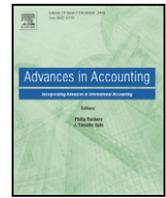




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Environmental uncertainty and the market pricing of earnings smoothness[☆]

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ABSTRACT

Environmental uncertainty induces variability in an organization's reported earnings, and accentuates the information asymmetry between its managers and outside stakeholders. Managers operating in an environment of high uncertainty, therefore, have an incentive to reduce such variability by smoothing income numbers. We investigate the stock market response to earnings smoothness for firms operating in an environment of high uncertainty. We measure income smoothing by the negative correlation of a firm's change in discretionary accruals with its change in pre-managed earnings as per Tucker and Zarowin (2006). Using future earnings response coefficient (FERC) methodology to measure the informativeness of smoothed earnings, and two measures of environmental uncertainty, this paper documents that current stock price incorporates more information about future earnings for firms operating in high uncertain environments, thus supporting the informational value view of income smoothing.

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1. Introduction

The purpose of this paper is to investigate the stock market response to earnings smoothness for firms operating in an environment of high uncertainty. A sizable volume of academic literature has documented the managerial propensity to smooth earnings (Buckmaster, 2001). Earnings smoothing is a special case of earnings management where managers smooth out inter-temporal volatility in reported earnings to deliver a stable earnings stream (Biedleman, 1973). Fudenberg and Tirole (1995) defined income smoothing as “the process of manipulating the time profile of earnings or earnings reports to make the reported income stream less variable, while not increasing reported earnings over the long run”. Income smoothing is pervasive, as documented by Graham, Harvey and Rajgopal's (2005) survey of Chief Financial Officers. An overwhelming majority of the survey respondents prefer smooth earnings; and, more importantly, about 78% of the respondents would give up economic value in exchange for smooth earnings (Graham et al., 2005, 5). Smoothed earnings are perceived as being less risky by investors, and earnings prediction is perceived as easier when current and immediate past reported earnings are smoothed.

Stock market reaction to smoothing naturally has been a matter of academic interest. There are two competing hypotheses regarding management's motives for earnings smoothness. On one hand, managers arguably use income smoothing to make public their private information about the firm's future earnings (Chaney & Lewis, 1995; Ronen & Sadan, 1981; Tucker & Zarowin, 2006). The rationale for such an exercise is that increased volatility associated with unsmoothed earnings increases the potential loss suffered by the uninformed traders (when they trade for liquidity reasons). Chaney and Lewis (1995), therefore, argued that smoothing of earnings for this purpose will lead to a higher earnings response coefficient, which is empirically supported by Hunt, Moyer, and Shevlin (2000). Tucker and Zarowin (2006) similarly argued that income smoothing impounds future (private) information into contemporaneous returns.

Others argue management's motives for income smoothing are non-normative; that is, managers smooth income in an attempt to garble earnings for private benefit. Healy (1985) provided evidence of smoothing as a function of managerial compensation schemes; and, Fudenberg and Tirole (1995) modeled income smoothing as a function of managerial job security concerns. DeFond and Park (1997) indirectly tested the motivation proposed by Fudenberg and Tirole (1995) and provided evidence that managers of firms experiencing poor (good) performance in the current period and expected good (poor) performance in the next period deploy income-increasing (income-decreasing) discretionary accruals respectively in order to reduce job security concerns.

Empirical evidence from Subramanyam (1996), Hunt et al. (2000), and Tucker and Zarowin (2006) supported the informational over garbling view of smoothing by documenting a positive association between current stock returns and smoothed earnings. It is, however,

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not clear ex ante whether all firms engaging in earnings smoothing enjoy the same benefit. One of the contextual factors that could result in cross-sectional differences in the market reaction to earnings smoothness is the environmental uncertainty defined as “the unpredictability of the actions of customers, suppliers, competitors and regulatory groups” (Govindarajan, 1984). High environmental uncertainty increases the risk of accurately assessing future earnings and provides incentives for managers to use reporting discretion in reducing the variability to provide a more predictable earnings stream (Ghosh & Olsen, 2008). Although there is a considerable volume of research on the effect of environmental uncertainty on management control system designs in the management accounting literature (see Chenhall, 2003 for a review), there is little, in the financial reporting area. Ghosh and Olsen (2008) conducted an empirical investigation of the effect of environmental uncertainty on management reporting choices to external stakeholders. They found evidence that managers attempt to reduce the additional variability imposed by the high uncertain environment via discretionary accrual policies. Although Ghosh and Olsen (2008) examined the effect of environmental uncertainty on firms' reporting choices, they did not investigate market response to such earnings smoothness. Motivated by their call for additional research on this issue, we test for the market response to earnings smoothness in the context of uncertain business environment.

We hypothesize that smoothed future earnings will be more strongly related with contemporaneous returns in a high uncertain environment based on an information asymmetry argument developed in the next section. Using a sample of US listed firms from 1988 to 2006, and employing the future earnings response-based regression method, we find that environmental uncertainty plays an important role in the valuation of earnings smoothness. Two indicators are used to capture environmental uncertainty, namely, the sales variability and the dispersion of financial analysts' earnings forecasts. Both these environmental uncertainty proxies reveal that the three way interactions among income smoothing, environmental uncertainty and future earnings are positive vis-à-vis current stock returns, supporting the conjecture that smoothed earnings are more informative about future earnings for firms operating in an environment of high uncertainty. These results remain robust to the inclusion of certain firm-specific control variables. This paper contributes to the earnings smoothing literature by documenting a particular context where income smoothing is likely to be beneficial. Prior research provides general evidence on the market valuation of earnings smoothness (Michelson, Jordan-Wagner, & Wootton, 1995, 2000). By contrast, this study takes a step forward and identifies environmental uncertainty as an important contextual variable which encourages managers to engage in earnings smoothing.

The paper proceeds as follows. The next section outlines the theoretical underpinnings of the rationale for, and the market assessment of, earnings smoothness in the context of the environmental uncertainty. Section 3 explains the research design issues. The following section describes the sample selection procedure and provides the test results. The final section concludes.

2. Theoretical underpinnings

2.1. Income smoothing

To ensure that financial statement users are not misled by poor quality financial statements, organizations are required to prepare financial statements based on Generally Accepted Accounting Principles (hereafter GAAP). However, GAAP cannot be overly restrictive, and needs to allow for flexible reporting to permit managers to convey their superior information about the operating environment of their businesses. This increases the value of financial reporting as a relevant and credible form of communication. However, this same use

of judgment also creates opportunities for earnings management, where managers choose reporting methods and estimates with the intention of altering earnings figures for their own benefit (Healy & Wahlen, 1999). Consequently, the potential for earnings management to mislead financial statement users and alter their resource allocation decisions has been identified as a significant threat to financial reporting credibility (Levitt, 1998). An earnings management strategy that has survived the test of time is earnings smoothing, conceptualized as managerial reporting discretion to intentionally dampen the fluctuations of their firms' actual earnings (Biedleman, 1973).

A number of analytical models have been proposed explaining the rationales for income smoothing by corporate managers. Lambert (1984) used agency theory to model income smoothing as rational equilibrium behavior by managers. In his model, a manager chooses actions to maximize his own wealth based on the incentives provided in the compensation scheme. Moses (1987) supported this theory empirically by linking smoothing behavior to the existence of bonus compensation plans. Trueman and Titman (1988) suggested that high perceived earnings volatility increases the perceived bankruptcy probability of a firm and, hence, the borrowing cost, so earnings smoothing becomes a beneficial act for current stockholders as well. Dye (1988) showed that current shareholders may demand earnings smoothing in order to influence perceptions of potential shareholders about firm value where the manager's contract with current shareholders is unobservable (an external demand for earnings management). Fudenberg and Tirole (1995) argued that management can minimize the probability of being fired by developing a smooth performance record because the decision to fire or retain depends more on current performance than on past performance. DeFond and Park (1997) indirectly tested this theory and reported that managers do indeed smooth earnings in order to reduce job security concerns. Sankar and Subramanyam (2001) and Kirschenheiter and Melumad (2002) also modeled income smoothing as an efficient mechanism for communicating private information by corporate managers. Goel and Thakor (2003) show analytically that increased volatility associated with unsmoothed earnings increases the potential loss suffered by the uninformed stockholders when they trade for liquidity reasons. Volatile firm earnings encourage some investors to engage in costly private information acquisition in order to become informed, and the uninformed investors lose more from trading with such informed investors. This situation discourages uninformed investors from actively participating in stock trading, with the consequences of increased illiquidity, and reduced stock price. The rational manager responds to such a situation by smoothing earnings in order to affect market perceptions of earnings volatility and, hence, the firm's stock price.

The analytical models described above are developed to address the question of why do managers smooth earnings? Managers will not engage in smoothing unless they perceive some benefits coming out of their actions. One such benefit is the reduction in the cost of capital. Francis, LaFond, Olsson, and Schipper (2004) found a strong negative association between income smoothing and the cost of equity capital estimates. Verdi (2006), however, failed to support Francis et al. (2004) using an alternative cost of capital estimate derived by Gebhardt, Lee, and Swaminathan (2001). McInnis (2010), too, failed to find any association between earnings smoothness and average stock returns using a long time-series of US data. In an international context, LaFond, Lang and Skaife (2007) found that firms with greater discretionary smoothing experience higher bid-ask spreads and lower trading volumes compared to firms with lower discretionary smoothing. Bhattacharya, Daouk and Welker (2003) also found that countries with smoother earnings have a higher cost of capital.

Income smoothing has been studied in the context of firm valuation as well (Dechow & Skinner, 2000). The evidence, however, is mixed. For example, Michelson et al. (1995) found that US smoothers have a lower ten-year annualized return than non-smoothers while Michelson et al. (2000) have found that US smoothers have a higher cumulative average

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