The number of observations in each decile are different because they are they averages of the deciles by year and each year had a different number of observations. Accruals are working capital accruals (OAC).

All other variable descriptions are the same as listed in Table 8 and detailed in Appendix B.

All variables were winsorized at 1 percent and 99 percent of their respective distributions.

Table 10 Correlation Matrix for Returns Model Variables
Sample Period: 1982 to 2008

	Pearson (above) / Spearman (below)																
Variable	SAR	DIVY	DIVY2	BETA	LnBTM	LnMV	LEV	EYLD	NEYLD	CFO	OAC	CONSQ	CNTRT	LIT	REG	TAX	AVGA
SAR		0.033	0.032	-0.043	0.130	-0.112	0.024	-0.064	0.000 *	0.019	-0.029	-0.026 *	-0.036	0.013 *	-0.025	0.037	-0.027
DIVY	0.114		0.893	-0.197	0.168	0.173	0.015	0.125	-0.207	0.176	-0.041	-0.071	-0.238	-0.076	0.161	0.051	0.191
DIVY2	0.114	1.000		-0.116	0.140	0.061	0.028	0.063	-0.102	0.099	-0.042	-0.069	-0.200	-0.058	0.065	0.002 *	0.094
BETA	-0.094	-0.253	-0.253		-0.164	0.045	-0.023	-0.142	0.223	-0.204	0.011 *	0.127	0.011	0.150	-0.055	-0.032	-0.075
LnBTM	0.138	0.127	0.127	-0.163		-0.354	-0.289	-0.097	-0.010 *	0.112	-0.057	-0.549	-0.172	-0.156	-0.104	0.018 *	-0.066
LnMV	-0.029	0.304	0.304	0.060	-0.383		0.017 *	0.207	-0.264	0.264	-0.004 *	0.204	0.329	0.163	0.617	0.028	0.560
LEV	0.049	0.175	0.175	-0.143	0.008 *	0.125		-0.152	0.102	-0.028	-0.087	0.051	0.048	-0.030	0.075	-0.056	0.077
EYLD	0.120	0.380	0.380	-0.228	0.148	0.147	0.067		-0.451	0.308	0.197	0.023	0.020	-0.050	0.104	0.087	0.067
NEYLD	-0.081	-0.309	-0.309	0.201	0.020	-0.263	-0.012 *	-0.786		-0.503	-0.208	0.002 *	-0.024	0.101	-0.197	-0.150	-0.126
CFO	0.093	0.271	0.271	-0.185	-0.114	0.330	-0.021	0.479	-0.529		-0.214	-0.002 *	0.103	-0.123	0.206	0.135	0.116
OAC	-0.038	-0.040	-0.040	0.043	-0.084	-0.014	-0.127	0.182	-0.203	-0.329		-0.031	-0.040	-0.016	-0.015 *	0.053	-0.034
CONSQ	-0.036	-0.043	-0.043	0.131	-0.588	0.198	-0.091	-0.087	0.004 *	0.121	-0.029		0.027	0.143	0.082	-0.028	0.032
CNTRT	-0.026	-0.178	-0.178	-0.002 *	-0.193	0.365	0.100	-0.069	-0.051	0.115	-0.027	0.034		0.137	0.184	-0.022	0.053
LIT	0.001 *	-0.090	-0.090	0.154	-0.158	0.141	-0.096	-0.134	0.108	-0.047	-0.010 *	0.144	0.147		0.108	-0.016 *	0.059
REG	0.033	0.270	0.270	-0.027	-0.125	0.627	0.223	0.130	-0.197	0.201	-0.006 *	0.081	0.210	0.100		0.035	0.401
TAX	0.078	0.162	0.162	-0.091	-0.018 *	0.007 *	-0.153	0.180	-0.202	0.129	0.128	0.002 *	-0.030	-0.075	0.013 *		-0.004 *
AVGA	0.043	0.391	0.391	-0.031	-0.070	0.895	0.350	0.209	-0.269	0.299	-0.060 *	-0.007 *	0.331	0.078	0.660	-0.035	

All correlations are significant at below the 5 percent level except ones marked with an *, which are insignificant at the 5 percent level.

Sample size is 27,681 for all correlations except for correlations with the conservatism drivers. The latter have a sample size of size of 11,019 to properly match with CONSQ and in the regression analysis.

All variable descriptions are the same as listed in Table 8 and detailed in Appendix B.

All variables were winsorized at 1 percent and 99 percent of their respective distributions.

Table 11 **Annual Regressions of Future Returns on Operating Accruals, Overall Conservatism, and Control Variables-Firm Level**

Equation (5a): $SAR_{i,t+1} = \alpha + \beta_1 DIVY_{it} + \beta_2 DIVY2_{it} + \beta_3 BETA_{it} + \beta_4 LnBTM_{it} + \beta_5 LnMV_{it} + \beta_6 LEV_{it} + \beta_7 EYLD_{it} + \beta_8 NEYLD_{it} + \beta_9 CFO_{it} + \beta_{10} OAC_{it} + \beta_{11} CONSQ_{it} + \beta_{12} (OAC_{it} * CONSQ_{it}) + \beta_{13} HAD_{it} + \beta_{14} (OAC_{it} * HAD_{it}) + \beta_{15} (CONSQ_{it} * HAD_{it}) + \beta_{16} (OAC_{it} * CONSQ_{it} * HAD_{it}) + \varepsilon_{i,t+1}$

Panel A		Pooled Cross-Sectional Time Series Regressions				HAD & LAD ONLY	
		Sample Period: 1982 to 2008					
Variable	Prediction	Coefficient Estimate	Standard Error	Coefficient Estimate	Standard Error	Coefficient Estimate	Standard Error
intercept		0.178 *** (12.79)	0.014	0.128 *** (8.74)	0.015	0.251 ** (2.22)	0.113
DIVY	-	0.012 *** (2.83)	0.004	0.009 ** (2.21)	0.004	0.024 (1.53)	0.016
DIVY2	+	-0.001 (-1.04)	0.001	0.000 (-0.63)	0.001	-0.004 * (-1.85)	0.002
BETA	+	-0.008 (-1.57)	0.005	-0.010 ** (-1.96)	0.005	-0.011 (-0.80)	0.013
LnBTM	+	0.070 *** (12.20)	0.006	0.101 *** (15.16)	0.007	0.118 *** (6.71)	0.018
LnMV	-	-0.026 *** (-12.36)	0.002	-0.025 *** (-12.04)	0.002	-0.039 *** (-5.44)	0.007
LEV	+	0.010 *** (5.94)	0.002	0.012 *** (7.16)	0.002	0.009 ** (2.09)	0.004
EYLD	?	-0.001 *** (-4.37)	0.000	-0.001 *** (-3.94)	0.000	-0.001 (-1.55)	0.000
NEYLD	-	-0.047 *** (-3.76)	0.012	-0.048 *** (-3.93)	0.012	-0.019 (-0.55)	0.034
CFO	+	0.076 ** (2.13)	0.036	0.051 (1.41)	0.036	0.006 (0.09)	0.073
OAC	-	-0.067 (-1.28)	0.052	-0.197 ** (-2.24)	0.088	0.332 (0.80)	0.413
CONSQ	?			0.034 *** (9.86)	0.003	0.043 (1.07)	0.040
OAC*CONSQ	+			0.066 * (1.92)	0.035	-0.036 (-0.24)	0.148
HAD	?					0.074 (0.60)	0.123
OAC*HAD	-					-1.455 *** (-2.77)	0.525
CONSQ*HAD	?					-0.070 (-1.54)	0.046
OAC*CONSQ*HAD	+					0.529 ** (2.56)	0.207
Number of observations		27,681		27,681		3,870	
Adjusted R-squared		2.9%		3.2%		4.4%	

Panel B		Annual Fama-MacBeth Regressions				HAD & LAD ONLY	
		Sample Period: 1982 to 2008					
Variable	Prediction	Coefficient Estimate	Standard Error	Coefficient Estimate	Standard Error	Coefficient Estimate	Standard Error
intercept		0.071 (0.99)	0.372	0.049 (0.71)	0.357	0.119 (0.58)	1.067
DIVY	-	-0.002 (-0.28)	0.044	-0.003 (-0.33)	0.044	0.028 (1.67)	0.086
DIVY2	+	0.000 (-0.02)	0.005	0.000 (0.06)	0.005	-0.001 (-0.28)	0.022
BETA	+	-0.012 (-0.86)	0.072	-0.012 (-0.92)	0.070	0.036 (0.57)	0.328
LnBTM	+	0.034 ** (2.20)	0.081	0.048 *** (3.34)	0.075	0.012 (0.34)	0.178
LnMV	-	-0.011 (-1.66)	0.036	-0.012 (-1.69)	0.036	-0.016 (-1.26)	0.068
LEV	+	0.009 * (1.89)	0.024	0.010 ** (2.16)	0.023	0.002 (0.27)	0.031
EYLD	?	0.000 (-1.28)	0.001	0.000 (-1.03)	0.001	0.000 (-0.10)	0.005
NEYLD	-	-0.025 (-1.53)	0.083	-0.028 * (-1.78)	0.081	0.019 (0.28)	0.342
CFO	+	0.106 (1.69)	0.326	0.087 (1.33)	0.342	0.164 (0.67)	1.268
OAC	-	-0.109 ** (-2.02)	0.275	-0.212 ** (-2.23)	0.494	0.357 (0.66)	2.799
CONSQ	?			0.015 *** (2.78)	0.027	-0.016 (-0.34)	0.242
OAC*CONSQ	+			0.046 (1.44)	0.167	0.000 (0.00)	1.011
HAD	?					-0.167 (-1.34)	0.651
OAC*HAD	-					-0.507 (-0.71)	3.707
CONSQ*HAD	?					0.003 (0.07)	0.230
OAC*CONSQ*HAD	+					0.245 (0.86)	1.485
Average observations per year		1,025		1,025		143	
Adjusted R-squared		7.9%		7.9%		10.0%	

*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

The Standard errors are clustered standard errors, which are White (1980) standard errors adjusted and robust to firm and fiscal year correlation, also known as Rogers standard errors. The t-statistics are in parentheses and t-statistics in Panel B are Fama-MacBeth t-statistics.

SAR is one-year-ahead annual size-adjusted buy-and-hold stock returns, calculated for 12 months starting in May of the year following accrual and conservatism ranking for firm i ;

size adjustment is the associated value weighted average CRSP return for firms in the same size-matched decile;

HAD is an indicator variable, which equals 1 if a firm belongs to highest accrual decile and 0 otherwise.

OAC*CONSQ is an interaction variable of accruals multiplied by overall degree of conservatism. A positive coefficient would represent that CONSQ decreases the negative affect on returns from accruals.

OAC*HAD is an interaction variable of accruals multiplied by HAD. A negative coefficient would represent lower future returns for HAD firms relative to LAD firms

CONSQ*HAD is an interaction variable of CONSQ multiplied by HAD. A positive coefficient would mean an increase in CONSQ increases future returns more in HAD firms relative to LAD firms.

OAC*CONSQ*HAD is an interaction variable of accruals multiplied by overall degree of conservatism multiplied by HAD. A positive coefficient would mean that CONSQ reduces the negative affect accruals have on future returns more in HAD firms relative to LAD firms.

The third set of columns are run using only firm-year observations from LAD and HAD firms. Parameter estimations, other than the triple interaction, are to be interpreted with caution.

All other variable descriptions are the same as listed in Table 2 and detailed in Appendix B.

All variables were winsorized at 1 percent and 99 percent of their respective distributions.

Table 12 **Annual Regressions of Future Returns on Operating Accruals, Conservatism Drivers, and Control Variables-Firm Level**

Equation (5b): $SAR_{i,t+1} = \alpha + \beta_1 DIVY_{it} + \beta_2 DIVY2_{it} + \beta_3 BETA_{it} + \beta_4 LnBTM_{it} + \beta_5 LnMV_{it} + \beta_6 LEV_{it} + \beta_7 EYLD_{it}$

$+ \beta_8 NEYLD_{it} + \beta_9 CFO_{it} + \beta_{10} OAC_{it} + \sum_{k=1}^K \beta_{11,k} (\omega_k)_{it} + \sum_{k=1}^K \beta_{12,k} (OAC_{it} \times \omega_{k,it}) + \beta_{13} (HAD_{it}) + \beta_{14} (OAC_{it} * HAD_{it}) + \sum_{k=1}^K \beta_{15,k} (\omega_{k,it} * HAD_{it}) + \sum_{k=1}^K \beta_{16,k} (OAC_{it} * \omega_{k,it} * HAD_{it}) + \varepsilon_{i,t+1}$

Panel A

Pooled Cross-Sectional Time Series Regressions

Sample Period: 1982 to 2008

Variable	Prediction	Coefficient		Standard Error	Coefficient		Standard Error	HAD & LAD ONLY	
		Estimate			Estimate			Coefficient Estimate	Standard Error
intercept		0.221 *** (10.82)	0.020		0.109 *** (4.05)	0.027		0.025 (0.09)	0.262
DIVY	-	0.008 (1.41)	0.005		0.016 *** (2.73)	0.006		0.023 (0.98)	0.023
DIVY2	+	0.000 (-0.37)	0.001		-0.001 (-0.81)	0.001		-0.002 (-0.75)	0.003
BETA	+	-0.012 * (-1.71)	0.007		-0.014 ** (-2.04)	0.007		0.012 (0.66)	0.018
LnBTM	+	0.077 *** (9.66)	0.008		0.077 *** (9.49)	0.008		0.107 *** (5.05)	0.021
LnMV	-	-0.030 *** (-10.35)	0.003		-0.047 *** (-13.02)	0.004		-0.098 *** (-7.32)	0.013
LEV	+	0.011 *** (5.05)	0.002		0.011 *** (5.05)	0.002		0.015 ** (2.14)	0.007
EYLD	?	-0.001 ** (-2.27)	0.000		-0.001 ** (-2.05)	0.000		0.000 (-0.76)	0.001
NEYLD	-	-0.057 *** (-3.19)	0.018		-0.057 *** (-3.17)	0.018		-0.006 (-0.13)	0.048
CFO	+	0.084 (1.55)	0.054		0.094 * (1.73)	0.054		-0.005 (-0.04)	0.115
OAC	-	-0.143 * (-1.92)	0.074		0.024 (0.10)	0.231		0.105 (0.10)	1.079
CNTRT	?				0.061 *** (4.76)	0.013		0.208 (1.11)	0.188
LIT	?				0.076 *** (7.05)	0.011		0.219 * (1.91)	0.115
REG	?				0.064 *** (4.98)	0.013		0.503 *** (3.04)	0.165
TAX	?				0.028 *** (4.06)	0.007		0.079 (0.65)	0.121
OAC*CNTRT	+				-0.016 (-0.10)	0.150		-0.312 (-0.37)	0.844
OAC*LIT	+				-0.083 (-0.75)	0.110		0.390 (0.84)	0.464
OAC*REG	?				0.081 (0.59)	0.138		2.035 *** (2.98)	0.682
OAC*TAX	?				-0.131 (-1.57)	0.083		0.276 (0.42)	0.664
HAD	?							-0.056 (-0.19)	0.289
OAC*HAD	-							0.446 (0.32)	1.383
CNTRT*HAD	?							0.095 (0.45)	0.211
LIT*HAD	?							-0.145 (-1.11)	0.131
REG*HAD	?							-0.256 (-1.38)	0.186
TAX*HAD	?							-0.032 (-0.23)	0.137

OAC*CNTRT*HAD	+			-0.002	1.062
				(0.00)	
OAC*LIT*HAD	+			-0.464	0.581
				-(0.80)	
OAC*REG*HAD	?			-2.942 ***	0.899
				-(3.27)	
OAC*TAX*HAD	?			-0.605	0.847
				-(0.71)	
Number of observations		14,947	14,947	1,963	
Adjusted R-squared		3.3%	4.3%	9.0%	

Panel B		Annual Fama-MacBeth Regressions				HAD & LAD ONLY	
		Sample Period: 1982 to 2008					
Variable	Prediction	Coefficient Estimate	Standard Error	Coefficient Estimate	Standard Error	Coefficient Estimate	Standard Error
intercept		0.136 (1.70)	0.409	-0.025 (-0.33)	0.395	-18.542 (-0.47)	202.354
DIVY	-	-0.023 ** (-2.40)	0.050	-0.019 ** (-2.36)	0.042	0.511 (1.01)	2.588
DIVY2	+	0.003 ** (2.76)	0.006	0.003 *** (3.09)	0.005	-0.011 (-0.16)	0.372
BETA	+	0.003 (0.14)	0.095	-0.004 (-0.22)	0.092	0.740 (0.90)	4.188
LnBTM	+	0.038 * (1.88)	0.102	0.037 ** (2.07)	0.091	-4.897 (-0.98)	25.448
LnMV	-	-0.015 * (-1.81)	0.041	-0.024 ** (-2.77)	0.044	-0.032 (-1.10)	0.147
LEV	+	0.002 (0.42)	0.023	0.001 (0.24)	0.029	-0.048 (-0.99)	0.250
EYLD	?	-0.001 (-1.30)	0.003	-0.001 (-1.44)	0.004	-0.018 (-1.47)	0.063
NEYLD	-	-0.048 ** (-2.26)	0.108	-0.054 ** (-2.23)	0.124	-0.142 (-1.30)	0.556
CFO	+	0.087 (0.93)	0.474	0.038 (0.45)	0.432	-0.355 * (-1.71)	1.059
OAC	-	-0.173 ** -(2.10)	0.420	-0.184 -(0.43)	2.175	-15.571 (-0.09)	894.962
CNTRT	?			0.095 *** (3.71)	0.131	10.883 (0.27)	203.791
LIT	?			0.022 (1.41)	0.080	-3.777 (-0.23)	82.208
REG	?			0.032 (1.68)	0.098	109.380 (0.98)	571.705
TAX	?			0.066 *** (3.07)	0.109	-23.740 (-0.32)	380.325

OAC*CNTRT	+	0.284	1.281	-17.343	899.075
		(1.13)		-(0.10)	
OAC*LIT	+	-0.199 **	0.480	21.405	236.518
		-(2.12)		(0.46)	
OAC*REG	?	-0.188	1.228	630.219	3202.720
		-(0.78)		(1.00)	
OAC*TAX	?	-0.271	1.368	-141.822	1510.990
		-(1.01)		-(0.48)	
HAD	?			14.909	203.122
				(0.37)	
OAC*HAD	-			14.150	891.614
				(0.08)	
CNTRT*HAD	?			-10.947	204.279
				-(0.27)	
LIT*HAD	?			3.686	81.864
				(0.23)	
REG*HAD	?			-109.343	571.104
				-(0.98)	
TAX*HAD	?			24.613	378.129
				(0.33)	
OAC*CNTRT*HAD	+			20.195	895.677
				(0.11)	
OAC*LIT*HAD	+			-21.672	237.738
				-(0.46)	
OAC*REG*HAD	?			-630.639	3206.110
				-(1.00)	
OAC*TAX*HAD	?			138.362	1518.310
				(0.46)	
Average observations per year		575	575	75.5	
Adjusted R-squared		8.4%	11.1%	22.4	

*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

The Standard errors are clustered standard errors, which are White (1980) standard errors adjusted and robust to firm and fiscal year correlation, also known as Rogers standard errors. The t-statistics are in parentheses and t-statistics in Panel B are Fama-MacBeth t-statistics.

HAD is an indicator variable, which equals 1 if a firm belongs to highest accrual decile and 0 otherwise.

OAC*HAD is an interaction variable of accruals multiplied by HAD. A negative coefficient would represent lower retruns from accruals for HAD firms relative to LAD firms.

OAC*CNTRT is an interaction variable of accruals multiplied by overall degree of conservatism. A postive coefficient would represent that CONSQ incrementally increases future returns from accruals. Similar intrepretations can be made for OAC*LIT, OAC*REG, and OAC*TAX.

CNTRT*HAD is an interaction variable of CNTRT multiplied by HAD. A positive coefficient would mean an increase in CNTRT increases future returns more in HAD firms relative to LAD firms. Similar intrepretations can be made for LIT*HAD, REG*HAD, and TAX*HAD.

OAC*CNTRT*HAD is an interaction variable of accruals multiplied by overall degree of conservatism multiplied by HAD. A postive coefficient would mean that CNTRT incrementally increases returns from accruals more in HAD firms relative to LAD firms. Similarly for LIT*HAD, REG*HAD, and TAX*HAD.

ω_k is a symbol used to represent the “k” type of conservatism driver where k represents C, L, R, T.

The third set of columns are run using only firm-year observations from LAD and HAD firms. Parameter estimations, other than the triple interaction, are to be interpreted with caution.

All other variable descriptions are the same as listed in Table 8 and detailed in Appendix B.

All variables were winsorized at 1 percent and 99 percent of their respective distributions.

Table 13 Time-Series Averages of Equal Weighted Portfolio Abnormal Stock Returns by Operating Accrual Decile and Conservatism Quintiles
Sample Period: 1982 to 2008

Panel A Buy-and-Hold Size Adjusted Returns						
Accrual Decile	Average By Decile	Conservatism Quintiles				
		<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>1</i>	0.036 (0.58)	0.046 (0.69)	0.018 (0.28)	0.042 (0.64)	0.035 (0.47)	-0.008 (-0.09)
<i>2</i>	0.016 (0.31)	0.018 (0.32)	0.077 (1.29)	0.013 (0.23)	-0.014 (-0.26)	-0.048 (-0.85)
<i>3</i>	0.023 (0.52)	0.045 (1.01)	0.047 (1.05)	0.014 (0.30)	0.018 (0.40)	-0.024 (-0.43)
<i>4</i>	0.029 (0.64)	0.001 (0.03)	0.025 (0.46)	0.039 (0.84)	0.009 (0.20)	0.021 (0.41)
<i>5</i>	0.022 (0.53)	0.016 (0.34)	-0.021 (-0.45)	0.047 (0.97)	0.015 (0.35)	0.033 (0.71)
<i>6</i>	0.002 (0.04)	0.015 (0.29)	-0.003 (-0.06)	-0.012 (-0.26)	0.009 (0.22)	-0.023 (-0.59)
<i>7</i>	-0.007 (-0.16)	-0.021 (-0.42)	-0.019 (-0.46)	0.028 (0.51)	-0.050 (-1.07)	-0.006 (-0.11)
<i>8</i>	-0.007 (-0.15)	0.030 (0.56)	-0.053 (-1.26)	-0.002 (-0.03)	-0.032 (-0.62)	-0.023 (-0.41)
<i>9</i>	-0.027 (-0.50)	0.017 (0.28)	0.020 (0.34)	-0.065 (-1.17)	-0.065 (-1.10)	-0.056 (-1.03)
<i>10</i>	-0.069 (-1.26)	-0.053 (-0.92)	-0.052 (-0.73)	-0.063 (-1.00)	-0.096 (-1.70)	-0.058 (-0.92)
Average SAR	0.002					
Average by Quintile		0.011	0.004	0.004	-0.017	-0.019
		1) Accrual Hedge D1-D10				
						0.105 (3.81) ***
		2) Low Cons Hedge				
						0.100 (2.02) *
		3) High Cons Hedge				
						0.051 (0.85)
		Difference (2-3)				
						0.049 (0.77)
Number of observations		30,184				
Number of Portfolios		1,326				

Panel B Buy-and-Hold Abnormal Returns from Market Model						
Accrual Decile	Average By Decile	Conservatism Quintiles				
		1	2	3	4	5
1	0.004 (0.09)	0.051 (0.88)	-0.005 (-0.10)	0.015 (0.31)	0.027 (0.38)	-0.050 (-0.77)
2	0.009 (0.26)	0.029 (0.60)	0.068 (1.43)	0.007 (0.16)	-0.020 (-0.49)	-0.046 (-0.97)
3	0.031 (1.26)	0.067 ** (2.09)	0.050 * (1.76)	0.015 (0.51)	0.030 (0.89)	-0.019 (-0.39)
4	0.016 (0.87)	0.011 (0.41)	0.000 (-0.01)	0.042 (1.64)	0.015 (0.54)	0.027 (0.66)
5	0.017 (1.03)	0.017 (0.52)	-0.013 (-0.51)	0.040 * (1.72)	0.024 (0.90)	0.054 (1.39)
6	-0.012 (-0.70)	-0.004 (-0.15)	-0.004 (-0.17)	-0.016 (-0.66)	0.018 (0.84)	0.000 (-0.01)
7	-0.005 (-0.18)	-0.036 (-1.37)	0.010 (0.41)	0.018 (0.50)	-0.044 (-1.32)	0.002 (0.04)
8	-0.025 (-0.99)	0.013 (0.40)	-0.029 (-1.28)	-0.038 (-1.00)	-0.031 (-0.82)	-0.005 (-0.09)
9	-0.052 * (-1.72)	-0.022 (-0.66)	0.006 (0.13)	-0.075 * (-1.96)	-0.087 ** (-2.27)	-0.044 (-0.91)
10	-0.080 ** (-2.07)	-0.066 (-1.48)	-0.080 (-1.37)	-0.087 * (-1.86)	-0.109 ** (-2.63)	-0.053 (-0.92)
Average SAR	-0.010					
Average by Quintile		0.006	0.000	-0.008	-0.018	-0.013
		1) Accrual Hedge D1-D10				0.084 ** (2.01)
		2) Low Cons Hedge				0.117 ** (2.22)
		3) High Cons Hedge				0.003 (0.04)
		Difference (2-3)				0.115 (1.58)
Number of observations		30,184				
Number of Portfolios		1,326				

Panel C^ Buy-and-Hold Abnormal Annualized Returns from FF 4 Factor Model						
Accrual Decile	Average By Decile	Conservatism Quintiles				
		1	2	3	4	5
1	0.018 (0.65)	-0.010 (-0.20)	0.037 (0.97)	0.015 (0.40)	0.033 (0.84)	-0.022 (-0.50)
2	0.040 ** (2.09)	0.028 (0.75)	0.067 ** (2.41)	0.061 ** (2.08)	0.020 (0.73)	0.006 (0.19)
3	0.057 *** (3.96)	0.076 *** (3.22)	0.073 *** (3.41)	0.043 ** (2.10)	0.059 ** (2.50)	0.044 (1.58)
4	0.049 *** (3.90)	0.046 ** (2.11)	0.027 (1.38)	0.074 *** (3.61)	0.038 * (1.89)	0.055 ** (2.37)
5	0.047 *** (4.06)	0.036 (1.65)	0.036 * (1.76)	0.059 *** (2.89)	0.047 ** (2.47)	0.062 *** (2.61)
6	0.033 *** (2.80)	0.029 (1.23)	0.038 * (1.79)	0.008 (0.42)	0.048 ** (2.42)	0.032 (1.32)
7	0.024 * (1.79)	-0.002 (-0.09)	0.043 ** (2.04)	0.047 ** (2.20)	-0.003 (-0.16)	0.034 (1.32)
8	0.028 * (1.88)	0.052 ** (2.36)	0.014 (0.61)	0.035 (1.51)	0.001 (0.04)	0.016 (0.58)
9	0.007 (0.48)	0.027 (1.08)	0.032 (1.43)	-0.024 (-0.98)	-0.011 (-0.46)	0.005 (0.17)
10	-0.047 ** (-2.06)	-0.038 (-1.08)	-0.058 * (-1.89)	-0.060 * (-1.84)	-0.048 (-1.44)	-0.028 (-0.77)
Average SAR	0.026					
Average by Quintile		0.024	0.031	0.026	0.018	0.020
			1) Accrual Hedge D1-D10			0.065 *** (2.70)
			2) Low Cons Hedge			0.028
					NA	
			3) High Cons Hedge			0.006
					NA	
			Difference (2-3)			0.022
Number of observations		30,184				
Number of Portfolios		15,912				

^Note: From 1982-2008 SMB averaged negative 1.4% per year

*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Portfolios are formed annually by assigning firms into deciles based on the magnitude of accruals and then a second sort into quintiles based on degree of conservatism in year t .

Size adjusted returns and Jensen's alphas are calculated for 12 months starting in May of the year following accrual and conservatism ranking for each portfolio for each year. The averages of the abnormal portfolio returns are then input into each of the above tables.

The Jensen's alphas are the intercepts obtained from regressing the portfolio raw buy and hold returns less the risk free rate on the CRSP equal weighted market return (less the risk free rate) for Panel B and regressed on the Fama-French factors for Panel C.

The Accrual Hedge (1) consists of a long position in the lowest accrual portfolio and an offsetting short position in the highest accrual portfolio.

The Low Cons Hedge (2) consists of a long position in the lowest accrual decile and lowest conservatism quintile portfolio and an offsetting short position in the highest accrual decile and lowest conservatism quintile portfolio.

The High Cons Hedge (3) consists of a long position in the lowest accrual decile and highest conservatism quintile portfolio and an offsetting short position in the highest accrual decile and highest conservatism quintile portfolio.

The values in parentheses are t-statistics based on the time-series of the annual portfolio abnormal stock returns.

"Average by Decile" column does not account for degree of conservatism, and thus, includes all firms within the applicable accrual decile.

Note that the hedge returns in Panel C are annualized by multiplying the average monthly hedge return by 12.

All variables were winsorized at 1 percent and 99 percent of their respective distributions.

Table 14 **Time-Series Averages of Equal Weighted Portfolio Abnormal
Stock Returns by Operating Accrual and Conservatism Quintiles**
Sample Period: 1982 to 2008

Panel A Buy-and-Hold Size Adjusted Returns						
Accrual Quintile	Average By Quintile	Conservatism Quintiles				
		<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>1</i>	0.027 (0.49)	0.061 (1.09)	0.046 (0.82)	0.032 (0.50)	0.021 (0.36)	-0.028 (-0.45)
<i>2</i>	0.026 (0.59)	0.050 (1.06)	0.014 (0.35)	0.037 (0.72)	0.016 (0.35)	-0.017 (-0.32)
<i>3</i>	0.013 (0.32)	0.013 (0.27)	-0.009 (-0.19)	0.025 (0.50)	0.013 (0.34)	0.004 (0.10)
<i>4</i>	-0.002 (-0.05)	0.001 (0.03)	-0.002 (-0.05)	0.035 (0.59)	-0.030 (-0.65)	-0.014 (-0.27)
<i>5</i>	-0.048 (-0.90)	-0.001 (-0.02)	-0.062 (-1.06)	-0.008 (-0.13)	-0.065 (-1.24)	-0.070 (-1.20)
Average SAR	0.054					
Average by Quintile		0.025	-0.002	0.024	-0.009	-0.025
			1) Accrual Hedge Q1-Q5			0.075 (4.24) ***
			2) Low Cons Hedge			0.062 ** (2.16)
			3) High Cons Hedge			0.042 (1.19)
			Difference (2-3)			0.020 (0.41)
Number of observations		29,514				
Number of Portfolios		655				

Panel B Buy-and-Hold Abnormal Returns from Market Model						
Accrual Quintile	Average By Quintile	Conservatism Quintiles				
		1	2	3	4	5
1	0.013 (0.36)	0.044 (1.14)	0.047 (1.15)	0.014 (0.29)	0.017 (0.36)	-0.048 (-0.99)
2	0.024 (1.11)	0.041 (1.62)	0.029 (1.34)	0.034 (1.05)	0.019 (0.69)	-0.010 (-0.23)
3	0.011 (0.70)	0.001 (0.05)	-0.003 (-0.17)	0.011 (0.55)	0.026 (1.38)	0.022 (0.67)
4	-0.008 (-0.34)	-0.014 (-0.47)	0.010 (0.34)	0.008 (0.24)	-0.025 (-0.80)	-0.002 (-0.05)
5	-0.065 * (-1.95)	-0.029 (-0.84)	-0.065 (-1.55)	-0.026 (-0.64)	-0.078 ** (-2.24)	-0.072 (-1.48)
Average SAR	-0.005					
Average by Quintile		0.009	0.004	0.008	-0.008	-0.022
		1) Accrual Hedge Q1-Q5				0.078 ** (2.01)
		2) Low Cons Hedge				0.073 (1.64)
		3) High Cons Hedge				0.024 (0.39)
		Difference (2-3)				0.049 (1.72) *
Number of observations		29,514				
Number of Portfolios		655				

*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Portfolios are formed annually by assigning firms into quintiles based on the magnitude of accruals and then a second sort into quintiles based on degree of conservatism in year t .

Size adjusted returns and Jensen's alphas are calculated for 12 months starting in May of the year following accrual and conservatism ranking for each portfolio for each year. The averages of the abnormal portfolio returns are then input into each of the above tables.

The Jensen's alphas are the intercepts obtained from regressing the portfolio raw buy and hold returns less the risk free rate on the CRSP equal weighted market return (less the risk free rate) for Panel B and regressed on the Fama-French factors for Panel C.

The Accrual Hedge (1) consists of a long position in the lowest accrual portfolio and an offsetting short position in the highest accrual portfolio.

The Low Cons Hedge (2) consists of a long position in the lowest accrual decile and lowest conservatism quintile portfolio and an offsetting short position in the highest accrual decile and lowest conservatism quintile portfolio.

The High Cons Hedge (3) consists of a long position in the lowest accrual decile and highest conservatism quintile portfolio and an offsetting short position in the highest accrual decile and highest conservatism quintile portfolio.

The values in parentheses are t-statistics based on the time-series of the annual portfolio abnormal stock returns.

"Average by Quintile" column does not account for degree of conservatism, and thus, includes all firms within the applicable accrual decile.

All variables were winsorized at 1 percent and 99 percent of their respective distributions.

Table 15

Non-Linear Generalized Least Squares Estimation of Stock Price Reaction to Information in Accruals, Cash Flows, and Conservatism in Current Earnings about One-Year-Ahead Earnings

Equation (4b): $EFO_{i,t+1} = \alpha + \pi_1 CFO_{it} + \pi_2 OAC_{it} + \pi_3 CONSQ_{it} + \pi_4 (OAC_{it} * CONSQ_{it})$

Equation (8a): $SAR_{i,t+1} = \alpha^* + \beta^* [EFO_{i,t+1} - \alpha - \pi^*_1 CFO_{it} - \pi^*_2 OAC_{it} - \pi^*_3 CONSQ_{it} - \pi^*_4 (OAC_{it} * CONSQ_{it})]$

Panel A

Sample Period: 1982 to 2008

Coefficient Variable	Prediction	Coefficient Estimate	Asymptotic Std. Error	Mkt. Eff. Test	Likelihood Ratio Stat.	Marginal Significance
π_1 CFO	+	0.888 *** (182.62)	0.005	$\pi_1 = \pi^*_1$	23.860	<.0001
π_2 OAC	+	0.518 *** (30.78)	0.017	$\pi_2 = \pi^*_2$	23.270	<.0001
π_3 CONSQ	?	0.001 (0.90)	0.001	$\pi_3 = \pi^*_3$	17.040	<.0001
π_4 OAC*CONSQ	+	0.007 (1.01)	0.007	$\pi_4 = \pi^*_4$	7.220	0.007
π^*_1 CFO	+	0.766 *** (30.82)	0.025	<i>All parameters with same subscript equal</i>		
π^*_2 OAC	+	0.936 *** (10.89)	0.086			
π^*_3 CONSQ	?	0.016 *** (4.34)	0.004			
π^*_4 OAC*CONSQ	+	-0.085 ** (-2.53)	0.034			
β^*	?	0.762 *** (33.99)	0.022			
Number of observations		29,514		29,514		

Panel B		Sample Period: 1982 to 2008		HAD & LAD ONLY			
Coefficient Variable	Prediction	Coefficient Estimate	Asymptotic Std. Error	Mkt. Eff. Test	Likelihood Ratio Stat.	Marginal Significance	
π_1	CFO	+	0.816 *** (59.08)	0.014	$\pi_5 = \pi^*_5$	0.180	0.675
π_2	OAC	+	0.307 *** (3.24)	0.095	$\pi_6 = \pi^*_6$	8.670	0.003
π_3	CONSQ	?	-0.005 -(0.48)	0.011	$\pi_7 = \pi^*_7$	3.040	0.081
π_4	OAC*CONSQ	+	-0.014 -(0.35)	0.039	$\pi_8 = \pi^*_8$	7.640	0.006
π_5	HAD	?	0.071 ** (2.16)	0.033	<i>All parameters with same subscript equal</i>	34.710	<.0001
π_6	OAC*HAD	-	0.052 (0.37)	0.140			
π_7	CONSQ*HAD	?	-0.002 -(0.18)	0.013			
π_8	OAC*CONSQ*HAD	+	0.063 (1.14)	0.056			
π^*_1	CFO	?	0.693 *** (9.51)	0.073			
π^*_2	OAC	+	0.054 (0.11)	0.495			
π^*_3	CONSQ	+	0.024 (0.42)	0.058			
π^*_4	OAC*CONSQ	?	-0.023 -(0.12)	0.203			
π^*_5	HAD	?	-0.003 -(0.01)	0.173			
π^*_6	OAC*HAD	-	2.249 *** (2.99)	0.753			
π^*_7	CONSQ*HAD	?	0.121 * (1.72)	0.070			
π^*_8	OAC*CONSQ*HAD	+	-0.755 ** -(2.54)	0.298			
β^*		?	0.562 *** (12.64)	0.044			
Number of observations			4,370		4,370		

Panel C Equation (4d): $EFO_{i,t+1} = \alpha + \pi_1 CFO_{it} + \pi_2 OAC_{it} + \sum_{k=1}^{p-1} \pi_{3,k} (\omega_{k,it}) + \sum_{k=1}^{p-1} \pi_{4,k} (\omega_{k,it} \times OAC_{it})$

Equation (8b): $SAR_{i,t+1} = \alpha^* + \beta^* [EFO_{i,t+1} - \alpha - \pi^*_1 CFO_{it} - \pi^*_2 OAC_{it} - \sum_{k=1}^{p-1} \pi^*_{3,k} (\omega_{k,it}) - \sum_{k=1}^{p-1} \pi^*_{4,k} (\omega_{k,it} \times OAC_{it})]$

Coefficient Variable	Prediction	Coefficient Estimate	Asymptotic Std. Error	Mkt. Eff. Test	Likelihood Ratio Stat.	Marginal Significance
π_1	CFO	0.896 *** (140.26)	0.006	$\pi_1 = \pi^*_1$	17.710	<.0001
π_2	OAC	0.926 *** (21.64)	0.043	$\pi_2 = \pi^*_2$	0.250	0.620
$\pi_{3,C}$	CNTRT	-0.009 *** (-3.10)	0.003	$\pi_{3,C} = \pi^*_{3,C}$	1.200	0.273
$\pi_{3,L}$	LIT	-0.012 *** (-5.39)	0.002	$\pi_{3,L} = \pi^*_{3,L}$	15.740	<.0001
$\pi_{3,R}$	REG	0.017 *** (5.99)	0.003	$\pi_{3,R} = \pi^*_{3,R}$	4.100	0.043
$\pi_{3,T}$	TAX	0.008 *** (5.47)	0.002	$\pi_{3,T} = \pi^*_{3,T}$	20.100	<.0001
$\pi_{4,C}$	OAC*CNTRT	-0.215 *** (-7.30)	0.030	$\pi_{4,C} = \pi^*_{4,C}$	0.090	0.763
$\pi_{4,L}$	OAC*LIT	-0.028 (-1.55)	0.018	$\pi_{4,L} = \pi^*_{4,L}$	0.080	0.784
$\pi_{4,R}$	OAC*REG	-0.024 (-0.77)	0.031	$\pi_{4,R} = \pi^*_{4,R}$	2.130	0.144
$\pi_{4,T}$	OAC*TAX	-0.031 * (-1.94)	0.016	$\pi_{4,T} = \pi^*_{4,T}$	1.930	0.165
π^*_1	CFO	0.764 *** (24.42)	0.031	<i>All parameters with same subscript equal</i>		
π^*_2	OAC	1.037 *** (5.01)	0.207			
$\pi^*_{3,C}$	CNTRT	0.007 (0.49)	0.014			
$\pi^*_{3,L}$	LIT	-0.055 *** (-5.11)	0.011			
$\pi^*_{3,R}$	REG	0.044 *** (3.30)	0.013			
$\pi^*_{3,T}$	TAX	-0.025 *** (-3.40)	0.007			
$\pi^*_{4,C}$	OAC*CNTRT	-0.166 (-1.16)	0.143			
$\pi^*_{4,L}$	OAC*LIT	0.000 (0.00)	0.087			
$\pi^*_{4,R}$	OAC*REG	-0.248 * (-1.66)	0.150			
$\pi^*_{4,T}$	OAC*TAX	0.079 (1.02)	0.077			
β^*		0.865 *** (26.62)	0.033			
Number of observations		16,589		16,589		

*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

All other variable descriptions are the same as listed in Tables 2 and 8 and detailed in Appendix B.

All variables were winsorized at 1 percent and 99 percent of their respective distributions.

Table 16 Ordinary Least Squares Regressions of Future Returns on Deciles of Operating Accruals, Overall Conservatism, and Control Variables-Firm Level

Equation (9): $SAR_{i,t+1} = \alpha + \beta_1 DIVY_{it}^{dec} + \beta_2 BETA_{it}^{dec} + \beta_3 LnBTM_{it}^{dec} + \beta_4 LnMV_{it}^{dec} + \beta_5 LEV_{it}^{dec} + \beta_6 EYLD_{it}^{dec} + \beta_7 NEYLD_{it}^{dec} + \beta_8 CFO_{it}^{dec} + \beta_9 OAC_{it}^{dec} + \beta_{10} CONSQ_{it}^{dec} + \beta_{11} (OAC_{it}^{dec} * CONSQ_{it}^{dec}) + \beta_{12} HAD_{it} + \beta_{13} (OAC_{it}^{dec} * HAD_{it}) + \beta_{14} (CONSQ_{it}^{dec} * HAD_{it}) + \beta_{15} (OAC_{it}^{dec} * CONSQ_{it}^{dec} * HAD_{it}) + \varepsilon_{i,t+1}$

Pooled Cross-Sectional Time Series Regressions

Sample Period: 1982 to 2008

Sample Period: 1982 to 2008				^HAD & LAD ONLY			
Variable	Prediction	Coefficient Estimate	Standard Error	Coefficient Estimate	Standard Error	Coefficient Estimate	Standard Error
intercept		-0.119 *** (-3.50)	0.034	-0.234 *** (-5.93)	0.039	-0.361 *** (-3.47)	0.104
DIVY	-	0.020 (1.32)	0.015	0.009 (0.61)	0.015	0.024 (0.81)	0.029
BETA	+	0.003 (0.21)	0.015	-0.005 (-0.31)	0.015	-0.010 (-0.36)	0.028
LnBTM	+	0.206 *** (11.92)	0.017	0.298 *** (14.93)	0.020	0.330 *** (9.15)	0.036
LnMV	-	-0.228 *** (-13.34)	0.017	-0.219 *** (-12.83)	0.017	-0.258 *** (-8.38)	0.031
LEV	+	0.087 *** (5.22)	0.017	0.103 *** (6.20)	0.017	0.107 *** (3.45)	0.031
EYLD	+	0.027 (1.05)	0.026	0.026 (0.99)	0.026	-0.015 (-0.33)	0.047
NEYLD	-	0.019 (1.30)	0.015	0.015 (1.05)	0.015	0.013 (0.50)	0.026
CFO	?	0.135 *** (6.04)	0.022	0.126 *** (5.61)	0.022	0.122 *** (3.47)	0.035
OAC	-	-0.008 (-0.43)	0.019	-0.020 (-0.60)	0.034	0.816 * (1.66)	0.492
CONSQ	?			0.112 *** (3.64)	0.031	0.324 ** (2.46)	0.132
OAC*CONSQ	+			0.038 (0.80)	0.048	-1.247 * (-1.69)	0.736
HAD	-					0.525 (1.39)	0.377
OAC*HAD	-					-1.238 ** (-1.97)	0.628
CONSQ*HAD	?					-0.872 (-1.50)	0.580
OAC*CONSQ*HAD	+					1.984 ** (2.09)	0.951
Number of observations		27,681		27,681		9,383	
Adjusted R-squared		2.6%		2.9%		3.2%	

*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

^ For this table only, HAD represents the highest two deciles and LAD represents the lowest two deciles.

The Standard errors are clustered standard errors, which are White (1980) standard errors adjusted and robust to firm and fiscal year correlation, also known as Rogers standard errors. The t-statistics are in parentheses.

The third set of columns are run using only firm-year observations from LAD and HAD firms. Parameter estimations, other than the triple interaction, are to be interpreted with caution.

All other variable descriptions are the same as listed in Table 8 and detailed in Appendix B.

All variables were winsorized at 1 percent and 99 percent of their respective distributions.

Table 17 Ordinary Least Squares Regressions of Future Returns on Accruals, Overall Conservatism, and Control Variables- Total Accruals

$$\text{Equation (11): } SAR_{i,t+1} = \alpha + \beta_1 DIVY_{it} + \beta_2 DIVY2_{it} + \beta_3 BETA_{it} + \beta_4 LnBTM_{it} + \beta_5 LnMV_{it} + \beta_6 LEV_{it} + \beta_7 EYLD_{it} + \beta_8 NEYLD_{it} + \beta_9 CFO_{it} + \beta_{10} TACC_{it} + \beta_{11} CONSQ_{it} + \beta_{12} (TACC_{it} * CONSQ_{it}) + \beta_{13} HAD_{it} + \beta_{14} (TACC_{it} * HAD_{it}) + \beta_{15} (CONSQ_{it} * HAD_{it}) + \beta_{16} (TACC_{it} * CONSQ_{it} * HAD_{it}) + \varepsilon_{i,t+1}$$

Pooled Cross-Sectional Time Series Regressions
Sample Period: 1982 to 2008

Variable	Prediction	Coefficient		Standard Error	Coefficient		Standard Error	HAD & LAD ONLY	
		Estimate			Estimate	Error		Coefficient	Standard Error
intercept		0.153 ***		0.017	0.105 ***	0.018		0.249 ***	0.080
		(8.95)			(5.95)			(3.12)	
DIVY	-	-0.018 ***		0.005	-0.020 ***	0.005		-0.006	0.014
		(-3.54)			(-3.87)			(-0.46)	
DIVY2	+	0.001 **		0.001	0.002 **	0.001		0.000	0.002
		(1.99)			(2.19)			(-0.14)	
BETA	+	-0.024 ***		0.006	-0.026 ***	0.006		-0.025 *	0.013
		(-3.82)			(-4.21)			(-1.94)	
LnBTM	+	0.065 ***		0.007	0.096 ***	0.008		0.085 ***	0.017
		(9.28)			(11.94)			(5.07)	
LnMV	-	-0.017 ***		0.002	-0.017 ***	0.002		-0.022 ***	0.007
		(-6.96)			(-6.75)			(-3.16)	
LEV	+	0.010 ***		0.002	0.012 ***	0.002		0.007 *	0.004
		(5.22)			(6.11)			(1.68)	
EYLD	+	-0.001 ***		0.000	-0.001 ***	0.000		-0.001 ***	0.000
		(-3.50)			(-3.20)			(-3.04)	
NEYLD	-	-0.035 **		0.015	-0.035 **	0.015		-0.028	0.030
		(-2.36)			(-2.43)			(-0.95)	
CFO	?	0.098 **		0.042	0.076 *	0.042		-0.002	0.071
		(2.36)			(1.82)			(-0.02)	
TACC	-	-0.081 **		0.032	-0.012	0.065		0.525 *	0.269
		(-2.55)			(-0.18)			(1.95)	
CONSQ	?				0.032 ***	0.004		0.001	0.028
					(8.01)			(0.03)	
TACC*CONSQ	+				-0.027	0.023		-0.169 *	0.099
					(-1.17)			(-1.70)	
HAD	-							-0.215 **	0.109
								(-1.98)	
TACC*HAD	-							-0.361	0.342
								(-1.05)	
CONSQ*HAD	?							0.063	0.040
								(1.59)	
TACC*CONSQ*HAD	?							0.078	0.123
								(0.63)	
Number of observations		18,077			18,077			3,592	
Adjusted R-squared		2.6%			2.9%			4.2%	

*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

The Standard errors are clustered standard errors, which are White (1980) standard errors adjusted and robust to firm and fiscal year correlation, also known as Rogers standard errors. The t-statistics are in parentheses.

The third set of columns are run using only firm-year observations from LAD and HAD firms. Parameter estimations, other than the triple interaction, are to be interpreted with caution.

All other variable descriptions are the same as listed in Table 8 and detailed in Appendix B.

All variables were winsorized at 1 percent and 99 percent of their respective distributions.

Table 18 Ordinary Least Squares Regressions of Future Returns on Operating Accruals, Overall Conservatism, Control Variables and Fama-French Industry Risk Premiums and Lagged Returns

$$\text{Equation (12): } SAR_{i,t+1} = \alpha + \beta_1 DIVY_{it} + \beta_2 DIVY2_{it} + \beta_3 BETA_{it} + \beta_4 LnBTM_{it} + \beta_5 LnMV_{it} + \beta_6 LEV_{it} + \beta_7 EYLD_{it} + \beta_8 NEYLD_{it} + \beta_9 CFO_{it} + \beta_{10} OAC_{it} + \beta_{11} CONSQ_{it} + \beta_{12} (OAC_{it} * CONSQ_{it}) + \beta_{13} HAD_{it} + \beta_{14} (OAC_{it} * HAD_{it}) + \beta_{15} (CONSQ_{it} * HAD_{it}) + \beta_{16} (OAC_{it} * CONSQ_{it} * HAD_{it}) + \beta_{17} IND_{it} + \beta_{18} SARlag_{it} + \varepsilon_{i,t+1}$$

Pooled Cross-Sectional Time Series Regressions Sample Period: 1982 to 2008							
Variable	Prediction	Coefficient	Standard	Coefficient	Standard	HAD & LAD ONLY	
		Estimate	Error			Coefficient	Standard
				Estimate	Error	Estimate	Error
intercept		0.185 *** (11.33)	0.016	0.133 *** (7.77)	0.017	0.235 ** (2.03)	0.116
DIVY	-	0.009 ** (2.05)	0.004	0.006 (1.50)	0.004	0.022 (1.40)	0.016
DIVY2	+	0.000 (0.52)	0.001	0.000 (0.17)	0.001	-0.003 * (-1.77)	0.002
BETA	+	-0.008 (-1.53)	0.005	-0.010 * (-1.94)	0.005	-0.012 (-0.90)	0.013
LnBTM	+	0.064 *** (11.10)	0.006	0.095 *** (14.20)	0.007	0.111 *** (6.28)	0.018
LnMV	-	-0.025 *** (-12.25)	0.002	-0.025 *** (-11.91)	0.002	-0.037 *** (-5.18)	0.007
LEV	+	0.009 *** (5.72)	0.002	0.011 *** (6.93)	0.002	0.009 * (1.95)	0.004
EYLD	+	-0.001 *** (-4.13)	0.000	-0.001 *** (-3.69)	0.000	-0.001 (-1.44)	0.000
NEYLD	-	0.089 ** (2.51)	0.036	-0.051 *** (-4.14)	0.012	5.000 (0.67)	0.034
CFO	?	-0.049 *** (-3.98)	0.012	0.063 * (1.77)	0.036	0.020 (0.28)	0.073
OAC	-	-0.066 (-1.26)	0.052	-0.204 ** (-2.32)	0.088	0.329 (0.80)	0.413
CONSQ	?			0.034 *** (9.83)	0.003	0.044 (1.10)	0.040
OAC*CONSQ	+			0.070 ** (2.02)	0.035	-0.030 (-0.20)	0.148
HAD	-					0.074 (0.60)	0.123
OAC*HAD	-					-1.461 *** (-2.78)	0.525
CONSQ*HAD	?					-0.072 (-1.58)	0.046
OAC*CONSQ*HAD	+					0.535 *** (2.58)	0.207
IND	?	0.000 (-1.13)	0.000	0.000 (-0.81)	0.000	0.000 (0.42)	0.000
SARlag	-	-0.040 *** (-5.90)	0.007	-0.040 *** (-5.89)	0.007	-0.042 *** (-2.60)	0.016
Number of observations		27,681		27,681		3,870	
Adjusted R-squared		3.1%		3.4%		4.6%	

*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

The Standard errors are clustered standard errors, which are White (1980) standard errors adjusted and robust to firm and fiscal year correlation, also known as Rogers standard errors. The t-statistics are in parentheses.

Indprem is the mean risk premium for each industry, based on the Fama and French (1997) industry classifications (reproduced in Appendix C).

SARlag is the lag of the one-period-ahead size adjusted return.

The third set of columns are run using only firm-year observations from LAD and HAD firms. Parameter estimations, other than the triple interaction, are to be interpreted with caution.

All other variable descriptions are the same as listed in Table 8 and detailed in Appendix B.

All variables were winsorized at 1 percent and 99 percent of their respective distributions.

Table 19 Annual Regressions of Future Returns on Operating Accruals, Overall Conservatism, and Control Variables-Firm Level and Missing Return Adjustment

Equation (5a):
$$SAR_{i,t+1} = \alpha + \beta_1 DIVY_{it} + \beta_2 DIVY2_{it} + \beta_3 BETA_{it} + \beta_4 LnBTM_{it} + \beta_5 LnMV_{it} + \beta_6 LEV_{it} + \beta_7 EYLD_{it} + \beta_8 NEYLD_{it} + \beta_9 OAC_{it} + \beta_{10} (CONSQ_{it}) + \beta_{11} (OAC_{it} * CONSQ_{it}) + \beta_{12} (HAD_{it}) + \beta_{13} (OAC_{it} * HAD_{it}) + \beta_{14} (CONSQ_{it} * HAD_{it}) + \beta_{15} (OAC_{it} * CONSQ_{it} * HAD_{it}) + \varepsilon_{i,t+1}$$

Pooled Cross-Sectional Time Series Regressions
Sample Period: 1982 to 2008

Variable	Prediction	Coefficient		Standard Error	Coefficient		Standard Error	HAD & LAD ONLY	
		Estimate			Estimate			Coefficient Estimate	Standard Error
intercept		0.173 *** (12.54)		0.014	0.122 *** (8.41)		0.015	0.255 ** (2.26)	0.113
DIVY	-	0.012 *** (3.03)		0.004	0.010 ** (2.41)		0.004	0.025 (1.62)	0.016
DIVY2	+	-0.001 (-1.28)		0.001	0.000 (-0.88)		0.001	-0.004 ** (-2.02)	0.002
BETA	+	-0.007 (-1.37)		0.005	-0.009 * (-1.74)		0.005	-0.010 (-0.73)	0.013
LnBTM	+	0.071 *** (12.55)		0.006	0.102 *** (15.47)		0.007	0.118 *** (6.85)	0.017
LnMV	-	-0.025 *** (-12.28)		0.002	-0.025 *** (-11.96)		0.002	-0.039 *** (-5.45)	0.007
LEV	+	0.010 *** (6.06)		0.002	0.012 *** (7.30)		0.002	0.008 * (1.88)	0.004
EYLD	?	-0.001 *** (-4.08)		0.000	-0.001 *** (-3.64)		0.000	0.000 (-1.21)	0.000
NEYLD	-	-0.043 *** (-3.53)		0.012	-0.046 *** (-3.72)		0.012	-0.009 (-0.26)	0.033
CFO	?	0.092 *** (2.63)		0.035	0.066 * (1.89)		0.035	0.029 (0.42)	0.070
OAC	-	-0.059 (-1.14)		0.052	-0.219 ** (-2.51)		0.087	0.326 (0.79)	0.411
CONSQ	?				0.034 *** (10.04)		0.003	0.045 (1.14)	0.040
OAC*CONSQ	+				0.079 ** (2.32)		0.034	-0.011 (-0.08)	0.146
HAD	?							0.067 (0.55)	0.123
OAC*HAD	-							-1.465 *** (-2.81)	0.521
CONSQ*HAD	?							-0.071 (-1.57)	0.045
OAC*CONSQ*HAD	+							0.508 ** (2.49)	0.204
Number of observations		27,998			27,998			3,958	
Adjusted R-squared		2.8%			3.2%			4.4%	

*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

The Standard errors are clustered standard errors, which are White (1980) standard errors adjusted and robust to firm and fiscal year correlation, also known as Rogers standard errors. The t-statistics are in parentheses.

The third set of columns are run using only firm-year observations from LAD and HAD firms. Parameter estimations, other than the triple interaction, are to be interpreted with caution.

All other variable descriptions are the same as listed in Table 8 and detailed in Appendix B.

All variables were winsorized at 1 percent and 99 percent of their respective distributions.

Table 20 Annual Regressions of Future Returns on Operating Accrual Deciles and Overall Conservatism - Firm Level

Equation (13b):
$$SAR_{i,t+1} = \alpha + \beta_1 LAD_{it} + \beta_2 Decile2_{it} + \beta_3 Decile3_{it} + \beta_4 Decile4_{it} + \beta_5 Decile7_{it} + \beta_6 Decile8_{it} + \beta_7 Decile9_{it} + \beta_8 HAD_{it} + \beta_9 CONSQ_{it} + \beta_{10} (CONSQ_{it} * LAD_{it}) + \beta_{11} (CONSQ_{it} * HAD_{it}) + \varepsilon_{i,t+1}$$

Pooled Cross-Sectional Time Series Regressions

Sample Period: 1982 to 2008

Variable	Prediction	Coefficient Estimate	Standard Error	Coefficient Estimate	Standard Error	Coefficient Estimate	Standard Error
intercept		0.009 (1.30)	0.007	-0.015 ** (-2.44)	0.006	0.014 * (1.66)	0.008
LAD	-	0.036 * (1.79)	0.020	0.060 *** (3.06)	0.020	0.074 * (1.96)	0.038
Decile2	+	0.022 (1.47)	0.015	0.007 (0.52)	0.013	0.008 (0.61)	0.013
Decile3	+	0.011 (0.84)	0.013	0.009 (0.75)	0.012	0.009 (0.76)	0.012
Decile4	?	0.010 (0.76)	0.013	0.009 (0.78)	0.011	0.009 (0.81)	0.011
Decile7	-	-0.011 (-0.86)	0.012	-0.011 (-0.99)	0.011	-0.011 (-1.03)	0.011
Decile8	+	-0.015 (-1.18)	0.013	-0.021 * (-1.83)	0.011	-0.021 * (-1.87)	0.011
Decile9	?	-0.037 *** (-2.70)	0.014	-0.042 *** (-3.46)	0.012	-0.043 *** (-3.49)	0.012
HAD	-	-0.047 *** (-2.81)	0.017	-0.073 *** (-5.01)	0.015	-0.095 *** (-3.73)	0.026
CONSQ	-					-0.014 *** (-5.52)	0.003
CONSQ*LAD	?					-0.005 -(0.31)	0.015
CONSQ*HAD	+					0.011 (1.07)	0.010
Number of observations		27,998		27,701		27,701	
Adjusted R-squared		0.1%		0.3%		0.4%	

*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

The Standard errors are clustered standard errors, which are White (1980) standard errors adjusted and robust to firm and fiscal year correlation, also known as Rogers standard errors. The t-statistics are in parentheses.

All other variable descriptions are the same as listed in Table 8 and detailed in Appendix B.

All variables were winsorized at 1 percent and 99 percent of their respective distributions.

Table 21 **Ordinary Least Squares Regressions of Future Returns on Accruals, Overall Conservatism, Control Variables including Firm Fixed Effects**

Equation (5a):
$$SAR_{i,t+1} = \alpha + \beta_1 DIVY_{it} + \beta_2 DIVY2_{it} + \beta_3 BETA_{it} + \beta_4 LnBTM_{it} + \beta_5 LnMV_{it} + \beta_6 LEV_{it} + \beta_7 EYLD_{it} + \beta_8 NEYLD_{it} + \beta_9 CFO_{it} + \beta_{10} OAC_{it} + \beta_{11} CONSQ_{it} + \beta_{13} HAD_{it} + \beta_{14}(OAC_{it} * HAD_{it}) + \beta_{15}(CONSQ_{it} * HAD_{it}) + \beta_{16}(OAC_{it} * CONSQ_{it} * HAD_{it}) + \varepsilon_{i,t+1}$$

Panel A Pooled Cross-Sectional Time Series Regressions
Sample Period: 1982 to 2008 HAD & LAD ONLY

Variable	Prediction	Coefficient Estimate	Standard Error
intercept		2.774 *** (5.03)	0.551
DIVY	-	-0.106 ** (-2.41)	0.044
DIVY2	+	0.007 (1.47)	0.004
BETA	+	-0.029 (-1.29)	0.023
LnBTM	+	0.149 *** (4.45)	0.034
LnMV	-	-0.338 *** (-15.43)	0.022
LEV	+	0.016 ** (2.32)	0.007
EYLD	+	0.000 (-0.77)	0.000
NEYLD	-	0.009 (0.20)	0.047
CFO	?	0.133 (1.31)	0.102
OAC	-	-0.012 -(0.02)	0.517
CONSQ	?	0.098 * (1.78)	0.055
OAC*CONSQ	+	0.082 (0.42)	0.194
HAD	?	0.302 * (1.87)	0.161
OAC*HAD	-	-1.213 * (-1.71)	0.708
CONSQ*HAD	?	-0.132 ** (-2.13)	0.062
OAC*CONSQ*HAD	+	0.595 ** (2.27)	0.262
Number of firms		907	
Time series length		27	
R-squared		43.6%	
F-value for no fixed effects		1.45 ***	

Panel B

Equation (5b):

$$SAR_{i,t+1} = \alpha + \beta_1 DIVY_{it} + \beta_2 DIVY2_{it} + \beta_3 BETA_{it} + \beta_4 LnBTM_{it} + \beta_5 LnMV_{it} + \beta_6 LEV_{it} + \beta_7 EYLD_{it} + \beta_8 NEYLD_{it} + \beta_9 CFO_{it} + \beta_{10} OAC_{it} + \sum_{k=1}^K \lambda_{11,k} (\omega_{k,1})_{it} + \sum_{k=1}^K \beta_{12,k} (OAC_{it} \times \omega_{k,it}) + \beta_{13} (HAD_{it}) + \beta_{14} (OAC_{it} * HAD_{it}) + \sum_{k=1}^K \beta_{15,k} (\omega_{k,it} * HAD_{it}) + \sum_{k=1}^K \beta_{16,k} (OAC_{it} * \omega_{k,it} * HAD_{it}) + \varepsilon_{i,t+1}$$

Pooled Cross-Sectional Time Series Regressions

Sample Period: 1982 to 2008 HAD & LAD ONLY

Variable	Prediction	Coefficient Estimate	Standard Error
intercept		1.473 ** (2.10)	0.703
DIVY	-	-0.169 *** (-2.74)	0.062
DIVY2	+	0.011 * (1.83)	0.006
BETA	+	-0.040 (-1.35)	0.030
LnBTM	+	0.157 *** (3.58)	0.044
LnMV	-	-0.316 *** (-10.20)	0.031
LEV	+	0.019 * (1.75)	0.011
EYLD	?	-0.001 (-1.05)	0.001
NEYLD	-	-0.025 (-0.37)	0.069
OAC	-	0.044 (0.26)	0.167
CNTRT	?	0.517 (0.33)	1.560
LIT	?	0.240 (0.76)	0.316
REG	?	0.007 (0.04)	0.189
TAX	?	0.262 (0.83)	0.326
OAC*CNTRT	+	-0.314 (0.00)	3.62E+14
OAC*LIT	+	-0.791 (-0.63)	1.250
OAC*REG	?	0.356 (0.58)	0.615
OAC*TAX	?	1.692 (1.33)	1.269

HAD	?	0.554 (0.53)	1.049
OAC*HAD	-	-0.442 -(0.89)	0.498
CNTRT*HAD	?	2.046 (0.94)	2.185
LIT*HAD	?	0.299 (0.84)	0.355
REG*HAD	?	0.002 (0.01)	0.194
TAX*HAD	?	-0.199 -(0.56)	0.355
OAC*CNTRT*HAD	+	0.061 (0.18)	0.344
OAC*LIT*HAD	+	-0.704 -(0.45)	1.582
OAC*REG*HAD	?	-0.854 -(1.03)	0.827
OAC*TAX*HAD	?	-2.331 -(1.42)	1.636
Number of firms		479	
Time series length		26	
R-squared		43.4%	
F-value for no fixed effects		1.21 ***	

*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

All other variable descriptions are the same as listed in Table 8 and detailed in Appendix B.

All variables were winsorized at 1 percent and 99 percent of their respective distributions.