

Research on Tax Expense Surprise

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Abstract

Accounting for income taxes is one of the most complex and emerging areas in financial reporting. This area has a vast number of studies encompassing various aspects of tax reporting. Among those, this paper performs a comprehensive survey of studies in the realm of the pricing of tax expense information as one of the newest topics in the accounting for income taxes research. Central to the tax expense research is tax expense surprise effect that results in a positive relationship between tax expense surprise and future, not contemporaneous, stock returns. This paper discusses not only relevant studies on this effect and but possible causes of the effect. Although a number of studies confirm this effect, its cause is not clear. Given seemingly mixed and inconclusive evidence as to the cause, a cleaner test is proposed as a possible future research direction in this area.

Keywords: Tax expense surprise, Value relevance, Anomaly, Risk, Cleaner test

1. Introduction

Accounting for income taxes (AFIT) is one of the most complex and emerging areas of financial reporting. Before this millennium, scholars paid limited attention to the implications of AFIT for financial reporting. However, there have been numerous studies in the area of AFIT in recent years.² According to Graham et al. (2012), the AFIT literature encompasses a variety of tax aspects including (1) book-tax differences, (2) deferred tax accounts, (3) valuation allowance, (4) tax contingency, (5) foreign earnings and (6) tax expense surprise (along with taxable income). These streams of research attempt to accurately depict either the financial status or the financial performance of the firm.

Among the six areas noted above, tax expense surprise or momentum³ is the newest realm of AFIT research. Tax expense surprise is the change in tax expense over a period. As explained later, it has been shown to have incremental value relevance to stock pricing. Since the Graham et al. (2012) survey, there have been major developments in this line of research. At the same time, there exist important issues remaining unresolved. This paper is to survey the AFIT research on tax expense surprise, identify important issues and propose directions of future research.

To narrow the scope of the analysis, this paper focuses on the most controversial aspect of tax expenses pricing studies. Earnings management studies for managers' manipulation of tax expense to meet analysts' forecasts (e.g., Dhaliwal et al., 2004; Gleason et al., 2008) and descriptive studies addressing the usefulness of book information in estimating tax information are not addressed in this paper. As to the research on the pricing, there is one stream that examines the effect of tax expense information on contemporaneous stock returns (e.g., Lipe, 1986; Hanlon et al., 2005; Thomas & Zhang, 2014). This stream is also excluded from the analysis of this paper. Even though these lines of research are important enough to contribute to the literature, they see a relatively small number of studies performed with no major controversial issues remaining.

The focus of this study is tax expense surprise that results in a positive relation between tax expense surprise and future stock returns. Since the findings by Thomas and Zhang (2011) that tax expense affects future, rather than contemporaneous, stock returns, several studies have attempted to find the cause of this underreaction. Thomas and Zhang attribute this effect to market anomaly.

They assert that as there is a delayed response or underreaction to tax expense information on investors' part, tax expense surprise is related to future stock returns, rather than current returns.

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² See Graham et al. (2012) for a comprehensive review of AFIT literature until 2012.

³ Tax expense surprise is also termed tax expense momentum. This paper uses these two terminologies interchangeably.

However, this relation between tax expense surprise and future stock returns can be explained by compensation for bearing risk (Kim et al., 2017).

Based on the breakthrough model of Ohlson and Bilinski (2015), Kim et al. (2017) report evidence that the relationship results from market anomaly. However, Lee (2021), using the same approach, presents evidence that does not support Kim et al.’s finding. In most recent studies, a series of evidence appears to lend indirect support to the risk explanation. For example, the results of Baik et al. (2016) in conjunction with findings by Kerr (2019) suggest that the anomaly explanation is not supported. Yet, as there is no clean test, whether the relationship is due to anomaly or risk has remained unresolved. In following sections, this paper details the relevant research. Figure 1 depicts major developments of research regarding the pricing (i.e., effect on stock returns) of tax expense surprise.

This paper is the first comprehensive review of all major work including the most recent studies on tax expense surprise. In reviewing extant work, this paper addresses not only the findings and contributions of individual studies but their implications on the cause of the positive relation between tax expense surprise and future stock returns.

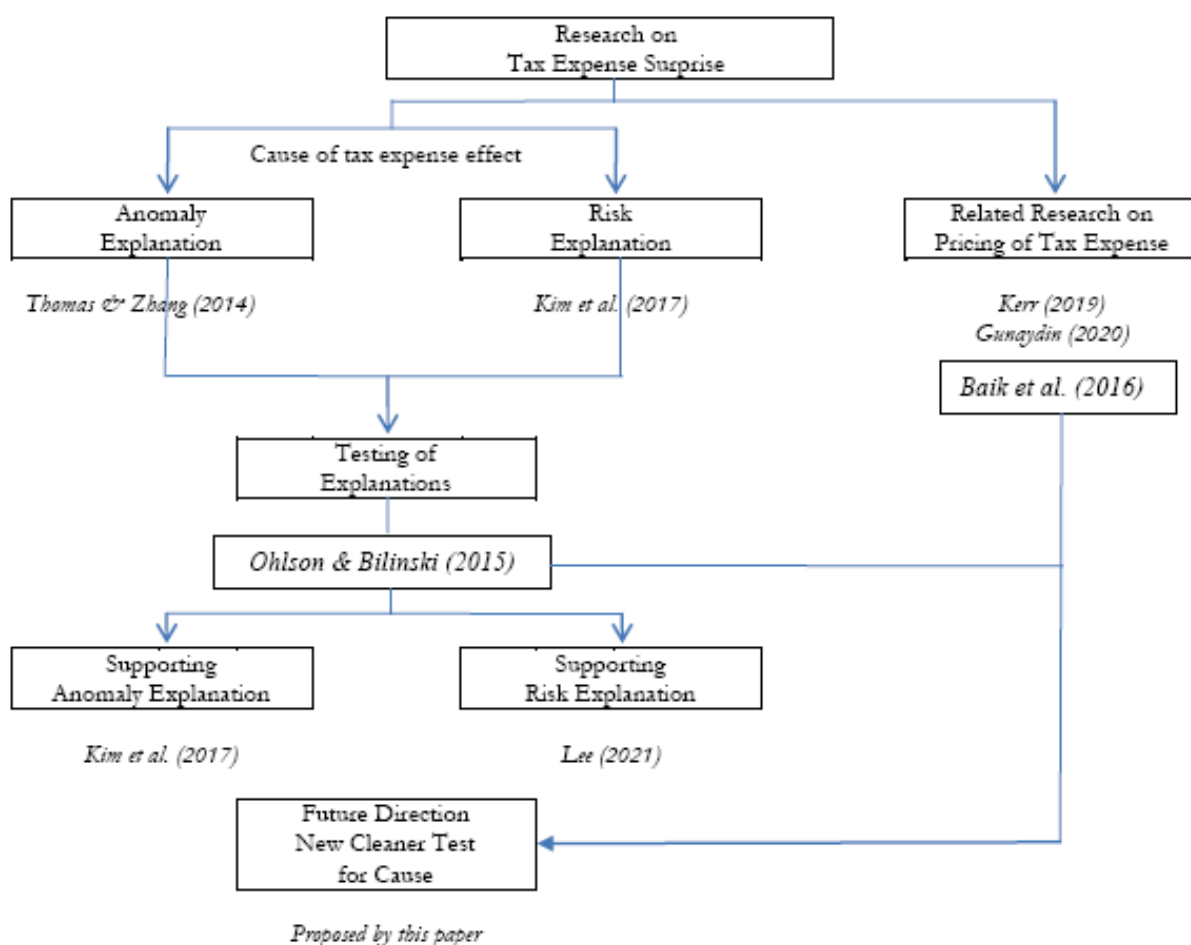


Figure 1. Major Studies on Tax Expense Effect

With the review, this study intends to contribute to the literature by providing researchers with a big picture of the tax expense surprise literature. It also points to directions for future research by proposing a cleaner test to examine the competing explanations as to the cause of the tax expense surprise-future stock return relationship. The increasing interest in the tax expense surprise effect and the paucity of up-to-date survey of studies underscore the significance of this paper.

The remainder of the paper is organized as follows. Section 2 addresses the stream of research regarding the tax expense effect that suggests a positive association between tax expense information and future stock returns. Section 3 surveys therelated studies on the pricing of tax expense that can help find the cause of the effect. This section also proposes future research directions in that regard. Finally, section 4 concludes the paper.

2. Market's Underreaction to Tax Expense Information

2.1 Competing explanations- anomaly or risk?

Before Thomas and Zhang (2011), most pricing studies regarding tax expense focus on investigating the relation of tax information with contemporaneous stock returns.⁴ The study by Thomas and Zhang is the first attempt to examine the effect of tax information on the future returns. They find that tax expense surprise (i.e., change in tax expense tax expense) is positively associated with future stock returns. The effect that a positive tax expense surprise in the current period predicts a positive stock return, positive earnings surprises, and tax expense in the next period is termed tax expense effect or tax expense momentum effect.

Specific to this effect, an important question is raised regarding why this investors' delayed response or underreaction occurs. Thomas and Zhang's argument is such that initially the market underreacts to the implications of tax expense for future profitability. When the earnings are realized subsequently, the market more fully responds to the tax expense information. They provide an anomaly explanation that attributes this mispricing (underreaction) to the extraordinary nature of tax disclosures. Specifically, they conjecture that income tax reporting is so opaque and complex that investors fail to understand the change in core profitability of a firm implied in tax expense surprises and thus do not react in time or underreact to the surprises.

Numerous studies in different lines of accounting and decision-making research report evidence in line with the Thomas and Zhang's conjecture that individuals have difficulty in paying attention to less salient information. For example, in the investment decision-making context, Moser (1989) finds that in judgment creation, the use of information depends on the perceived value of the information, which is determined by the extent to which the information is salient. Hirshleifer et al. (2011) analytically shows that investors' limited attention to valuable information makes them tend to fail to acknowledge value relevant information. This ignorance causes earnings to drift and create accrual anomalies. Radhakrishnan and Wu (2014) find that analysts' cash flow forecasts are capable of redirecting investors' attention in order for them to mitigate the mispricing of accruals. Finally, in the audit context, even experts like auditors are shown to fail to incorporate less salient information when making audit judgments as individuals (Lee et al., 2017) or as a group (Lee et al., 2019)

In the tax area, drawing on the literature introduced above, several studies also suspect that the market has limited processing power for tax-related information, suggesting the anomaly explanation. Schmidt (2006) finds that investors tend to ignore or underreact to the persistent component of tax rate. Lev and Nissim (2004) and Weber (2009) show that investors underreact to the book-tax-differences in income, which reflect the quality of reported earnings.

In summary, Thomas and Zhang's proposition is that because tax disclosures are difficult to investors, they fail to understand the change in core profitability of a firm in tax expense surprise. As investors underreact to the tax expense surprise, it is reflected in future returns. Therefore, the tax momentum effect is such that tax expense surprise not embedded immediately in equity prices causes predictability patterns in future stock returns (i.e., as the market tends to underreact to tax expense, tax expense information is positively related to future stock returns). A number of studies imply that the tax expense momentum effect is the result of investors' limited ability to process the value-relevant information, investors' delayed response or underreaction to tax expense surprise is viewed as a market anomaly.

However, as Kim et al. (2017) asserts, Thomas and Zhang's (2011) reasoning has weaknesses. First, the Thomas and Zhang study pertains to the effect of tax expense surprise, which is the change in tax expense over the period. It is an item that is simple enough for everyone to figure out. Although it can be argued that even if tax accounting may be opaque and complex to investors, tax expense surprise is not. Therefore, it is not convincing that the simple notion of tax expense surprise creates systematic bias and investor's underreaction. Second, even if one admits that, as Thomas and Zhang assert, tax expense surprise is murky, it does not necessarily mean that tax expense surprise can predict future returns. For this predictability to exist, investors should suffer from systematic underreaction to tax information instead of reacting in a random idiosyncratic fashion.

⁴ While Lipe (1986) report that contemporaneous stock returns and tax expenses are negatively associated, Ohlson and Penman (1992) and Hanlon et al. (2005) find a positive relationship. Lipe's finding is consistent with conventional wisdom that greater tax expense, as a cost of doing a business, reduces firm value. The positive relationship is in line with the signaling perspective suggesting an increase in tax expense can be interpreted as good news to the market (Lev & Thiagarajan, 1993). Thomas and Zhang (2014) reconcile the opposing results by showing that the variations in results are due to testing model specification. The results of Ayers et al. (2009) study about firm characteristics which affect the ability of taxable income to inform the market regarding the firm are reexamined to be consistent with the Thomas and Zhang's reconciliation framework. This adds dependability to Thomas and Zhang's framework as a reconciling model.

However, the literature has been silent in this regard. Based on these weaknesses, Kim et al. propose a competing argument, risk explanation. They bring out the possibility that the tax expense effect is due to compensation for bearing risk. If risk change can be signaled by tax expense change, then a tax expense increase implies a change in the firm's future riskiness. As the firm becomes riskier in terms of future returns, the expected future stock returns increase.

2.2 Ohlson and Bilinski model to test the cause

Empirical research suggesting a pricing anomaly typically should be reevaluated to determine whether a better explanation exists. Risk could be the real cause of market mispricing that results in anomalous returns. Ohlson and Bilinski (2015) propose a novel and breakthrough approach to determine whether market mispricing is caused by market anomaly or compensation for bearing risk. Their simple and intuitive model can be used to examine tax expense surprise to determine whether the positive relationship between tax expense surprise and future stock returns is due to investors' limited information processing power (anomaly explanation) or risk compensation (risk explanation).

Given the importance of the Ohlson and Bilinski testing model to this line of research and to proposing a future research direction as well, the details of the model are presented. They propose the following logit regression model:

$$P(\text{High return}) = \alpha_1 + \beta_1 X + \Gamma_1 * \text{Risk-controls (H)}$$

$$P(\text{Low return}) = \alpha_2 + \beta_2 X + \Gamma_2 * \text{Risk-controls (L)}$$

In the above model, High returns and Low return are indicator variable taking a value of either 0 or 1. They are stock returns that are higher or lower than specific cut-off returns, respectively. X is the variable of interest.⁵ Risk controls are a set of variables that capture risk of a stock. The coefficients on X in the above equations can be used to evaluate the argument of irrational pricing (i.e., market anomaly).⁷

This approach is based on the intuition that if X has the opposite effects between the two regressions, the anomaly explanation as to why X generates abnormal returns is more plausible. The reason, as provided by Ohlson and Bilinski, is that the opposite signs of the two coefficients (β_1 and β_2) are possible only if investors can earn abnormal returns by increasing the possibility of high returns and decreasing the possibility of low returns. Earning abnormal returns in this fashion is unlikely to result from risk. There are two versions of the irrational pricing (market anomaly). The "strong" version is such that the β_1 and β_2 coefficients in the above model have opposite signs. The "weak" version is associated with a case where one of the coefficients is negative and while the other one is zero.

2.3 Contradictory findings

Given that it is not clear whether the tax expense momentum effect arises from market anomaly or risk factor, Kim et al. (2017) attempt to find the answer by employing the Ohlson and Bilinski approach. Based on the US market data, they find the beta coefficient is significantly positive in the high return group and significantly negative in the low return group. Their results, which are consistent with the "strong" version, suggest that the larger tax expense surprise is positively associated with greater likelihood of high returns and smaller likelihood of low returns. Thus, even though they bring out the possibility that risk can explain the tax expense effect, their results strongly support the anomaly argument.

Most recently, Lee (2021) evaluates the competing (anomaly vs. risk) explanations using the Korean market data. He also tests the competing explanations with the Ohlson and Bilinski model. Unlike Kim et al. Lee documents that both of the β_1 and β_2 coefficients in the model are of the same sign. Both of them are significantly positive, suggesting that the larger tax expense surprise is positively associated with both greater likelihoods of high and low returns. The results appear to support the risk explanation. The intuition that high-risk stocks experience relatively extreme returns, either high or low, to a greater extent than low-risk stocks is consistent with the reported results.

⁵ In the issue at hand, X is tax-expense surprise

⁶ They are stock return volatility, beta, firm size, etc.

⁷ Per Ohlson and Bilinski, this model has a number of strengths: (1) It is intuitive and easy to implement, (2) It does not require specifying expected returns, (3) The precise cut-off points for high and low returns do not affect the results, and (4) Because the dependent variable takes the binary values of 0 or 1, the results cannot be driven by extreme outliers.

However, as Ohlson and Bilinski acknowledge as a drawback of their model, there is a possibility that β_1 and β_2 coefficients of the same sign are generated from an anomaly. Unless this possibility is precluded, their model comes with the limitation that although their test can be used to support the anomaly explanation, it cannot conclusively confirm the risk explanation.

It should be noted that even though this testing model makes it difficult to falsely reject the risk explanation⁸, supporting the risk explanation is even more difficult. To the risk explanation, the Ohlson and Bilinski model represents a parsimonious test, since its inconclusiveness should be supplemented by some other approach.

Given this, it is not clear that Lee's (2021) results are in fact due to risk. In continuing to address the issue as to what causes the tax expense momentum effect, Thomas and Zhang's (2014) clue may be useful. They suggest that when it is difficult to determine which of two competing effects is operating, one can examine one effect in situations where the other effect is weak or non-existent. The next section introduces more recent research relating to the pricing of tax expense surprise with the discussion on their findings and contributions to the literature along with the implications to the cause of the tax expense momentum effect. In addition, based on the interpretation of the evidence reported by these studies and the suggestion by Thomas and Zhang, a cleaner testing method to test the competing explanations is proposed for future research.

3. Related Tax Expense Pricing Studies and Risk Explanation

3.1 Information environment and tax expense pricing

To relate additional research to that of Thomas and Zhang (2011), it is worthwhile to reiterate their argument relating to tax expense surprise. According to them, since tax-related information is not embedded immediately in equity prices, predictability patterns in future stock returns are created. As tax expense surprise serves as a proxy for the firm's future profitability that is not contained in contemporaneous earnings surprise, it is increasingly value relevant.

A more recent study by Kerr (2019) extends the evidence on the incremental value relevance of tax expense surprise to an international sample of firms. He reports two important findings. First, the positive link between tax expense surprise and future stock returns is significant in developed countries, which is consistent with the U.S. evidence. Second, his results show that tax enforcement is critical in the link between tax expense surprise and future equity returns. Specifically, higher levels of tax enforcement create better information environment for tax disclosure and thus have a greater positive effect on the value relevance of tax expense surprise.

Related to the first, Gunaydin (2020) revisits the issue of value relevance of tax expense by researching on a sample of 27 emerging countries. He also finds a strong link between tax expense surprise and future stock returns. It should be noted that collectively the results reported by Kerr and Gunaydin remain intact after various robustness tests such as orthogonalizing tax expense surprise with respect to earnings surprise, alternative specification of the tax expense surprise and excluding loss period observations from the sample.⁹

While Kerr's second finding above about the effect of tax enforcement is new to the literature, it is similar in spirit to the vast body of signaling studies in the accounting and finance literature, which Kerr's argument builds on. Desai et al. (2007) find that tax authority provides a monitoring mechanism of firms to enhance the validity and credibility of the financial information. Related to this, through increased credibility, tax enforcement is shown to have a role to reduce the cost of firm's equity financing, among others (El Ghouli et al., 2011).

As to Kerr's second finding again, even though Gunaydin (2020) does not specifically address the tax enforcement issue with emerging markets, it is postulated that similar evidence to Kerr's second finding would be obtained. Coinciding with these studies, Zhang (2019) addresses the relationship between tax administration and audit assurance in market-based and transition countries in Eastern Europe. One of the implications of his empirical findings is that in market economy countries, the tax administration enhance audit assurance, which in turn suggests that the financial market operates in a better information environment and tax expense surprise could have a greater positive effect on the value relevance. It should be noted that Gunaydin's 27 emerging country sample includes six

⁸ To reject the hypothesis supporting the risk explanation, the estimated coefficients in the two regressions have to be of different signs and statistically significant, which are quite difficult to achieve.

⁹ This exclusion is based on Hayn's (1995) argument that profits are more informative than losses about the firms' future prospects.

European countries, five of which are included in the market-based economy sample in the Zhang study.¹⁰ Given this, Zhang's evidence provides support to the conjecture that Gunaydin's emerging market sample would provide a similar result to Kerr's second finding.

Although the study by Kerr (perhaps Guanydin also) fills agap in this line of research by examining the information environments that affect the role of tax expense as proxy for future profitability, it also casts some doubt on the anomaly explanation. His argument is that tax laws being enforced with greater force limit managerial bias and manipulation of tax amounts. Therefore, value-irrelevant noise in the tax expense signal will be reduced, increasing the incremental value-relevant information contained in tax expense surprise. However, what Kerr confirms raises a fundamental question for a different issue he does not explicitly address. Assume that one accepts the view that the positive relation between tax expense surprise and future, rather than contemporaneous, stock returns implies a market anomaly. The anomaly view is not compatible with Kerr's finding that the positive relation between tax expense surprise and future stock returns is more positive under greater level of tax enforcement (i.e., better information environment). Note that Thomas and Zhang's (2011) argument is that if the information environment is worse, the market anomaly is more severe. The anomaly explanation coupled with his finding effectively implies that the market anomaly is more severe under the superior information environment with greater level of tax enforcement, which is perplexing.

This puzzling implication makes one question the argument that market anomaly is the real cause of the tax expense effect or that market anomaly is real. Relating to this matter, some insight is provided by Green et al. (2011) that show hedge returns to accrual have decayed in the U.S. market. They suggest that the demise of accruals anomaly is partly due to the decline in the size of the mispricing signal. Recently, Hou et al. (2018) replicate bulk of documented anomalies in six categories¹¹ in the accounting and finance literature by compiling extensive data of the U.S. stock markets. Among those, 57 anomalies relate to momentum, i.e., changes. They show that most anomalies, including the tax expense anomaly, either fail to replicate or exhibit significantly smaller magnitudes than originally reported, even if they do replicate. This result suggests that capital markets are more efficient than they appear in previous literature. Collectively, findings by Kerr (2019) and Gunaydin (2020) combined with those by Zhang (2019) and Hou et al. (2018) appear to refute the anomaly explanation and provide indirect support to the risk explanation.

3.2 Analyst' forecasts and tax expense pricing

There is another stream of studies on tax expense pricing that investigate the role of analysts' forecasts in reducing market anomaly. Since these studies not only contribute to the literature but have a bearing on the issue as to the cause of the tax expense momentum effect, a review of key studies is warranted. Relating to Thomas and Zhang's (2011) argument that the opacity and complexity of tax reporting contribute to market's underreaction to tax information to result in a market anomaly, several studies suggest that analysts' forecasts mitigate the opacity of reporting and therefore reduce accrual mispricing. This line of research suggests that analysts enhance firm's information environment and make any deviations from expectations more transparent. For example, Call et al. (2009) and Keung (2010) show that analysts can provide more accurate earnings forecasts by issuing supplemental forecasts. Randhkrishnan and Wu (2014) show that firms with analyst earnings and cash flow forecasts tend to have less accrual mispricing than firms with analyst earnings forecast only. Finally, Mohanram (2014) finds that while the introduction of analyst cash flow forecast mitigates accrual mispricing, its cessation exacerbates the mispricing.

Baik et al. (2016) draw on prior research suggesting the role of analysts' forecast in reducing anomaly. They argue that if analysts supplement their earnings forecasts with pre-tax income forecasts, investors' attention and assessment on the effect of tax expense surprise on future profitability is enhanced, and the implications of income tax expense will be apparent as a result of implicit forecast. Thus, they suggest that the mispricing of tax expense surprises (i.e., anomaly) can be alleviated by the supplemental information of pre-tax income forecasts.¹² They find that firms with analysts' pre-tax income forecasts are less likely to result in mispricing of tax expense. The results confirm that analysts' implicit forecasts of tax expense reduce the tax expense anomaly.

¹⁰ Gunaydin's sample includes Czech Republic, Greece, Hungary, Poland, Romania and Russia as European countries. All countries but Russia are included in the Zhang's sample of countries with market economy.

¹¹ Their replication target consists of 452 anomalies, including 57, 69, 38, 79, 103, and 106 anomalies from the momentum, value versus growth, investment, profitability, intangibles, and trading frictions categories, respectively.

¹² From a different perspective, it can be argued that less mispricing of accruals is driven by better quality accrual itself rather than greater investor attention on supplemental information. Relating to this argument, Randhkrishnan and Wu (2014) and Mohanram (2014) find that the attention-directing cash flow forecasts have a significant incremental effect in reducing accrual anomaly, although the quality of accrual also accounts for it.

3.3 Proposed cleaner test

Although the literature on tax expense momentum has not provided a definite answer as to which effect cause future stock returns to be positively related to tax expense surprise, relating, although not direct, evidence reported by more recent studies provides some hint pointing to the risk explanation. As discussed, evidence reported by Baik et al.

(2016) and several studies discussed earlier in this section can be interpreted as indirect counter evidence for the anomaly explanation. If the tax expense anomaly is reduced significantly, the question of whether the tax expense momentum effect is due to anomaly or risk can become a trivial question. Then, it is possible to test whether the effect is in fact due to risk.

How can future research do this test? In resolving the issue as to the cause of the tax expense surprise effect, Baik et al.'s (2016) finding that firms with analysts' implicit forecasts of income tax expense experience less severe tax expense anomaly also provides a meaningful implication for future research. In addressing a different issue of tax expense, Thomas and Zhang (2014) suggest an ad hoc way to limit the impact of some variables, when there are competing explanations. Per them, if a study intends to investigate on one of competing effects, it is desirable to select model specifications and samples that limit the ability of the other effect. This suggestion is very useful in evaluating the research and proposing ways to address the unresolved issues at hand.

Drawing on Ohlson and Bilinski (2015) and Baik et al. (2016) together, it is proposed that future research perform the Ohlson and Bilinski test with a partitioned sample. Specifically, the sample is to be divided into two groups, one with pre-tax income forecasts (no or little anomaly group) and the other without such forecasts (anomaly group). If the coefficients on tax expense surprise in the Ohlson and Bilinski equations are of the same sign for the first group but not so in the second group, the research can find clean evidence that the tax expense momentum effect (i.e, positive relation between tax expense surprise and future stock return) is due to risk. As discussed in section 2, the Ohlson and Bilinski test very is parsimonious to the risk explanation. Therefore, the proposed testing approach is a good ad hoc approach to address this paper's penetrating issue, the cause of the tax expense momentum effect.

4. Conclusion

AFIT research has blossomed in the recent few years. Within the vast body of AFIT research, this paper focuses on surveying the research on the pricing of tax expense information in the market. This area is the newest realm of AFIT research. Mostly, the research has been performed by accounting scholars who have expertise in both financial accounting and taxation. As Graham et al. (2012) note, this "rare" combination of the two specialties has hindered our complete understanding, with inconsistent evidence and major issues remaining unresolved. Given that there have been a number of major developments since the Graham et al. survey, this paper intends to contribute to the literature by conducting the first up to date review. In this paper, the task is done with a framework to better interpret extant research and interrelate the studies.

Mainly, this review deals with the studies that investigate the tax expense momentum effect. This effect operates in such a way that tax-related information which is not embedded immediately in equity prices creates predictability patterns in future stock returns. This make tax expense surprise serve as a proxy for the firm's future profitability as increasingly value relevant information. This effect is first addressed and confirmed by Thomas and Zhang (2011) and subsequently reconfirmed or revisited by several studies.

However, the extant literature is mostly silent about whether this tax momentum effect is evidence of market anomaly or compensation for bearing risk. Empirical evidence is either mixed or inclusive for the two competing explanations. However, the results by several related studies (e.g., Kerr, 2019; Gunaydin, 2020; Baik et al. 2016; Hou et al., 2018; Zhang 2019) collectively appear to be inclined to indirectly lend support to the risk explanation. With the evaluation of the findings and the methodologies of those studies, this paper proposes a cleaner testing approach to guide future research directions.

This line of AFIT research is hopeful that further discovery of knowledge and enhanced understanding will resolve contradicting and puzzling outcomes and expand our knowledge about the roles of tax information in financial reporting.

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