

Business Strategic Orientation and Income smoothing: Evidence from Prospectors in Japan

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Abstract

This study examines how business strategic orientation influences income smoothing. While prior accounting research attributes income smoothing mainly to economic fundamentals and institutional factors, limited evidence exists on the role of strategic orientation. Building on the Miles and Snow (1978) typology, I investigate differences in income smoothing across prospector and defender firms. Using a comprehensive income smoothing score constructed from established measures, I document three main findings. First, prospectors engage more actively in income smoothing, whereas defenders exhibit significantly lower levels of smoothing. Second, decomposing income smoothing into informational and garbling components shows that the association with prospector is driven primarily by the garbling component. Third, additional analyses indicate that even among firms with similar growth opportunities, income smoothing varies systematically with business strategy. Overall, our results demonstrate that business strategy, an important manifestation of managerial policy, systematically affects both the extent and the nature of income smoothing, contributing to the literature on earnings quality.

Key words: Business Strategy; Earnings Management; Income Smoothing; Financial Accounting; Financial Reporting Behavior.

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1. Introduction

Over the past several decades, accounting and management research has increasingly recognized that financial reporting outcomes are not merely mechanical reflections of firms' underlying economic performance, but are shaped by managerial discretion exercised within broader organizational and strategic contexts. While early accounting studies primarily emphasized firm-level economic fundamentals, such as profitability, leverage, and growth opportunities, to explain variations in earnings properties, more recent research highlights the role of managerial choices and strategic orientation in influencing financial reporting behavior (e.g., Sudarsanam, 1995; Dechow et al., 2010; Bentley et al., 2013; Chen and Zhang, 2014).

Business strategy captures a firm's long-term orientation toward value creation and competitive advantage and shapes managerial decisions regarding investment, innovation, and risk-taking. Firms pursuing different strategic objectives are therefore likely to face distinct capital market pressures and to adopt heterogeneous financial reporting practices. Despite the central role of strategic orientation in guiding managerial behavior, empirical evidence on how strategic orientation influences specific earnings properties, particularly income smoothing, remains limited. This omission is notable given that income smoothing is widely regarded as an important manifestation of managerial discretion and earnings quality in capital markets (Barth et al., 1999; Myers et al., 2007).

Income smoothing reflects CEOs' discretionary efforts to reduce volatility in reported earnings over time by dampening unusually high earnings and supporting earnings in weaker periods (Tsuji, 2011). Prior studies document that income smoothing behavior is associated with a range of firm characteristics, including industry structure, leverage, profitability, operating performance, capital intensity, and institutional constraints. The literature further suggests that managers smooth earnings to mitigate adverse market reactions and stabilize stock prices (Barth et al., 1999; Thomas and Zhang, 2002; Myers et al., 2007). However, while these studies identify important economic and institutional determinants of income smoothing, they pay relatively little attention to firms' strategic orientation.

In management research, a substantial body of literature argues that effective strategies require firms to prioritize specific value objectives, as simultaneously pursuing multiple dimensions of value is often inefficient. Consistent with this view, prior studies classify business strategies into distinct types based

on firms' dominant strategic objectives, such as the prospector, analyzer, and defender typology proposed by Miles and Snow (1978), or the differentiation, cost leadership, and focus strategies articulated by Porter (1980). These strategic orientations shape firms' investment policies, risk preferences, and growth trajectories, and are therefore likely to influence managerial incentives and reporting decisions.

Building on this framework, I adopt the Miles and Snow (1978) typology and focus on the contrast between prospector, analyzer and defender strategies. *Prospectors* emphasize innovation, frequent market entry, and long-term growth opportunities, relying heavily on research and development and undertaking relatively high-risk investments. In contrast, *defenders* focus on cost efficiency, stable product lines, and cautious growth, seeking competitive advantage through economies of scale and operational efficiency. *Analyzers* takes the intermediate position between the prospector and defender strategies. These differences imply that prospectors, which are more exposed to growth expectations and valuation pressures, may face stronger incentives to manage the temporal pattern of reported earnings than defenders.

The empirical analysis yields the following three findings.

First, following Dou et al. (2013), I aggregate past income smoothing measures to construct a comprehensive income smoothing score and examine its association with business strategy types. The results indicate that the two opposite edges of the strategies—prospector and defender—exhibit distinct patterns. Specifically, prospectors tend to engage more actively in income smoothing, whereas defenders tend to refrain from income smoothing.

Second, I decompose income smoothing into an informational component and a garbling component and examine their associations with business strategy types. The results show that the informational component does not exhibit statistically significant associations with business strategy. However, the garbling component is positively associated with the prospector and negatively associated with the defender. This result suggests that income smoothing implemented by prospectors is predominantly opportunistic in nature rather than informational.

Third, motivated by the view that stock price maintenance serves as an incentive for income smoothing and that firms with higher growth opportunities are more likely to engage in income smoothing than those with lower growth opportunities, I conduct additional analyses by business

strategy. The results reveal a positive association for prospectors, whereas no significant association is observed for defenders. These results suggest that, even among firms with comparable growth opportunities, the extent of income smoothing varies systematically with business strategy.

This conjecture is consistent with capital market evidence showing that firms with high growth potential are more prone to investor overvaluation and face greater downside risk when expectations are not met (Skinner and Sloan, 2002; Myers et al., 2007). Habib and Hasan (2017) further document that prospectors exhibit higher stock price crash risk than defenders, reflecting their greater exposure to expectation-driven valuation corrections. If investors form expectations about future performance based on firms' strategic orientation, managers of prospectors may have stronger incentives to engage in income smoothing to maintain stock price stability.

This study makes the following primary contributions. I examine the relationship between firms' business strategies and income smoothing, with a particular focus on differences between prospector and defenders. I further distinguish between the informational and opportunistic components of income smoothing to shed light on the underlying motives of such behavior. By doing so, this study contributes to the literature on earnings quality by demonstrating that business strategy, an important manifestation of managerial policy-systematically influences both the extent and the nature of income smoothing. These findings may also be of interest to investors, analysts, and regulators concerned with assessing earnings quality and understanding how strategic orientation affects financial reporting behavior.

The remainder of the paper proceeds as follows. Section 2 reviews the related literature and develops the hypotheses. Section 3 describes the research design and sample. Section 4 presents the empirical results. Section 5 reports additional analyses, and Section 6 concludes.

2. Prior Research and Hypotheses Development

2.1 Prior Research

Business strategy has a profound influence on fundamental aspects of the firm, including organizational structure, investment decision-making, and the imitability of products. The objective of a business strategy is to deliver distinctive value to customers and to build competitive advantage by promoting specific value dimensions (Karampinis et al. 2024). Through their strategic choices,

firms emphasize particular dimensions of value creation, which in turn shape their business activities and long-term growth trajectories.

Differences in business activities affect the availability of growth opportunities and, consequently, firms' growth potential. Skinner and Sloan (2002) explain that firms with higher growth potential are more likely to have overvalued equity, suggesting that the stocks of prospectors are more prone to overvaluation than those of defenders. Conversely, Myers et al. (2007) demonstrate that when firms with high growth potential fail to meet investors' expectations, overvalued stocks are more likely to experience stock price crashes. Consistent with this view, Habib and Hasan (2017) show that prospectors face higher stock price crash risk than defenders. Because new product development and entry into new markets inherently involve a risk of failure, prospectors operate under conditions of greater uncertainty. Managers of prospectors are therefore likely to be more concerned than managers of firms adopting other business strategies about the penalties associated with failing to meet performance expectations.

In recent years, beginning with Bentley et al. (2013), a growing body of management and accounting literature has examined the effects of business strategy on firms' accounting behavior. Houque et al. (2013) investigate the relationship between accrual-based earnings management and business strategy, demonstrating that the extent of accrual earnings management varies systematically with firms' strategic orientations. Similarly, Karampinis et al. (2024) provides evidence on the relationship between real earnings management and firms' business strategies. Despite this growing literature, how business strategy affects income smoothing—widely recognized as an important form of earnings management—has not yet been fully understood.

To avoid penalties imposed by capital markets, managers of prospectors may therefore adjust their financial reporting behavior. Prior studies predict that business strategy systematically affects financial reporting outcomes. Bentley et al. (2013), drawing on the strategic typology of Miles and Snow (1978), develop a quantitative measure of firms' competitive strategies based on six dimensions, including research and development intensity, growth orientation, and organizational stability, and examine firms' tendencies to engage in financial misreporting across different strategies. Their results show that defenders are less likely to engage in accounting fraud, whereas prospectors exhibit a higher incidence of accounting irregularities. Bentley-Goode et al. (2017) further investigate the underlying mechanisms and find that prospectors tend to adopt more decentralized organizational structures,

which are associated with lower-quality internal control systems and, consequently, a higher likelihood of accounting irregularities.

These studies suggest that the effect of business strategy on financial reporting arises largely from managerial behavior and discretion. Such effects are often realized through accounting manipulation, among which earnings management is the most widely examined form. When earnings management is implemented over multiple accounting periods with the objective of maintaining earnings at a relatively stable level, it is commonly referred to as income smoothing.

Income smoothing comprises two components: a garbling component aimed at extracting managers' private benefits, and an informational component intended to enhance financial reporting. The garbling component reflects opportunistic managerial behavior, whereby managers adjust reported earnings to withhold bad news. A substantial body of prior research shows that such behavior deteriorates earnings quality and may impair firm value in the long run (Kaplan and Minton, 1994; Kang and Shivdasani, 1995). In contrast, the informational component of income smoothing represents efforts to improve the disclosure of firm information and has been shown to have favorable effects on equity holdings (Shuto, 2023).

Myers et al. (2007) show that firms achieving consecutive earnings increases through income smoothing are rewarded by the stock market; however, when this pattern is interrupted, such firms experience stock price crashes. Habib and Hasan (2017) further document that firms adopting a prospector face higher crash risk than other firms and suggest that this result is partly driven by delayed disclosure of bad news in financial reporting. Specifically, because firms pursuing a prospector tend to have stronger growth prospects, their stock prices are more likely to be overvalued, and when overly optimistic expectations are not met, stock prices decline (Skinner and Sloan, 2002). To sustain such overvaluation, managers of growth-oriented firms have incentives to withhold bad news through income smoothing. In this context, reported earnings reflect not only underlying economic performance but also the interaction between the accounting system and unobservable financial performance (Dechow et al., 2010)¹. Business strategy, by shaping managerial orientation, risk exposure, and growth dynamics, may therefore represent an important dimension of such unobservable

¹ Dechow et al. (2010) illustrate the relationship between reported earnings and financial performance using the expression *Reported Earnings* $\equiv f(X)$. Here, X represents the firm's unobservable underlying financial performance, and the function f denotes the accounting system that transforms this unobservable financial performance into reported earnings.

performance that influences how economic outcomes are translated into reported earnings.

In summary, the prior literature suggests that managers may engage in income smoothing as a means of maintaining stock prices. Because prospectors face more intense pressure to sustain market expectations, income smoothing, widely viewed as a mechanism for stabilizing stock prices (Gordon, 1964; Beidleman, 1973; Trueman and Titman, 1988; Barth et al., 1999; Thomas and Zhang, 2002; Myers et al., 2007), may play a particularly important role in the financial reporting strategies of such firms, facilitating the continuous attainment of earnings benchmarks such as loss avoidance and earnings decrease avoidance.

2.2 Hypotheses

In studies examining the effects of business strategy on reported earnings and accounting manipulation, two perspectives exist regarding whether such effects are primarily driven by managerial discretion. Bentley et al. (2013) argue that business strategy leads to different organizational structures and operating policies, and that the decentralized organizational form of prospectors makes them more prone to accounting irregularities. Under this view, differences in accounting manipulation arise mainly from managerial discretion. In contrast, Karampinis et al. (2024) contends that business strategy not only shapes managerial decisions but also directly affects earnings dynamics through operational outcomes that cannot be fully attributed to managerial intent alone.

Building on the preceding discussion, this study adopts the view that differences in business strategy shape investors' expectations and stock price reactions to firm performance, which in turn influence managers' incentives to engage in income smoothing for the purpose of stock price maintenance. Accordingly, I develop our hypotheses based on the framework of Bentley et al. (2013), which assumes that managers can exercise discretion over accounting manipulation—specifically income smoothing, through managerial choice.

Prospectors can achieve high profitability when innovation and market entry are successful, deriving competitive advantages from differentiation. However, research and development and marketing activities are inherently risky, and projects may fail or products may become commoditized. Consequently, prospectors are continuously exposed to uncertainty and volatile performance. In contrast, defenders narrowly define their product markets and enhance price competitiveness through

cost efficiency, generating profits through low-priced mass sales without incurring innovation-related expenditures. As a result, defenders exhibit lower growth potential, face less uncertainty, and are less likely to be overvalued by capital markets.

As shown by Skinner and Sloan (2002), firms with high growth potential tend to be overvalued and face larger penalties when they fail to meet investors' expectations. Habib and Hasan (2017) further show that prospectors face higher stock price crash risk than firms adopting other strategies. Accordingly, managers of prospectors are expected to have stronger incentives to engage in income smoothing for the purpose of maintaining stock prices. Based on these arguments, I propose the following hypothesis:

H1: Prospectors are expected to exhibit a higher level of income smoothing than defenders.

Investors often invest in prospectors in anticipation of competitive advantages arising from innovation and market entry and therefore hold strong expectations regarding their growth potential. However, as noted by Miles and Snow (1978), research and development and marketing activities under a prospector are inherently uncertain and may fail. When such failures occur, managers may engage in earnings management to conceal the associated deterioration in performance. Although earnings management can temporarily stabilize reported earnings, it increases financial reporting opacity and, in turn, elevates stock price crash risk.

Dou et al. (2013) decompose income smoothing into an informational component and a garbling component. In the context of prospectors, income smoothing is less likely to serve an informational purpose and more likely to be used to avoid stock price declines by withholding bad news. Accordingly, this study decomposes income smoothing into its components and proposes the following hypothesis:

H2: Prospectors are expected to exhibit a higher level of the garbling component of income smoothing than defenders.

3. Research Design

3.1 Measuring business strategy

This study aims to examine the effect of business strategy orientation on income smoothing. In this context, it is necessary to quantitatively measure business strategy. Accordingly, following Bentley et

al. (2013), I quantify business strategy using with the six variables. All variable definitions are reported in Table 1 below.

Table 1 Variable definitions used to measure BS

Variable	Measurement	Economic Interpretation	Expected Relation to Strategy
εEMP5	Standard deviation of the total number of employees computed over a rolling prior five-year period.	Proxy for employee turnover and workforce stability. Higher values indicate greater variability in employment and higher labor turnover.	Prospector: Higher (shorter tenure, higher turnover)
			Defender: Lower (stable workforce, internal promotion)
SGA5	Ratio of selling, general, and administrative (SG&A) expenses to sales, computed as a rolling prior five-year average.	Captures the firm's emphasis on marketing, sales promotion, and customer development activities.	Prospector: Higher (greater investment in marketing and customer acquisition)
			Defender: Lower
RD5	Ratio of research and development expenditures to sales, computed as a rolling prior five-year average.	Measures the firm's propensity to pursue innovation and new product development.	Prospector: Higher (more innovative activities)
			Defender: Lower
EMPS5	Ratio of the number of employees to sales, computed as a rolling prior five-year average.	Proxy for operational efficiency in production and service delivery. Higher values indicate lower labor productivity.	Prospector: Higher or neutral
			Defender: Lower (greater operational efficiency)
REV5	One-year percentage change in total sales, computed as a rolling prior five-year average.	Proxy for historical growth and growth opportunities.	Prospector: Higher (greater growth opportunities)
			Defender: Lower
CAP5	Net property, plant, and equipment scaled by total assets, computed as a rolling prior five-year average.	Measures capital intensity and emphasis on production facilities.	Prospector: Lower
			Defender: Higher (greater capital intensity)

After computing each indicator, to construct the composite index (BS), each variable is ranked into industry-year quintiles. Within each industry-year, observations in the highest quintile are assigned a score of 5, those in the next quintile a score of 4, and so on, down to a score of 1 for the lowest quintile. The BS score is then obtained by summing the scores of the six variables for each firm-year. Consequently, the theoretical maximum (minimum) score is 30 (6). I classify firms with scores ranging from 6 to 12 as defenders, those with scores ranging from 24 to 30 as prospectors, and those with scores between 13 and 23 as analyzers. Pro is a dummy variable equal to 1 if a firm is classified as a prospector firm and 0 otherwise, and Def is a dummy variable equal to 1 if a firm is classified as a defender firm and 0 otherwise².

3.2 Decomposition of smoothness

This subsection explains how income smoothing is measured. Specifically, following Dou et al. (2013), I conduct a principal component analysis (PCA) using three income smoothing measures to construct a composite income smoothing score, which serves as the proxy for income smoothing. In what follows, I describe the income smoothing measures used in the principal component analysis³.

The first income smoothing measure is based on Francis et al. (2004) and captures the extent of smoothing by contrasting the volatility of earnings with that of cash flows. Specifically, as shown in Equation (1), it is computed as the negative of the ratio of the standard deviation of the earnings before extraordinary items to the standard deviation of operating cash flows.

$$ES1_{i,t} = \frac{\sigma(NI_{i,t})}{\sigma(CFO_{i,t})} * (-1) \quad (1)$$

In this measure, the earnings before extraordinary items and accruals are scaled by total assets at the beginning of the period (t-1), and the standard deviations are computed as rolling standard deviations over the prior five years (from t-4 to t). ES1 is calculated using the standard deviation of earnings and the standard deviation of operating cash flows. Accordingly, a higher degree of income

² Following the methodology of Bentley et al. (2013), our sample consists of 2,343 observations classified as prospector firms and 3,743 observations classified as defender firms, while the number of analyzer firm observations is 28,994.

³ All variables used in the estimation of income smoothing are defined in Appendix A.

smoothing implies higher earnings quality, resulting in a higher value of ES1.

The second income smoothing measure is ES2, which is defined, as shown in Equation (2), as the correlation coefficient ρ between changes in accruals and changes in operating cash flows.

$$ES2_{i,t} = \rho[\Delta ACC_{i,t}, \Delta CFO_{i,t}] * (-1) \quad (2)$$

With respect to the calculation of ES2, some prior studies use the raw correlation between ΔACC and ΔCFO as a measure of income smoothing (Land and Lang, 2002; Bhattacharya et al., 2003; Leuz et al., 2003; LaFond et al., 2007; Myers et al., 2007; Grant et al., 2009; Lang et al., 2009; Perotti and Wagenhofer, 2014). However, in order to align the sign of ES2 with that of ES1, this study multiplies the correlation between ΔACC and ΔCFO by -1 . Accordingly, higher values of ES2 indicate a greater degree of income smoothing⁴.

The third measure of income smoothing (ES3) is based on Tucker and Zarowin (2006) and Grant et al. (2009), and is defined as the correlation between discretionary accruals (DAC) and non-discretionary income (NDNI). The calculation formula is as follows in Equation (3).

$$ES3_{i,t} = \rho[\Delta DAC_{i,t}, \Delta NDNI_{i,t}] * (-1) \quad (3)$$

In the above formula, ΔDAC represents the change in discretionary accruals from the previous year ($DAC_{i,t} - DAC_{i,t-1}$)⁵. $\Delta NDNI$ represents the change in non-discretionary income, calculated by subtracting DAC from the earnings before extraordinary items divided by total assets at the beginning of the period ($NDNI_{i,t} - NDNI_{i,t-1}$). The correlation between discretionary accruals (DAC) and non-discretionary income (NDNI) is an extension of the correlation between ΔACC and ΔCFO , and a stronger negative correlation indicates more pronounced income smoothing behavior. Therefore, to align with other income smoothing measures in this study, the result is multiplied by -1 .

To test Hypothesis 2, I extract the opportunistic part of income smoothing. First, principal

⁴ Even after excluding the effects of earnings management, under accrual accounting, accruals and cash flows are negatively correlated.

Accordingly, the average correlation between ΔACC and ΔCFO is expected to be negative (Dechow, 1994). However, a more strongly negative correlation suggests a higher likelihood that income smoothing is achieved through earnings management that is unrelated to firms' fundamental performance (Leuz et al., 2003; Myers et al., 2007; Shuto, 2023). Therefore, a smaller (i.e., more negative) correlation between ΔACC and ΔCFO indicates a higher degree of income smoothing. To ensure consistency in interpretation, this correlation is multiplied by -1 , such that a higher value of ES2 represents a greater degree of income smoothing.

⁵ Tucker and Zarowin (2006) propose the future earnings response coefficient (FERC) as a measure to estimate the extent to which current stock prices incorporate information about future earnings. Specifically, if earnings smoothing enhances the information role of earnings, stock returns should reflect a greater amount of information about future earnings, and firms that engage more actively in earnings smoothing should exhibit higher FERC values. In contrast, if earnings smoothing merely distorts the underlying information content of earnings, stock returns will reflect little information about future earnings, and FERC is expected to be lower.

component analysis is performed using the three aforementioned measures of income smoothing. This is defined as the "Comprehensive Income smoothing Score" (ES4). Then, using the estimation methods of Dou et al. (2013), ES4 is decomposed into the information provision part and the garbling part.

Specifically, based on the estimation method of Tucker and Zarowin (2006), the Future Earnings Response Coefficient (FERC) is first measured using the following Equation 4.

$$R_{i,t} = \alpha_0 + \beta_1 X_{i,t-1} + \beta_2 X_{i,t} + \beta_3 Profit_{i,t_3} X_{i,t_3} + \beta_4 Loss_{i,t_3} X_{i,t_3} + \beta_5 R_{i,t_3} + \varepsilon_{i,t} \quad (4)$$

As an estimation approach, the coefficients in Equation (4) are estimated using ordinary least squares (OLS) for each group of firms belonging to the same industry-year. Among the estimated coefficients, β_3 and β_4 capture market reactions when future earnings are positive and negative, respectively, and are defined as FERC_Profit and FERC_Loss.

Finally, to decompose income smoothing into its informational component and garbling component, I conduct regression estimations using FERC_Profit and FERC_Loss, following prior studies. Here, the subscript *ind* denotes industry.

$$ES4_{i,t} = \alpha_0 + \beta_1 FERC_Profit_{ind,t} + \beta_2 FERC_Loss_{ind,t} + \varepsilon_{i,t} \quad (5)$$

Specifically, using the above formula, I perform regression estimation by the method of least squares to obtain the predicted values of the dependent variable ES4, which is then defined as the information provision part of income smoothing⁶. The information provision part of income smoothing refers to the part of income smoothing related to the investor's ability to predict future earnings. Next, the residuals ε are taken as the garbling component of income smoothing (ES_GAR)⁷.

3.3 Models

The growth potential of a company varies depending on the business strategy it adopts, and stock price crash risk is also influenced. This study aims to investigate whether these impacts also affect the

⁶ The informational component of income smoothing refers to the portion of earnings smoothing that is associated with investors' ability to predict future earnings.

⁷ The garbling component of income smoothing represents the portion of earnings smoothing that does not provide investors with information about future earnings.

intensity of income smoothing. To examine the impact, the following equation (6) and (7) are considered.

$$ES4_{i,t} = \alpha_0 + \beta_1 Pro_{i,t} + \beta_2 Def_{i,t} + \beta_3 TA_{i,t} + \beta_4 SALESSD_{i,t} + \beta_5 RDINT_{i,t} + \beta_6 SALESGR_{i,t} + \beta_7 OPCYCLE_{i,t} + \beta_8 NEGLNI_{i,t} + \beta_9 NEGLDNI_{i,t} + \varepsilon_{i,t} \quad (6)$$

$$ES4_{i,t} = \alpha_0 + \beta_1 BS_{i,t} + \beta_2 TA_{i,t} + \beta_3 SALESSD_{i,t} + \beta_4 RDINT_{i,t} + \beta_5 SALESGR_{i,t} + \beta_6 OPCYCLE_{i,t} + \beta_7 NEGLNI_{i,t} + \beta_8 NEGLDNI_{i,t} + \varepsilon_{i,t} \quad (7)$$

ES4 represents the comprehensive income smoothing score obtained by performing principal component analysis using the three income smoothing indicators proposed by Dou et al. (2013). BS is the business strategy score which is measured following Bentley et al. (2013). Pro and Def are dummy variables used to identify prospectors and defenders, respectively. As mentioned earlier, investors tend to overestimate the growth potential of prospectors, and CEO of these firms have an incentive to engage in income smoothing to avoid the stock price crash risk associated with such overvaluation. On the other hand, defenders, which operate solely within existing businesses, have lower growth potential and thus lower stock price crash risk, resulting in lower incentives for income smoothing compared to prospectors. Based on the above discussion, the expected signs of Pro and Def in equation (6) are negative and positive and the expected signs of BS in equation (7) is positive.

To control for other factors that affect income smoothing, the following control variables will be added. First, in prior research on earnings persistence, the variability of cash flows from operating activities is often used in addition to the variability of earnings (Dichev and Tang, 2008). Since the impact of the two types of business strategies on expense recognition is also likely to affect cash flow, the standard deviation of operating cash flow over the past five years will be used to represent cash flow volatility, which will be added as a control variable in Equation (6) and (7).

Additionally, following prior research, control variables will be created based on Francis et al. (2004). These include the volatility of sales (SALESSD), the sales growth rate (SALESGR), the presence of loss avoidance (NEGLNI), the presence of earnings decline avoidance (NEGLDNI), the intensity of intangible asset accumulation (RDINT), and the operating cycle and firm size (TA). These control variables will be incorporated into the analysis model. Finally, to control for fixed effects by

industry and year, dummy variables for both year and industry will also be included as control variables in Equation (6) and (7).

Next, to examine the relationship between business strategy and the garbling part of income smoothing, I estimate the following equation (8) and (9) using ordinary least squares (OLS).

$$ES_GAR_{i,t} = \alpha_0 + \beta_1 Pro_{i,t} + \beta_2 Def_{i,t} + \beta_3 TA_{i,t} + \beta_4 SALESSD_{i,t} + \beta_5 RDINT_{i,t} + \beta_6 SALESGR_{i,t} + \beta_7 OPCYCLE_{i,t} + \beta_8 NEGLNI_{i,t} + \beta_9 NEGLDNI_{i,t} + \varepsilon_{i,t} \quad (8)$$

$$ES_GAR_{i,t} = \alpha_0 + \beta_1 BS_{i,t} + \beta_2 TA_{i,t} + \beta_3 SALESSD_{i,t} + \beta_4 RDINT_{i,t} + \beta_5 SALESGR_{i,t} + \beta_6 OPCYCLE_{i,t} + \beta_7 NEGLNI_{i,t} + \beta_8 NEGLDNI_{i,t} + \varepsilon_{i,t} \quad (9)$$

In estimating Equation (8) and (9), I use Pro and Def as proxy variables to identify prospectors and defenders, respectively. The dependent variable ES_GAR refers to the garbling part of income smoothing, as decomposed from income smoothing, following Dou et al. (2013).

In the hypothesis development above, it has been demonstrated in prior research that managers of prospectors tend to conceal bad news in order to avoid stock price crash risk, and they have an incentive to engage in income smoothing. In other words, managers are motivated to smooth earnings to avoid the penalty when they fail to meet investor expectations. In this case, income smoothing is more likely to be seen as opportunistic behavior by the managers rather than for the purpose of information provision. Therefore, it can be expected that the garbling part of income smoothing for prospectors is larger compared to firms adopting other business strategies.

In contrast, defenders, due to their lower growth potential, are less likely to be overvalued by investors. Furthermore, since these firms do not incur costs related to research and development or marketing activities, their performance indicators are more stable, making it easier to meet investor expectations. As a result, the likelihood of facing the penalty of a stock price crash is lower compared to prospectors. Therefore, it can be expected that defenders are less likely to engage in opportunistic behavior to avoid penalties compared to prospectors. Consequently, in Equation (7), the coefficient of Def is expected to be lower than that of Pro, with Def having a positive sign. The control variables and fixed effects are the same as those in Equation (6).

Table 2 Variable definitions

Variable	Description
ES1	the estimated ratio of standard deviation of the earnings before extraordinary items divided by beginning total assets, to its standard deviation of cash flows from operations divided by beginning total assets, multiplied by minus 1
ES2	the estimated ratio of correlation of changes in accruals divided by beginning total assets, to its standard deviation of changes in operating cash flows from operations (CFO) divided by beginning total assets , multiplied by minus 1
ES3	the estimated ratio of correlation of changes in discretionary accruals (DAC), to its standard deviation of changes in non-discretionary net income, multiplied by minus 1
ES4	Comprehensive Earnings Smoothing Score, measured as principal component analysis using ES1, ES2, and ES3
ES_GAR	the opportunistic part of earnings smoothness are computed following Dou et al. (2013)
NI	the earnings before extraordinary items, calculated as net income + extraordinary loss - extraordinary gains
ACC	the accounting accruals, calculated as $(\Delta CA - \Delta Cash) - (\Delta CL - \Delta STD - \Delta TP) - Dep$
CFO	cash flows from operations(NI - ACC)
DAC	discretionary accruals, calculated using the approach in Dechow et al.(1995). For more details see Appendix B1.
NDNI	non-discretionary the earnings before extraordinary items, calculated as NI - DAC
R	The current year's stock return, R_{t3} is the aggregate stock return in years t+1 to t+3
X	the earnings before extraordinary items divided by beginning total assets, X_{t3} is the sum of X for years year t+1 to year t+3
Profit _{t3}	An indicator variable coded 1 if X_{t3} is plus, and 0 otherwise.
Loss _{t3}	An indicator variable coded 1 if X_{t3} is minus, and 0 otherwise.
FERC_Profi	the coefficient β_3 estimated in Equation (4)
FREC_Loss	the coefficient β_4 estimated in Equation (4)
BS	Firm-year level strategy scores are computed following Miles and Snow's (1978) strategy typology and Bentley et al.'s (2013) approach
Pro	An indicator variable coded 1 if the firm in year t is classified as prospector and 0 otherwise. We classify firms as defenders or prospectors using the BS variable calculated using the approach in Bentley et al. (2013). BS ranges from 6 to 30 and classifies firms as: defenders when BS variable =6–12, analyzers when BS variable =13–23, and prospectors when BS variable =24–30.
Def	An indicator variable coded 1 if the firm in year t is classified as defender and 0 otherwise. We classify firms as defenders or prospectors using the BS variable calculated using the approach in Bentley et al. (2013). BS ranges from 6 to 30 and classifies firms as: defenders when BS variable =6–12, analyzers when BS variable =13–23, and prospectors when BS variable =24–30).
pros	An indicator variable coded 1 if the firm in year t is classified as prospector and 0 otherwise. We classify firms as defenders or prospectors using principal component analysis in the approach of Kitagawa (2020). For more details see Appendix B2.

def	An indicator variable coded 1 if the firm in year t is classified as defender and 0 otherwise. We classify firms as defenders or prospectors using principal component analysis in the approach of Kitagawa (2020). For more details see Appendix B2.
High_pro	High_pro is an indicator variable that equals 1 if a prospector's MTB is above the median of the corresponding industry-year, and 0 otherwise
High_def	High_pro is an indicator variable that equals 1 if a defender's MTB is above the median of the corresponding industry-year, and 0 otherwise
MTB	The market-to-book ratio.
TA	The natural logarithm of total assets.
SALESSD	The standard deviation of sales revenues.
RDINT	The R&D expenses scaled by sales revenues.
SALESGR	The percentage change in sales revenues from the prior year to the current year.
OPCYCLE	The operating cycle calculated as the sum of the days that inventory is held and accounts receivable are outstanding.
NEGLNI	An indicator variable coded 1 in case of a loss in the previous fiscal year and 0 otherwise.
NEGLDNI	An indicator variable coded 1 in case of a negative earnings change in the previous fiscal year and 0 otherwise.

4. Result and Discussion

4.1 Data and sample

The firm-level financial data and year-end employee numbers used in the analysis are obtained from the NEEDS Financial QUEST database. The sample selection procedure is summarized in Table 3. The initial sample consisted of 5,711 companies (90,707 firm-year observations) over the period from January 1, 2000, to December 31, 2022, within Japan. Of these, to ensure accounting consistency, the following observations are excluded: (1) those not adopting Japanese accounting standards, and (2) those with fiscal years ending in months other than March. The final sample size used for analysis consists of 50,909 observations.

Table 3 Sample selection

	Firm-years
Firm-years with financial statements data obtained from the database for 2000-2022	90,707
Less	
Firms that do not apply Japanese Accounting Standards (Japanese GAAP)	-2,209
Firms whose fiscal year-end is not in March.	-29,408
Final observation	59,090

Note. Financial statements data, managerial ownership data, and share price data necessary for the study are available from the Nikkei NEEDS

Financial QUEST. The industry is based on the Nikkei industry classification code (Nikkei gyousyu chu-bunrui). Excluding financial institutions (banks, securities companies, and insurance companies) and other financial institutions (credit and leasing).

Tables 4 and 5 show the descriptive statistics of the variables and the correlation matrix, respectively. From the average values of Pro and Def in Table 4, I can see that in our sample, prospectors account for 9.5% and defenders account for 13%. This ratio is nearly consistent with prior studies such as Karampinis et al. (2024). In Table 4, the correlation coefficients between Pro and Def with ES4 indicate that prospectors show a positive correlation with income smoothing, while defenders show a negative correlation with income smoothing. Similarly, for ES_GAR, the correlation pattern is consistent, with the correlation coefficients matching the predictions of Hypothesis 1 and Hypothesis 2.

Table 4 Descriptive statistics

	N	Mean	Std	p25	Median	p75
ES4	34,641	-0.019	1.293	-0.799	-0.496	0.202
ES_GAR	18,230	-0.017	1.260	-0.703	-0.360	0.201
Pro	34,641	0.067	0.250	0	0	0
Def	34,641	0.106	0.308	0	0	0
NEGLNI	34,641	0.143	0.350	0	0	0
NEGLDNI	34,641	0.397	0.489	0	0	1
RDINT	34,641	0.015	0.026	0.000	0.004	0.020
OPCYCLE	30,929	0.362	0.447	0.212	0.340	0.451
SALESGR	31,742	1.022	0.138	0.956	1.019	1.081
TA	34,641	10.732	1.565	9.641	10.588	11.670
SALESSD	21,284	0.109	0.140	0.044	0.077	0.128

Table 5 Spearman Correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) ES4	1										
(2) ES_GAR	0.744	1									
(3) Pro	0.056	0.062	1								
(4) Def	-0.072	-0.039	-0.087	1							
(5) NEGLNI	0.183	0.119	0.026	0.005	1						
(6) NEGLDNI	0.052	0.044	0.010	-0.004	0.273	1					
(7) RDINT	0.213	-0.046	0.123	-0.239	0.015	0.026	1				
(8) OPCYCLE	0.042	-0.038	0.038	-0.138	0.031	0.037	0.481	1			
(9) SALESGR	-0.002	-0.021	0.015	-0.055	-0.197	-0.318	0.026	-0.053	1		
(10) TA	-0.089	-0.026	-0.075	0.067	-0.140	-0.040	0.118	0.020	0.059	1	
(11) SALESSD	0.115	0.112	0.040	-0.071	0.092	0.026	-0.155	-0.129	0.066	-0.246	1

4.2 Baseline result

In this section, the baseline analysis results are presented, including the estimation results for Equation (6) and Equation (7). Equation (6) aims to examine the impact of business strategy on income smoothing. The estimation results are summarized in Table 6. For the calculation of t-values, heteroscedasticity-robust standard errors are used.

Table 6 reports the main regression results using strategic type indicators as the primary explanatory variables. Relative to the benchmark group, prospectors exhibit significantly higher overall income smoothing (ES4), whereas defenders exhibit significantly lower smoothness. Specifically, the coefficient on Pro is positive and highly significant ($\beta = 0.2828$, $t = 9.04$; $\beta = 0.1860$, $t = 4.35$), while the coefficient on Def is negative and highly significant ($\beta = -0.1496$, $t = -7.79$; $\beta = -0.1383$, $t = -5.43$).

Economically, the estimates imply that prospectors display approximately 0.19-0.28 standard deviations higher ES4 relative to the benchmark group, whereas defenders display approximately 0.14–0.15 standard deviations lower ES4. These magnitudes represent economically meaningful differences in income smoothing across strategic types. The results are robust to alternative specifications and the inclusion of standard controls.

Table 6 Business strategy and income smoothing (H1)

	ES4	ES4	ES4	ES4
BS	0.0294*** (16.8830)	0.0232*** (9.6204)		
Pro			0.2828*** (9.0368)	0.1860*** (4.3523)
Def			-0.1496*** (-7.7934)	-0.1383*** (-5.4287)
NEGLNI	0.6418*** (27.2140)	0.6475*** (17.3145)	0.6431*** (27.2061)	0.6441*** (17.2004)
NEGLDNI		-0.0303 (-1.6348)		-0.0299 (-1.6104)
RDINT		2.1044*** (3.6942)		2.9247*** (5.2141)
OPCYCLE		-0.0811*** (-5.0258)		-0.0816*** (-5.1360)
SALESGR		0.3538*** (3.5514)		0.3853*** (3.8764)
TA		-0.0043 (-0.6145)		-0.0117* (-1.6735)
SALESSD		0.8737*** (10.2999)		0.8828*** (10.4359)
Constant	-1.0175*** (-21.8876)	-1.0331*** (-7.4141)	-0.4955*** (-14.4167)	-0.5853*** (-4.3952)
Observations	34,635	20,798	34,641	20,798
Adj R ²	0.107	0.118	0.104	0.117

Note: Table 6 displays estimates from the following regression:

$$ES4_{i,t} = \alpha_0 + \beta_1 Pro_{i,t} + \beta_2 Def_{i,t} + \beta_3 TA_{i,t} + \beta_4 SALESSD_{i,t} + \beta_5 RDINT_{i,t} + \beta_6 SALESGR_{i,t} + \beta_7 OPCYCLE_{i,t} + \beta_8 NEGLNI_{i,t} + \beta_9 NEGLDNI_{i,t} + \epsilon_{i,t}$$

$$ES4_{i,t} = \alpha_0 + \beta_1 BS_{i,t} + \beta_2 TA_{i,t} + \beta_3 SALESSD_{i,t} + \beta_4 RDINT_{i,t} + \beta_5 SALESGR_{i,t} + \beta_6 OPCYCLE_{i,t} + \beta_7 NEGLNI_{i,t} + \beta_8 NEGLDNI_{i,t} + \epsilon_{i,t}$$

See Table 2 for variable definitions. ***, **, * represent significance at 1%, 5%, 10%, respectively.

To assess whether the strategic effect varies monotonically with the intensity of strategic orientation rather than being driven solely by discrete classification, I next employ a continuous strategy score (BS).

Table 6 further examine the relation using BS, a continuous strategic score ranging from 6 to 30. The coefficient on BS is positive and highly significant across specifications ($\beta = 0.0294$, $t = 16.88$; $\beta = 0.0232$, $t = 9.62$), indicating that income smoothing increases monotonically as firms move toward

a more prospector-oriented strategy.

Table 7 Business strategy garbling component of income smoothing (H2)

	ES_GAR	ES_GAR	ES_GAR	ES_GAR
BS	0.0310*** (12.2497)	0.0213*** (6.9032)		
NEGLNI		0.5371*** (10.5537)		0.5312*** (10.4239)
NEGLDNI		0.0304 (1.2429)		0.0310 (1.2665)
RDINT		2.5034*** (3.3866)		3.0886*** (4.2491)
OPCYCLE		-0.0807*** (-4.5383)		-0.0825*** (-4.6681)
SALESGR		0.3723*** (2.7514)		0.3968*** (2.9434)
TA		-0.0198** (-2.1701)		-0.0263*** (-2.8841)
SALESSD		0.8034*** (8.4084)		0.8072*** (8.5176)
Pro			0.3454*** (7.5495)	0.2288*** (4.1104)
Def			-0.1558*** (-5.6646)	-0.1291*** (-3.9444)
Constant	-0.5586*** (-9.0286)	-0.7119*** (-3.8667)	-0.0117 (-0.2766)	-0.2973* (-1.6676)
Observations	18,230	12,723	18,230	12,723
Adj R ²	0.009	0.036	0.006	0.035

Note. Table 7 displays estimates from the following regression:

$$ES_GAR_{i,t} = \alpha_0 + \beta_1 PRO_{i,t} + \beta_2 DEF_{i,t} + \beta_3 TA_{i,t} + \beta_4 SALESSD_{i,t} + \beta_5 RDINT_{i,t} + \beta_6 SALESGR_{i,t} + \beta_7 OPCYCLE_{i,t} + \beta_8 NEGLNI_{i,t} + \beta_9 NEGLDNI_{i,t} + \varepsilon_{i,t}$$

$$ES_GAR_{i,t} = \alpha_0 + \beta_1 BS_{i,t} + \beta_2 TA_{i,t} + \beta_3 SALESSD_{i,t} + \beta_4 RDINT_{i,t} + \beta_5 SALESGR_{i,t} + \beta_6 OPCYCLE_{i,t} + \beta_7 NEGLNI_{i,t} + \beta_8 NEGLDNI_{i,t} + \varepsilon_{i,t}$$

See Table 2 for variable definitions. ***, **, * represent significance at 1%, 5%, 10%, respectively.

Interpreted economically, a one-category increase in BS is associated with approximately a 0.02-0.03 standard deviation increase in ES4. Moving from the midpoint of the defender range to the midpoint of the prospector range implies an increase of approximately 0.40-0.52 standard deviations

in ES4, confirming that the continuous specification yields economically meaningful variation consistent with the strategic-type results.

While ES4 captures overall income smoothing, it does not distinguish between potentially informative smoothing and garbling-driven smoothing. I therefore decompose ES4 and examine whether the documented strategic effects operate through the garbling component.

To further examine the underlying mechanism, Table 7 decomposes overall income smoothing and focuses on ES_GAR, which captures the garbling component of income smoothing, using strategic type indicators as the primary explanatory variables. Prospectors exhibit significantly higher ES_GAR ($\beta = 0.3454$ and 0.2288), whereas defenders exhibit significantly lower ES_GAR ($\beta = -0.1558$ and -0.1291) relative to the benchmark group. These estimates indicate economically meaningful differences in the intensity of garbling-driven smoothing across strategic types.

In economic terms, prospectors display approximately 0.23-0.35 higher ES_GAR than the benchmark group, while defenders display approximately 0.13-0.16 lower ES_GAR. The results are robust to the inclusion of standard firm-level controls. Using the continuous BS measure yields consistent evidence. The coefficient on BS remains positive and highly significant ($\beta = 0.0310$, $t = 12.25$; $\beta = 0.0213$, $t = 6.90$), indicating that garbling-related smoothing increases monotonically with the intensity of prospector-oriented strategy. Economically, a one-category increase in BS corresponds to an increase of approximately 0.02–0.03 in ES_GAR. Moving from the lower bound of the defender range to the upper bound of the prospector range implies an increase of approximately 0.50-0.74 in ES_GAR, reinforcing the economic relevance of the strategic effect.

Regarding the measurement of business strategy, Bentley et al. (2013) classify six strategy-related dimensions into five ordinal ranks and assign scores to each rank, with the aggregated score serving as the overall business strategy measure. While this approach provides a convenient summary index, the resulting distribution of firms across strategic types is often imbalanced, with substantially fewer observations classified as prospector or defender relative to analyzer firms. This imbalance may reflect limitations in measurement granularity and classification sensitivity, which could potentially affect empirical inferences. I therefore conduct additional robustness tests in Section 5 using alternative strategic orientation specifications to assess the stability of our main findings.

5. Robustness checks and additional analysis

5.1 An alternative approach to measuring business strategy

As noted above, the methodology of Bentley et al. (2013) gives rise to a sample imbalance issue. Accordingly, as an alternative measurement approach, this study constructs business strategy samples based on Kitagawa (2020) and examines the robustness of the empirical results. Their study does not rank the six elements defined in their framework. Instead, he uses Principal Component Analysis (PCA) to create variables and, based on those variables, divides the firms into three portfolios. The firms belonging to the portfolio with the highest values are classified as prospectors, while those belonging to the portfolio with the lowest values are classified as defenders, thus measuring business strategy.

This study aims to examine the impact of business strategy orientation on income smoothing. To exclude the impact of measurement method on business strategy, business strategy will be remeasured following Kitagawa (2020) and the robustness of the regression results will be verified.

Table 8 reports robustness tests using an alternative approach to measure prospectors and defenders. The results remain highly consistent with the main findings. When ES4 is used as the dependent variable, the coefficient on pros is positive and highly significant ($\beta = 0.4126$ and 0.3712), whereas the coefficient on def is negative and highly significant ($\beta = -0.1710$ and -0.1922), indicating that prospectors exhibit significantly higher overall income smoothing and defenders significantly lower smoothness relative to the benchmark group.

The economic magnitudes are substantial. In the specification with full controls, prospectors exhibit approximately 0.37 standard deviations higher ES4, while defenders exhibit approximately 0.19 standard deviations lower ES4. These magnitudes are comparable to, and in some cases larger than, those reported in the main analysis.

Similar patterns emerge when focusing on the garbling component of income smoothing. Using ES_GAR as the dependent variable, prospectors display significantly higher ES_GAR ($\beta = 0.4160$ and 0.3617), whereas defenders display significantly lower ES_GAR ($\beta = -0.1744$ and -0.2008). The estimates imply economically meaningful differences of approximately 0.36 and -0.20 , respectively, in the fully controlled specification.

Table 8 An alternative approach to test Hypotheses (H1 and H2)

	ES4	ES4	ES_GAR	ES_GAR
pros	0.4126*** (21.8549)	0.3712*** (14.8860)	0.4160*** (15.6648)	0.3617*** (11.2041)
def	-0.1710*** (-10.1067)	-0.1922*** (-8.5050)	-0.1744*** (-7.1468)	-0.2008*** (-6.8516)
NEGLNI		0.5972*** (15.9842)		0.4931*** (9.6966)
NEGLDNI		-0.0261 (-1.4212)		0.0341 (1.4034)
RDINT		1.5109*** (2.6802)		1.9080*** (2.6149)
OPCYCLE		-0.0886*** (-5.8925)		-0.0903*** (-5.4147)
SALESGR		0.2840*** (2.8900)		0.2863** (2.1478)
TA		0.0136* (1.9230)		0.0002 (0.0225)
SALESSD		0.9540*** (10.6497)		0.8828*** (8.5035)
Constant	-0.4298*** (-11.9797)	-0.7451*** (-5.6193)	0.0105 (0.2432)	-0.4623*** (-2.6133)
Observations	34,641	20,798	18,230	12,723
Adj R ²	0.093	0.133	0.025	0.052

Note. Table 8 displays estimates from the following regression:

$$ES4_{i,t} = \alpha_0 + \beta_1 pros_{i,t} + \beta_2 def_{i,t} + \beta_3 TA_{i,t} + \beta_4 SALESSD_{i,t} + \beta_5 RDINT_{i,t} + \beta_6 SALESGR_{i,t} + \beta_7 OPCYCLE_{i,t} + \beta_8 NEGLNI_{i,t} + \beta_9 NEGLDNI_{i,t} + \varepsilon_{i,t}$$

$$ES_GAR_{i,t} = \alpha_0 + \beta_1 pros_{i,t} + \beta_2 def_{i,t} + \beta_3 TA_{i,t} + \beta_4 SALESSD_{i,t} + \beta_5 RDINT_{i,t} + \beta_6 SALESGR_{i,t} + \beta_7 OPCYCLE_{i,t} + \beta_8 NEGLNI_{i,t} + \beta_9 NEGLDNI_{i,t} + \varepsilon_{i,t}$$

See Table 2 for variable definitions. ***, **, * represent significance at 1%, 5%, 10%, respectively.

Overall, the consistency in sign, statistical significance, and economic magnitude across alternative classification schemes supports the robustness of the main results and alleviates concerns that the findings are driven by a particular strategic orientation measurement approach.

5.2 Business strategy and firms' growth rate

Habib and Hasan (2017) examine the relation between business strategy and stock price crash risk and suggest that prospectors exhibit a higher level of crash risk than defenders. One of the underlying mechanisms they identify is that business strategy influences firms' growth opportunities. Because the high growth opportunities of prospectors are more likely to lead to equity overvaluation as growth stocks, a failure to meet investors' performance expectations can result in stock price crashes as a form of penalty.

This study empirically examines the relation between business strategy and income smoothing from the perspective that stock price maintenance serves as an incentive for income smoothing, and that the difficulty of maintaining stock prices differs according to firms' growth opportunities. However, it has not yet been tested whether the differences in income smoothing associated with business strategy are driven by growth opportunities. Accordingly, I construct dummy variables that identify firms in the top 30% and bottom 30% of the market-to-book ratio distribution (High_pro and High_def) and investigate the relation between growth opportunities and income smoothing.

Before conducting the additional analyses, I perform mean difference tests for ES4, ES_GAR, and MTB (market-to-book ratio) to confirm that income smoothing differs across business strategies and that these differences are not solely driven by growth opportunities. The results are summarized in Table 9.

Table 9 Two-sample test

Business strategy measurement approach of Kitagawa (2020)			
	Prospector	Defender	t-value
ES4	0.332	-0.336	38.958 ^{***}
ES_GAR	0.207	-0.152	15.519 ^{***}
MTB	7.718	2.357	1.385
Business strategy measurement approach of Bentley et al. (2013)			
	Prospector	Defender	t-value
ES4	0.360	-0.269	16.211 ^{***}
ES_GAR	0.335	-0.182	9.916 ^{***}
MTB	3.083	3.132	-0.165

Note. See Table 2 for variable definitions. ***, **, * represent significance at 1%, 5%, 10%, respectively.

Table 10 Business strategy and firms' growth rate

	Panel A Prospector			Panel B Defender	
	ES4	ES_GAR		ES4	ES_GAR
High_pro	0.4090*** (7.8158)	0.4561*** (7.1087)	High_def	0.0487 (1.5859)	0.0623 (1.6177)
NEGLNI	0.5184*** (6.3849)	0.4022*** (3.8225)	NEGLNI	0.4362*** (5.3359)	0.5097*** (4.7401)
NEGLDNI	0.0002 (0.0041)	0.0940 (1.3466)	NEGLDNI	-0.0187 (-0.5817)	0.0106 (0.2560)
RDINT	-0.0750 (-0.0781)	0.8506 (0.6636)	RDINT	13.2515*** (3.7293)	10.6519** (2.3360)
OPCYCLE	-0.0694*** (-3.0203)	-0.0788*** (-2.8482)	OPCYCLE	-0.2814*** (-3.8216)	-0.2700*** (-3.0006)
SALESGR	0.2106 (0.8706)	0.4626 (1.5732)	SALESGR	0.1455 (0.9208)	0.0478 (0.1966)
TA	-0.0391* (-1.7452)	-0.0479* (-1.7188)	TA	0.0261* (1.9419)	0.0224 (1.3487)
SALESSD	0.9521*** (4.2400)	0.6915*** (3.4405)	SALESSD	0.4429*** (3.1405)	0.4819** (2.2733)
Constant	0.2268 (0.5918)	0.1389 (0.3030)	Constant	-0.9083*** (-3.9656)	-0.5722* (-1.8501)
Observations	3,662	2,444	Observations	3,776	2,398
Adj R ²	0.108	0.070	Adj R ²	0.161	0.087

Note. Table 10 displays estimates from the following regression:

$$ES4_{i,t} = \alpha_0 + \beta_1 \text{High_pro}_{i,t} + \beta_2 \text{TA}_{i,t} + \beta_3 \text{SALESSD}_{i,t} + \beta_4 \text{RDINT}_{i,t} + \beta_5 \text{SALESGR}_{i,t} + \beta_6 \text{OPCYCLE}_{i,t} + \beta_7 \text{NEGLNI}_{i,t} + \beta_8 \text{NEGLDNI}_{i,t} + \varepsilon_{i,t}$$

$$ES4_{i,t} = \alpha_0 + \beta_1 \text{High_def}_{i,t} + \beta_2 \text{TA}_{i,t} + \beta_3 \text{SALESSD}_{i,t} + \beta_4 \text{RDINT}_{i,t} + \beta_5 \text{SALESGR}_{i,t} + \beta_6 \text{OPCYCLE}_{i,t} + \beta_7 \text{NEGLNI}_{i,t} + \beta_8 \text{NEGLDNI}_{i,t} + \varepsilon_{i,t}$$

$$ES_GAR_{i,t} = \alpha_0 + \beta_1 \text{High_pro}_{i,t} + \beta_2 \text{TA}_{i,t} + \beta_3 \text{SALESSD}_{i,t} + \beta_4 \text{RDINT}_{i,t} + \beta_5 \text{SALESGR}_{i,t} + \beta_6 \text{OPCYCLE}_{i,t} + \beta_7 \text{NEGLNI}_{i,t} + \beta_8 \text{NEGLDNI}_{i,t} + \varepsilon_{i,t}$$

$$ES_GAR_{i,t} = \alpha_0 + \beta_1 \text{High_def}_{i,t} + \beta_2 \text{TA}_{i,t} + \beta_3 \text{SALESSD}_{i,t} + \beta_4 \text{RDINT}_{i,t} + \beta_5 \text{SALESGR}_{i,t} + \beta_6 \text{OPCYCLE}_{i,t} + \beta_7 \text{NEGLNI}_{i,t} + \beta_8 \text{NEGLDNI}_{i,t} + \varepsilon_{i,t}$$

See Table 2 for variable definitions. ***, **, * represent significance at 1%, 5%, 10%, respectively.

As shown in Table 9, I find statistically significant differences between the prospector and defender subsamples for both ES4 and ES_GAR. In contrast, there is no significant difference in MTB between the two subsamples. Next, I examine the extent to which income smoothing is influenced by growth opportunities within each subsample.

Panel A of Table 10 reports the results of tests that focus exclusively on prospectors and examine the relation between growth opportunities and income smoothing. The variable of interest is High_pro. Under the premise that firms with higher growth opportunities are more likely to be overvalued and therefore have stronger incentives to engage in income smoothing, the expected sign of High_pro is positive. Consistent with this prediction, the coefficient on High_pro is positive and statistically significant both in the regressions using overall income smoothing as the dependent variable and in those using the garbling component as the dependent variable⁸.

Panel B of Table 10 presents the results of tests restricted to defenders that examine the relation between growth opportunities and income smoothing. Regardless of whether ES4 or ES_GAR is used as the dependent variable, the coefficient on High_def is not statistically significant. These results suggest that, irrespective of growth opportunities, defenders do not engage in income smoothing.

6. Conclusion

This study quantitatively examines the association between firms' business strategy orientation and income smoothing by adopting established measures of strategic orientation from prior literature. Focusing on the contrasting strategic archetypes of prospector and defenders as defined by Miles and Snow (1978), the analysis investigates whether and how these distinct strategic orientations are systematically related to firms' income smoothing behavior.

The empirical results yield two main findings. First, there is clear evidence that prospector and defenders differ in their propensity to smooth earnings. Firms pursuing a prospector exhibit significantly higher levels of income smoothing than defenders, which tend to adopt a more conservative and passive reporting approach. This finding supports the hypothesis that prospectors are

⁸ Under the measurement approach of Bentley et al. (2013), the numbers of prospector and defender observations are relatively small, making it difficult to further reclassify firms based on growth opportunities. Accordingly, the additional analyses are conducted using the classification method proposed by Kitagawa (2020).

associated with greater income smoothing and suggests that strategic orientation plays an important role in shaping firms' financial reporting behavior. In particular, strategies emphasizing growth, innovation, and risk-taking appear to be accompanied by stronger incentives to manage the temporal pattern of reported earnings.

Second, the analysis reveals substantial heterogeneity in the nature of income smoothing across strategic types. When the garbling component of income smoothing is examined separately, prospectors show a significantly positive association, whereas defenders exhibit a negative relationship. This result indicates that the more active income smoothing observed among prospectors is predominantly driven by opportunistic motives rather than by informational considerations. Taken together, these findings suggest that strategic orientation not only affects the extent of income smoothing but also influences its underlying intent.

Overall, this study contributes to the literature by providing systematic empirical evidence on the link between business strategy and income smoothing. While prior research has discussed the relationship between strategic orientation and accounting outcomes largely from a conceptual or qualitative perspective, empirical evidence on how strategic orientation affects specific earnings properties remains limited. By using income smoothing as a measurable outcome of managerial discretion, this study helps bridge the gap between management research and financial accounting, highlighting business strategy as an important contextual factor in understanding financial reporting behavior.

Despite these contributions, the study is subject to several limitations. In particular, the identification of business strategy relies on empirical proxies that, while widely used in the literature, are not derived from a strict theoretical model. Future research may refine the measurement of strategic orientation by incorporating additional dimensions or alternative variables not emphasized in prior studies. Such extensions could provide a more nuanced understanding of how strategic choices shape firms' financial reporting practices.

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Online Appendix to the paper titled

Business Strategic Orientation and Income

smoothing: Evidence from Prospectors in Japan

Appendix A1

I employ the residuals from the annual cross-sectional regression of Eq. (B1) as proxies of firm *i*'s discretionary accruals. The specification of Eq. (B1) relies on the Dechow et al. (1995) model.

$$ACC_{i,t} = \alpha \left(\frac{1}{A_{i,t-1}} \right) + \beta_1 \left(\frac{\Delta S_{i,t} - \Delta REC_{i,t}}{A_{i,t-1}} \right) + \beta_3 \left(\frac{PPE_{i,t}}{A_{i,t-1}} \right) + \varepsilon_{i,t}, \quad (A1)$$

where

ΔS_t = Sale in year *t* less sale in year *t*−1 scaled by total assets at *t*−1;

ΔREV_t = revenues in year *t* less revenues in year *t*−1 scaled by total assets at *t*−1;

PPE_t = gross property plant and equipment in year *t* scaled by total assets at *t*−1;

A_{t-1} = total assets at *t*−1

Eq. A1 is estimated for each industry-year with at least 6 observations. Industry is based on 2-digit SIC codes. Discretionary accruals (DAC) are the residuals of the above equation.

Appendix A2

Alternative Measurement of Strategy

The alternative measure of business strategy is constructed as follows. First, following Bentley et al. (2013), I conduct a principal component analysis using six variables: RD5, EMPS5, REV5, SGA5, EMP5, and CAP5. Table A1 reports the results of the principal component analysis. Panel A shows that three components—namely, the first principal component (PC1) through the third principal component (PC3)—have eigenvalues greater than one, and in particular, PC1 explains 34.6% of the total variance of the six business strategy variables. Panel B further indicates that the eigenvector

loadings of PC1 are the most consistent with the expected signs discussed above. Accordingly, I define the score of the first principal component as the business strategy variable (BS). Finally, based on this BS measure, firms are classified into three groups within each industry-year. Firms with the lowest scores are classified as defenders, whereas those with the highest scores are classified as prospectors.

Table A1 PCA results of strategy-related variables

Panel A Principal components/correlation						
	Eigenvalue	Difference	Propotion	Cumulative		
PC1	2.074	0.809	0.346	0.346		
PC2	1.266	0.260	0.211	0.557		
PC3	1.006	0.033	0.168	0.724		
PC4	0.973	0.574	0.162	0.887		
PC5	0.399	0.117	0.067	0.953		
PC6	0.282	.	0.047	1.000		
Panel B Principal components (eigenvectors)						
	PC1	PC2	PC3	PC4	PC5	PC6
RD5	0.513	-0.496	0.072	0.029	-0.015	0.696
CAP5	-0.124	-0.014	0.565	0.816	0.019	-0.011
EMPS5	0.436	0.549	-0.130	0.150	0.679	0.091
EMP5	0.479	0.494	0.016	0.087	-0.720	-0.022
SGA5	0.546	-0.426	0.064	0.020	0.097	-0.711
REV5	0.058	0.166	0.809	-0.551	0.103	0.017

