Real and Accrual-Based Earnings Management to Achieve Industry-Average Profitability: Empirical Evidence from Japan

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Abstract: This paper examines real and accrual-based earnings management to achieve industry-average profitability in Japanese firms. I focus on three types of real earnings management: sales manipulation, the reduction of discretionary expenditures, and overproduction. The results indicate that Japanese firms engage in income-increasing real and accrual-based earnings management to achieve industry-average profitability. Specifically, I find evidence of income-increasing real and accrual-based earnings management in firms that just meet or slightly beat industry-average profitability. The results also indicate that firms in more competitive industries engage in greater income-increasing earnings management to achieve industry-average profitability. The evidence in this paper is important because it suggests that managers engage in both real and accrual-based earnings management with an awareness of the profitability of competing firms in the same industry. Further, this paper shows the complementary relationship between two types of real (sales manipulation and overproduction) and accrual-based earnings management to achieve industry-average profitability. It also provides evidence of real and accrual-based earnings management to achieve industry-median profitability and industry-average forecast profitability.

Keywords: real earnings management, accrual-based earnings management, earnings benchmark, industry-average profitability, competition
1. INTRODUCTION

This paper examines real earnings management (REM) and accrual-based earnings management (AEM) to achieve industry-average profitability in Japanese firms. Prior research documents that U.S. firms manage earnings to achieve zero earnings, prior period earnings, and analysts’ forecast earnings (e.g., Hayn, 1995; Burgstahler and Dichev, 1997; Degeorge et al., 1999; Burgstahler and Eames, 2006). Likewise, prior studies indicate that U.K. firms manage earnings to achieve zero earnings, prior period earnings (Garcia Osma and Young, 2009) and analysts’ forecast earnings (Athanasakou et al., 2009). With regard to Japanese firms, Suda and Shuto (2007) provide evidence that managers engage in earnings management to achieve zero earnings and prior period earnings, and Suda and Shuto (2001) suggest that managers use earnings management to achieve managers’ forecast earnings.

While zero earnings, prior period earnings, and forecast earnings are not directly affected by other firms, a firm’s target earnings could be affected by competitors in the same industry. In fact, most firms face competition from industry rivals. In such a situation, for example, when competitors substantially exceed zero earnings, do managers still continue to set zero earnings as a target benchmark? Although zero earnings, prior period earnings, and forecast earnings are important earnings benchmarks for firms, I anticipate that in a situation where firms compete with each other, they also try to avoid underperformance.

Japanese firms especially are likely to have a strong incentive to avoid underperformance relative to their competitors. In Japan, there are too many firms in each industry and therefore Japanese economy is in a context of intense domestic competition. According to Abegglen and Stalk (1985), most Japanese firms are preoccupied with the activities of their competitors to a degree that is unusual by Western standards because they regard falling behind their competitors as a great risk. In addition, while Western managers generally prefer a more carefully considered process of
response to competitors’ initiatives, Japanese firms respond very quickly and rarely leave an
initiative by a competitor unmet because they have a greater fear of losing their competitive
positions (Abegglen and Stalk 1985).\(^1\)

In fact, while survey research for U.S. firms (Graham et al., 2005) shows that financial
executives treat prior period earnings, analyst forecasts, and zero earnings as important earnings
benchmarks, survey research for Japanese firms reports that managers tend to attach importance to
not only these benchmarks but also competitors’ performance within the same industry as a target
benchmark. In particular, Suda and Hanaeda (2008) show that financial executive in Japanese firms
treat earnings in other firms within the same industry as important target earnings in addition to
managers’ forecast earnings, prior period earnings, and zero earnings. Nakajo (2012) investigates
the planning and voluntary disclosure of the middle-term management plan and shows that
managers in Japanese firms consider competitors’ profitability and industry-average profitability in
target setting in addition to prior period profitability and analyst expectations.

Following Penman (2013), benchmarks based on other firms in the same industry are
important because they enable analysts to judge a firm’s performance. Porter (1980, 1985) describes
firms with “above-average returns” in an industry as successful firms with competitive advantages.
In addition, some papers on relative performance evaluation indicate that some firms use
industry-average profitability as a benchmark to decide management compensation and
management turnover (Antle and Smith, 1986; Parrino, 1997). Hence, managers are likely to have
strong incentives to achieve industry-average profitability.\(^2\) Consequently, I focus on earnings
management to achieve industry-average profitability in Japanese firms.

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\(^1\) According to Abegglen and Stalk (1985), the competitive behavior of Japanese firms was shaped by the historically
unprecedented growth and change in Japanese economy from mid-1950s to 1980s and this rapid economic change for
Japanese firms accelerates competitive interaction within its industry.

\(^2\) One criticism is that firms consequently aim to achieve the best performance in an industry. However, only one
company in an industry can actually be the best performer. Further, the persistent achievement of superior economic
performance is a rare phenomenon over a long period (Wiggins and Ruefli, 2002). Thus, if it is difficult to continue to be
the best within an industry, a firm should try to maintain at least industry-average profitability.
The use of earnings management to achieve industry-average profitability is likely to be affected by the intensity of competition in each industry. Through theoretical models, Markarian and Santalo´ (2014) suggest that product market competition increases the earnings management incentive because it induces higher punishment (rewards) in the stock market when firms report poorer (better) profitability than competitors in the same industry. In addition, prior papers suggest that profitability comparisons across firms in the same industry are more often used for management turnover decisions in highly competitive industries (DeFond and Park, 1999; Otomasa, 2004). Thus, I also investigate whether the intensity of competition in an industry affects the use of earnings management to achieve industry-average profitability.

Earnings management methods can be classified into AEM and REM. AEM is undertaken by changing accounting methods or estimates; for example, changing the depreciation method for fixed assets and the estimates for allowance for doubtful accounts. REM is undertaken by changing the timing or structuring of an operation, investment, or financial transaction. Managers can engage in REM during a fiscal year and AEM after fiscal year-end. Since it is risky for managers to depend on only one of either AEM or REM in order to achieve target earnings (Roychowdhury, 2006, p. 338), managers must consider both AEM and REM. Thus, this paper focuses on both AEM and REM as earnings management methods. Following prior research (Roychowdhury, 2006; Cohen et al., 2008; Cohen and Zarowin, 2010; Zang, 2012), I focus on three types of REM: sales manipulation, the reduction of discretionary expenditures, and overproduction.

With regard to the relationship between REM and AEM, many prior studies find the substitutive relationship between REM and AEM (Ewert and Wagenhofer, 2005; Cohen et al., 2008; Zang, 2012; Achleitner et al., 2014; Markarian and Santalo´, 2014; Enomoto et al., 2015). Given these prior studies, Japanese firms may use REM and AEM as substitute in order to industry-average profitability. However, while these studies consider the costs of REM (e.g.,
monitoring by institutional investors) and AEM (e.g., tighter accounting regulations), they ignore the cost of missing certain earnings benchmarks. In the context of intense domestic competition, most Japanese firms are preoccupied with the activities of their competitors to a degree that is unusual by Western standards because they regard falling behind their competitors as a great risk that leads to the loss of competitive advantage (Abegglen and Stalk 1985). In this regard, compared to Western firms, Japanese firms may view missing industry-average profitability as more costly than using both REM and AEM, and thus they are likely to somehow try to achieve industry-average profitability even though they engage in both income-increasing REM and AEM to a considerable degree. This would induce the complementary relationship between REM and AEM. In this way, Japanese setting allow researchers to analyze the relationship between REM and AEM in the context where managers are likely to have much stronger incentives to achieve industry-average profitability than Western firms. Based on these competing arguments (substitutive vs complementary), I also analyze the relationship between REM and AEM in the context of meeting or slightly beating industry-average profitability.

This paper is related to Markarian and Santaló’ (2014). They find a negative relationship between the absolute value of discretionary accruals and industry-average adjusted profitability; consequently, this indicates that U.S. firms with better (poorer) performance than industry-average profitability manipulate earnings less (more) through AEM. In addition, they provide evidence suggesting that firms engage in AEM more frequently when they underperform relative to their competitors in more competitive industries. Unlike Markarian and Santaló’ (2014), this paper uses signed discretionary accruals as a proxy of AEM and focuses on firms that just meet or slightly beat industry-average profitability from the perspective of earnings management to achieve the benchmark. This paper also examines the use of REM to achieve industry-average profitability.3

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3 Although Markarian and Santaló’ (2014) examine the effect of competition on REM, they do not investigate the
Most important difference with Markarian and Santalo’ (2014) is to analyze the relationship between REM and AEM in Japanese setting where managers are likely to have much stronger incentives to achieve industry-average profitability than Western firms. This will lead to interesting results that differ from prior studies about the relationship between REM and AEM in the context of meeting or slightly beating the benchmark.

The results indicate that managers engage in REM and AEM to achieve industry-average profitability. Specifically, using return on assets (ROA) as a measure of profitability, I find evidence of income-increasing REM and AEM in firms that just meet or slightly beat industry-average profitability. The results also suggest that firms in more competitive industries engage in greater income-increasing REM and AEM to achieve industry-average profitability. The evidence in this paper is important because it suggests that managers engage in both REM and AEM with an awareness of the profitability of competing firms in the same industry. Most importantly, this paper shows the complementary relationship between two types of REM (sales manipulation and overproduction) and AEM to achieve industry-average profitability. It also provides evidence of real and accrual-based earnings management to achieve industry-median profitability and industry-average forecast profitability.

This paper makes three contributions to earnings management literature. First, although this is not the only research about the relationship between earnings management and industry-average profitability, it is the first to investigate the use of REM to achieve industry average profitability. Second, this paper corroborates the research on the relationship between earnings management and competition by showing that the intensity of competition in each industry affects managers’ use of REM and AEM to achieve industry-average profitability. Third, and most importantly, this paper contributes to the research on the relationship between REM and AEM. While prior research finds a relationship between REM and industry-average adjusted profitability.
substitutive relationship between REM and AEM, this paper shows the complementary relationship between them in the context of meeting or slightly beating industry-average profitability. It implies that the relationship between REM and AEM changes according to the situation.

The rest of this paper is organized as follows. Section 2 develops the hypotheses. Section 3 explains the research design, including the sample selection and the measurement of REM and AEM. I also identify firms that are likely to engage in earnings management to achieve industry-average profitability. Section 4 reports the empirical results and Section 5 discusses the results of the additional analysis. Section 6 presents the conclusion.

2. RELATED LITERATURE AND HYPOTHESES DEVELOPMENT

According to strategic management literature, a firm reviews the actions of competing firms in the same industry. For example, Porter (1980, p.17) states that “In most industries, competitive moves by one firm have noticeable effects on its competitors and thus may incite retaliation or efforts to counter the move; that is, firms are mutually dependent.” This tendency seems to be particularly strong for Japanese firms. According to Abegglen and Stalk (1985), most Japanese firms regard falling behind their competitors as a great risk; therefore, they are preoccupied with the activities of their competitors to a degree that is unusual by Western standards. In addition, while Western managers generally prefer a more carefully considered process of response to competitors’ initiatives, Japanese firms respond very quickly and rarely leave an initiative by a competitor unmet because they have a greater fear of losing their competitive positions.

Porter (1980, 1985) describes firms with “above-average returns” in an industry as successful firms with competitive advantages. Thus, a firm's relative position in its industry is determined by

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4 Porter (1980, p. 35) point out three potentially successful generic strategic approaches (that is, overall cost leadership,
whether its profitability is above or below the industry-average. Consequently, if managers want to show stakeholders that their firm is successful firm that has a competitive advantage, they must try to achieve industry-average profitability. Given that most Japanese firms have a greater fear of losing their competitive positions (Abegglen and Stalk, 1985), they should have a strong incentive to achieve industry-average profitability.

Antle and Smith (1986, p. 2) say that “Evaluating firm performance by comparison with firms exposed to similar business risk is traditional in financial ratio analysis. Published industry-wide average financial ratios provide cross-sectional benchmarks for investment analysts’ assessment of firm performance.” In fact, the literature of financial statement analysis recommends that a firm’s performance be compared with other firms, especially those in the same industry. Penman (2013, p. 314) notes that “To make judgments about a firm’s performance, the analyst needs benchmarks. Benchmarks are established by reference to other firms (usually in the same industry) or to the same firm’s past history.”

In their survey research, Suda and Hanaeda (2008) find that 33.52% of managers in Japanese firms attach importance to earnings in other firms within the same industry as target earnings. They also show that most managers in Japanese firms try to achieve earnings benchmarks because it helps to build credibility with the capital market, maintain or increase their firms’ stock price, and convey future growth prospects to investors. Thus, Japanese firms’ managers are likely to engage in earnings management to achieve industry earnings benchmarks, thereby obtaining rewards from the capital market and providing a signal to investment analysts and investors.

Further, in the context of incentive contracts, industry performance is an important benchmark (so-called “relative performance evaluation”). According to Milgrom and Roberts (1992, p. 233), a performance standard based on the performance of managers in similar firms and industries is one differentiation, and focus), and noted that these approaches can yield the firm above-average returns in its industry.
of reasonably objective ways to set a performance standard. In keeping with this, Antle and Smith (1986) provide evidence that management compensation is determined as if ROA is evaluated relative to industry-average ROA.\(^5\) With regard to Japanese firms, Otomasa (2004) finds that ROA relative to industry-average ROA is positively related to management compensation.\(^6\) These results suggest that management compensation increases (decreases) as a firm's profitability becomes better (worse) than industry-average profitability.\(^7\)

In addition, many prior papers indicate that profitability relative to other firms in the same industry affects management turnover. Parrino (1997, p. 175, Table1) shows that, on average, the ROA of firms with forced CEO turnover is lower than industry-average ROA. This result suggests that when firms fail to achieve industry-average ROA, forced CEO turnover occurs more frequently.\(^8\) With regard to Japanese firms, Kang and Shivdasani (1995) find a negative relationship between the probability of non-routine turnover and ROA relative to industry ROA. Otomasa (2004) also indicates that the probability of forced management turnover increases when firms miss industry-average ROA. If managers realize that meeting or beating industry-average profitability results in increasing their compensation and decreasing the probability of their dismissal, they are likely to attempt to achieve industry-average profitability. Thus, from the perspective of management compensation and turnover, managers are likely to have a strong incentive to achieve industry-average profitability.

Overall, by meeting or beating industry-average profitability, managers can signal the

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\(^5\) Even when stock return is used as a performance measure, prior research (Gibbons and Murphy, 1990; Janakiraman et al., 1992) indicates that relative performance evaluation in the same industry is used for management compensation decisions. However, some research does not support relative performance evaluation with firms in the same industry (Jensen and Murphy, 1990; Joh, 1999; Shuto, 2002).

\(^6\) Although Japanese firms do not usually have explicit earnings-based compensation contracts with their managers (Kay, 1997), empirical evidence on Japanese firms indicates a positive relationship between management compensation and profitability (Kaplan, 1994; Otomasa, 2004; Kato and Kubo, 2006).

\(^7\) Shuto (2007) indicates that Japanese firms use discretionary accruals to increase management compensation.

\(^8\) Even when stock return is used as a performance measure, Morck et al., (1989) indicate that managers tend to be replaced when firms underperform their industry.
competitive advantage of their firms to stakeholders and obtain benefits such as higher compensation and a lower probability of forced dismissal. Thus, managers are likely to want to achieve industry-average profitability. Consequently, I expect that managers try to achieve industry-average profitability, even if they need to engage in earnings management.

Prior research shows that unusually low (high) frequencies of firms just miss (just meet or slightly beat) zero earnings, prior period earnings, and forecast earnings (e.g., Hayn, 1995; Burgstahler and Dichev, 1997; DeGeorge et al., 1999; Burgstahler and Eames, 2006; Suda and Shuto, 2001, 2007). Such research also interprets the discontinuity as evidence of earnings management achieving earnings benchmarks. Thus, following Roychowdhury (2006), Gunny (2010), and Zang (2012), I define firms that just meet or slightly beat industry-average profitability (JUSTMEET firms) as income-increasing earnings management suspects to achieve industry-average profitability. This leads to following my first hypothesis:

**H1:** JUSTMEET firms exhibit more income-increasing earnings management than other firms.

Next, I consider the effect of competition intensity in each industry on the use of earnings management to achieve industry-average profitability. Schmidt (1997) shows that competition increases the probability of liquidation, and Gasper and Massa (2006) find that competition increases the idiosyncratic volatility of a firm’s stock return. Given such evidence, managers in highly competitive industries are likely to engage in earnings management in order to avoid their firms’ liquidation and to decrease the idiosyncratic volatility of their firms’ stock returns.

According to Shleifer (2004), competitive pressure for funds leads to aggressive earnings management because managers are likely to have strong incentives to receive a high equity valuation for their firms. In fact, prior empirical research suggests that firms in more competitive
industries are more likely to engage in REM and AEM (Karuna et al., 2012; Datta et al., 2013; Markarian and Santalo´, 2014).

Given that investment analysts are likely to evaluate firm performance by using other firms in the same industry as benchmarks (Antle and Smith, 1986; Penman, 2013), managers in highly competitive industries who want to maintain high equity valuation should have a considerable incentive to achieve industry-average profitability. Through theoretical models, Markarian and Santalo´ (2014) suggest that product market competition increases the earnings management incentive because it induces higher punishment (rewards) in the stock market when firms report poorer (better) profitability than competitors in the same industry.

Further, relative performance evaluation research suggests that comparisons of profitability among firms in the same industry are used more frequently for management turnover decisions in high competition industries than in low competition industries. DeFond and Park (1999) find that ROA relative to industry median ROA is more closely associated with CEO turnover in high competition industries than in low competition industries. With regard to Japanese firms, Otomasa (2004) indicates that ROA relative to industry-average ROA is more closely related to management turnover in high competition industries than in low competition industries. Given that relative performance evaluation is used more often in highly competitive industries, managers in highly competitive industries should have a greater incentive to achieve industry-average profitability than those in less competitive industries.

In addition, if most managers in highly competitive industries manipulate earnings upwards, industry-average profitability will rise considerably. Thus, firms in highly competitive industries would need a larger amount of earnings in order to achieve industry-average profitability. Consequently, I expect that JUSTMEET firms in more competitive industries engage in income-increasing earnings management to a greater extent than JUSTMEET firms in less
competitive industries. My second hypothesis is therefore as follows:

**H2:** JUSTMEET firms in more competitive industries exhibit greater income-increasing earnings management than JUSTMEET firms in less competitive industries.

Finally, given the existence of REM and AEM, I analyze the relationship between REM and AEM to achieve industry-average profitability. Many prior studies find the substitutive relationship between REM and AEM in various contexts. Ewert and Wagenhofer (2005) use a rational expectations equilibrium model and show that managers are more likely to increase REM under tighter accounting standards where AEM is limited. Cohen et al. (2008) suggest that U.S. firms switched from AEM to REM after the passage of the Sarbanes-Oxley Act. Cohen and Zarowin (2010) show that firms around seasoned equity offerings engage in both REM and AEM, and they substitute between the two methods. Zang (2012) indicates that U.S. firms use more AEM (REM) when the costs of REM (AEM) are higher and find a negative relationship between REM and AEM. Achleitner et al. (2014) provide evidence of substitutive relationship between REM and AEM in German family firms. Markarian and Santalo’ (2014, footnote 12) also find that AEM is negatively related to REM and interpret this result as evidence implying that U.S. firms choose either REM or AEM. Enomoto et al. (2015) analyze the differences in REM and AEM across countries from the perspective of investor protection and indicate that managers in countries with stronger investor protection including Japan tend to engage in REM instead of AEM. Given these findings in many prior studies, Japanese firms may use REM and AEM as substitute in order to industry-average profitability. This leads to following hypothesis:

**H3a:** JUSTMEET firms exhibit more substitutive relationship between REM and AEM than
other firms.

Above prior studies consider the costs of REM (e.g., monitoring by institutional investors and negative effect on firm value) and AEM (e.g., tighter accounting regulations, scrutiny from auditors and regulators, and accounting flexibility in each firm) and suggest that managers engage in higher levels of REM (AEM) when the costs of AEM (REM) is higher. However, they do not consider the cost of missing certain earnings benchmarks. Contrary to above prior studies, Dejong and Ling (2013) find that R&D, advertising, and SG&A expenditures are negatively correlated with accruals, suggesting the complementary relationship between REM and AEM in U.S. firms, but they also ignore the costs of missing certain earnings benchmarks.

Japanese managers are likely to view missing industry average profitability as high costs for them. As previously mentioned, relative performance evaluation is observed in both U.S. firms and Japanese firms (Kang and Shivdasani 1995; Parrino 1997; Otomasa 2004). However, turnover and compensation of Japanese managers are more sensitive to accounting profitability but less sensitive to stock return than those of U.S. managers (Kaplan 1994). Taken together, Japanese managers are more likely to be evaluated with accounting profitability relative to other firms in the same industry than U.S. managers. As a result, the costs of missing industry-average profitability should be higher for Japanese managers than for U.S. managers.

In addition, most Japanese firms are preoccupied with the activities of their competitors to a degree that is unusual by Western standards because they regard falling behind their competitors as a great risk that leads to the loss of competitive advantage (Abegglen and Stalk 1985). This implies that, compared to Western managers, Japanese managers presume missing industry-average profitability as high costs. Japanese firms may view missing industry-average profitability as more costly than using both REM and AEM. As a result, they would somehow try to achieve
industry-average profitability even though they engage in both income-increasing REM and AEM to a considerable degree, leading to the complementary relationship between REM and AEM in JUSTMEET firms. Therefore, I develop following hypothesis:

**H3b**: JUSTMEET firms exhibit more complementary relationship between REM and AEM than other firms.

### 3. RESEARCH DESIGN

(i) Sample Selection

The sample consists of Japanese listed firms with available financial data from *Nikkei-Needs Financial Quest*. I use annual data from consolidated financial statements over the period 2000 to 2013. Firms in financial industries are excluded. I select firms that adopt Japanese accounting standards and firms with fiscal year-end of March 31. I eliminate firms if their liabilities exceed assets. Following Roychowdhury (2006), Gunny (2010), and Zang (2012), I require at least 15 observations in each industry-year group, where industries are identified by *Nikkei gyoushu chu-bunrui* of Nikkei industry classification codes. This approach yields 26,103 firm-year observations.

(ii) Selection of Suspect Firm-Years

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9 Because these firms are in an abnormal financial condition and their market-to-book ratios are negative.

10 Nikkei Industry codes are uniquely set by Nikkei Inc. The company is a Japanese leading media conglomerate and provides the database of *Nikkei-Needs Financial Quest*. Nikkei Industry codes have three levels of industry classification, that is, *Nikkei gyoushu dai-bunrui* (one-digit), *Nikkei gyoushu chu-bunrui* (two-digit), and *Nikkei gyoushu sho-bunrui* (three-digit). Although *Nikkei gyoushu chu-bunrui* is indicated by two-digit code, it is composed of 36 industry classification and is closer Fama-French 48 industry classifications used in Markarian and Santalo’ (2014) rather than two-digit SIC codes given the number of industries. It is generally used in earnings management research (e.g., Shuto 2007; Shuto and Iwasaki 2014) and relative performance evaluation research (e.g., Otomasa 2004) for Japanese firms.
In this subsection, I identify firms that are likely to engage in earnings management to achieve industry-average profitability. As previously mentioned, I define firms that just meet or slightly beat industry-average profitability (JUSTMEET firms) as income-increasing earnings management suspects to achieve industry-average profitability. I adopt ROA as a measure of firms’ profitability because it is an important financial ratio used by various stakeholders and known for its relationship with management compensation and management turnover as aforementioned. I compute ROA as net income divided by lagged total assets. In terms of achieving industry-average profitability, I focus on industry-average-adjusted ROA. Industry-average-adjusted ROA is calculated as firm-specific ROA minus industry-average ROA, where industry-average ROA is defined as the average ROA of other firms in the same industry-year group. Industries are identified by Nikkei gyoushu chu-bunrui. When firms beat (miss) industry-average ROA, industry-average-adjusted ROA is positive (negative). When firms just meet industry-average ROA, industry-average-adjusted ROA is 0.

Figure 1 shows the frequency of firm-years by interval based on industry-average-adjusted ROA. The histogram is structured with widths of 0.005 for the range from −0.1 to +0.1. In accordance with many prior studies, the highest frequency is observed in the interval to the immediate right of 0 (interval 21). However, unlike the shapes of earnings distribution (i.e., earnings levels, earnings changes, and earnings forecast errors) in prior research, there is not extreme discontinuity around 0. To test the significance of the irregularity near 0, I compute the standardized difference (see Burgstahler and Dichev, 1997). The standardized difference for the interval 21 is 1.40 (p-value = 0.08, one-tailed). This result is not strong evidence of earnings management to achieve industry-average profitability. Thus, in the following sections, I verify in

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11 In particular, to compute industry-average ROA for firm i, I use a sample excluding firm i so that the industry-average ROA represents the average ROA for competitors in the same industry. Even if I calculate an industry-average ROA for firm i using a sample including firm i, the main results in this paper are similar.

12 The interval width of 0.005 is based on Roychowdhury (2006). The results of different cut-off points for JUSTMEET firms are reported in the section 5 (iv).
more detail whether JUSTMEET firms engage in REM and AEM. There are 2,178 firm-years in interval 21 with industry-average-adjusted ROA greater than or equal to 0 and less than 0.005. These firm-years are defined as JUSTMEET firms in this paper.

[iii] Measurement of Real Earnings Management

Following prior papers (Roychowdhury, 2006; Cohen et al., 2008; Cohen and Zarowin, 2010; Zang, 2012), I focus on three types of income-increasing REM: sales manipulation, the reduction of discretionary expenditures, and overproduction. Sales manipulation is managers' attempt to temporarily increase sales (and consequently earnings) through increased price discounts or more lenient credit terms. A reduction of discretionary expenditures, such as R&D and advertising, can also increase current period earnings. Overproduction is the production of goods in excess of demand to decrease reported cost of goods sold (and consequently increase earnings).

Sales manipulation and overproduction lead to abnormally low cash flow from operations (CFO) and abnormally high production costs relative to sales. A reduction of discretionary expenditures leads to abnormally low discretionary expenses (Roychowdhury, 2006, pp. 340-341).13 Thus, in accordance with Roychowdhury (2006), Cohen et al. (2008), and Cohen and Zarowin (2010), I consider three proxies to measure the level of REM: abnormal CFO, abnormal discretionary expenses, and abnormal production costs.

To measure abnormal CFO, abnormal discretionary expenses, and abnormal production costs, I

13 Roychowdhury (2006) also notes that a reduction of discretionary expenditures could lead to higher current period cash flows if a firm generally pays discretionary expenditures in cash. However, I use abnormal CFO as a proxy for sales manipulation and overproduction because prior papers find that firms just meeting or beating earnings benchmarks exhibit unusually low CFO, suggesting sales manipulation and overproduction to achieve earnings benchmarks (Roychowdhury, 2006; Yamaguchi, 2009).
estimate the following regression models for each industry-year, where industries are identified by *Nikkei gyoushu chu-bunrui*. These models are based on Dechow et al. (1998) and used by Roychowdhury (2006).

\[ \frac{CFO_i}{A_{i,t-1}} = \beta_0 + \beta_1 \left( \frac{1}{A_{i,t-1}} \right) + \beta_2 \left( \frac{S_i}{A_{i,t-1}} \right) + \beta_3 \left( \frac{\Delta S_i}{A_{i,t-1}} \right) + \varepsilon_{i,t} \]  

(1)

\[ \frac{DISX_i}{A_{i,t-1}} = \beta_0 + \beta_1 \left( \frac{1}{A_{i,t-1}} \right) + \beta_2 \left( \frac{S_{t-1}}{A_{i,t-1}} \right) + \varepsilon_{i,t} \]  

(2)

\[ \frac{PROD_i}{A_{i,t-1}} = \beta_0 + \beta_1 \left( \frac{1}{A_{i,t-1}} \right) + \beta_2 \left( \frac{S_i}{A_{i,t-1}} \right) + \beta_3 \left( \frac{\Delta S_i}{A_{i,t-1}} \right) + \beta_4 \left( \frac{\Delta S_{t-1}}{A_{i,t-1}} \right) + \varepsilon_{i,t} \]  

(3)

\(CFO\) is the cash flow from operations reported in the statement of cash flow; \(DISX\) is discretionary expenses calculated as the total of R&D, advertising, selling, and personnel and welfare expenses;\(^{14}\) \(PROD\) is production costs calculated as the cost of goods sold plus the change in inventory; \(A\) is total assets; \(S\) is sales; \(\Delta S\) is change in sales. The subscripts refer to firm \(i\) and year \(t\).

Abnormal CFO and abnormal discretionary expenses are calculated as the estimated residuals from equations (1) and (2) respectively. I multiply the residuals by \(-1\) (denoted by \(A\_CFO\) and \(A\_DISX\) respectively) so that the higher values mean greater income-increasing REM. Abnormal production costs (\(A\_PROD\)) are calculated as the estimated residuals from equation (3).

In order to capture the total effects of three types of REM, I make two comprehensive measures by combining three REM variables. In accordance with Ge and Kim (2010), my first comprehensive REM measure, \(REM\_1\), is the total of \(A\_CFO\), \(A\_DISX\), and \(A\_PROD\). For the

\(^{14}\) Prior studies on U.S. firms define discretionary expenses as the sum of advertising, R&D, and SG&A expenses (Roychowdhury, 2006; Cohen et al., 2008; Cohen and Zarowin, 2010; Zang, 2012). However, I do not sum them because SG&A expenses in Japanese accounting standards already include advertising expenses. Instead, I regard advertising, selling, and personnel and welfare expenses from SG&A expenses in Japanese accounting standards as the discretionary parts of SG&A. Consequently, I define discretionary expenses as the sum of R&D expenses and the discretionary parts of SG&A.
second comprehensive REM measure, I exclude $A\_CFO$ from $REM\_1$. As mentioned before, sales manipulation and overproduction both lead to abnormally low CFO and abnormally high production costs relative to sales; therefore, the value of the sum of $A\_CFO$ and $A\_PROD$ could indicate double counting of sales manipulation and overproduction. Consequently, consistent with Cohen and Zarowin (2010) and Zang (2012), the second comprehensive REM measure, $REM\_2$, is the total of $A\_DISX$ and $A\_PROD$.

(iv) Measurement of Accrual-Based Earnings Management

Following prior research, I use abnormal accruals as a proxy for accrual-based earnings management. To measure abnormal accruals, I estimate the cross-sectional Jones (1991) model (DeFond and Jiambalvo, 1994).\textsuperscript{15} Specifically, I estimate the following regression model for each industry-year, where industries are identified by Nikkei gyoushu chu-bunrui.

$$
ACC_{i,t}/A_{i,t-1} = \beta_0 + \beta_1 (1/A_{i,t-1}) + \beta_2 (\Delta S_{i,t}/A_{i,t-1}) + \beta_3 (PPE_{i,t}/A_{i,t-1}) + \epsilon_{i,t} \tag{4}
$$

$ACC$ is total accruals, calculated as net income minus cash flow from operations reported in the statement of cash flow; $PPE$ is property, plant, and equipment. Abnormal accruals ($A\_ACC$) are calculated as the estimated residuals from equation (4).

(v) Regression Models to Test Hypotheses

To test whether managers engage in earnings management in order to achieve industry-average

\textsuperscript{15} The results are qualitatively the same even when I use the modified Jones model of Dechow et al. (1995). I do not adopt the performance matching method to control firm performance for earnings management proxies presented by Kothari et al. (2005). While I would like to compare discretionary accruals of JUSTMEET firms with those of other interval firms, the performance matching method can require calculations that involve the discretionary accruals of a JUSTMEET firm minus those of another JUSTMEET firm. Thus, the performance matching method is unsuitable for this research. Instead, I include $NI$ to control for firm performance in the equations (5) to (8).
profitability (H1), I estimate the following regression model based on Roychowdhury (2006), Gunny (2010), and Zang (2012).

\[ EM_{it} = \alpha + \beta_1 SIZE_{i,t-1} + \beta_2 MTB_{i,t-1} + \beta_3 NI_{i,t} + \beta_4 JUSTMEET_{i,t} + \epsilon_{i,t} \] (5)

\( EM \) represents earnings management proxies: \( A\_CFO, A\_DISX, A\_PROD, REM\_1, REM\_2, \) and \( A\_ACC. \) \( SIZE \) is the natural logarithm of the market value of equity; \( MTB \) is the market value of equity divided by the book value of equity; \( NI \) is the net income divided by lagged total assets. \( SIZE \) controls size effects and \( MTB \) controls growth opportunity. \( NI \) is included to address concerns that the measurement error of earnings management is correlated with firm performance. Because the dependent variables are deviation from normal levels in an industry-year group, the three control variables in this regression model are also measured as deviations from the means in the same industry-year group. \( JUSTMEET \) is a dummy variable that equals 1 if industry-average-adjusted ROA is greater than or equal to 0 but less than 0.005, and 0 otherwise. I expect that the coefficients on \( JUSTMEET \) are positive. The positive signs of the coefficients on \( JUSTMEET \) indicate that \( JUSTMEET \) firms exhibit more income-increasing earnings management than other firms, suggesting these firms engage in income-increasing earnings management to achieve industry-average profitability.

Next, to test the effect of competition on the use of earnings management to achieve industry-average profitability (H2), I estimate the following regression model.

\[ EM_{it} = \alpha + \beta_1 SIZE_{i,t-1} + \beta_2 MTB_{i,t-1} + \beta_3 NI_{i,t} + \beta_4 JUSTMEET_{i,t} + \beta_5 COMPETITION_{i,t-1} + \beta_6 JUSTMEET_{i,t} \times COMPETITION_{i,t-1} + \epsilon_{i,t} \] (6)
COMPETITION is a measure of industry concentration calculated as the Herfindahl-Hirschman Index (HHI) in a given year multiplied by −1, where HHI is calculated by squaring the market shares of all firms in an industry and then summing the squares. The reason for multiplying HHI by −1 is that a higher value for COMPETITION means a more competitive industry (Markarian and Santalo’, 2014). I expect that the coefficients on JUSTMEET*COMPETITION are positive. The positive signs of the coefficients on JUSTMEET*COMPETITION indicate that JUSTMEET firms in more competitive industries exhibit greater income-increasing earnings management than JUSTMEET firms in less competitive industries, suggesting firms in more competitive industries engage in greater income-increasing earnings management to achieve industry-average profitability.

Finally, to test the relationship between REM and AEM in JUSTMEET firms (H3), I estimate following regression model.

\[
REM_{it} = \alpha + \beta_1 SIZE_{it-1} + \beta_2 MTB_{it-1} + \beta_3 NI_{it} + \beta_4 JUSTMEET_{it} + \beta_5 A\_ACC_{it} \\
+ \beta_6 JUSTMEET_{it} \times A\_ACC_{it} + \epsilon_{it}, \tag{7}
\]

Based on Achleitner et al. (2014), A\_ACC and JUSTMEET*A\_ACC are added in the REM regressions of Equation (5). A positive (negative) coefficient on JUSTMEET*A\_ACC indicates that JUSTMEET firms exhibit more complementary (substitutive) relationship between REM and AEM than other firms, suggesting JUSTMEET firms complementarily (substitutively) use REM and AEM to achieve industry-average profitability. REM represents real earnings management proxies: A\_CFO, A\_DISX, A\_PROD, REM_1, and REM_2.

Except for JUSTMEET, all variables in equations (5) to (7) are winsorized at the 1% and 99% levels to mitigate the influence of outliers. In estimating these regression models, I include industry

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16 In their REM regressions, Achleitner et al. (2014, p. 441) include an AEM variable and the interaction term of the AEM variable and the dummy variable of family firms to test the relationship between REM and AEM in family firms.
(Nikkei gyoushu chu-bunrui) and year dummies and compute $t$-statistics using Rogers standard errors clustered by firm to control for the possible correlation among the residuals within a firm (Rogers, 1993; Petersen, 2009).\footnote{The database of Nikkei-Needs Financial Quest used in my study also includes Tosho gyoushu bunui assigned by Tokyo Stock Exchange. Tosho gyoushu bunui is composed of 33 industrial classification codes and it is used in Skinner and Srinivasan (2012). As a robustness test, I re-calculated all proxies using Tosho gyoushu bunui instead of Nikkei gyoushu chu-bunrui and replicate the regression analyses. The results from estimating (5) to (7) using Tosho gyoushu bunui are almost the same as the results using Nikkei gyoushu chu-bunrui.}

4. Results

(i) Descriptive Statistics

Table 1 shows the sample size by industry and year. The sample in this study consists of 26 industries and 14 years.

Table 2 shows the descriptive statistics of the variables in the regression models used to test the hypotheses. The mean values of the earnings management proxies, that is, $A_{\text{CFO}}, A_{\text{DISX}}, A_{\text{PROD}}, REM_1, REM_2,$ and $A_{\text{ACC}},$ are close to 0. The mean values of $\text{SIZE}, \text{MTB},$ and $\text{NI},$ which are measured as deviations from the means in the same industry-year group, are also close to 0. Since the mean value of $\text{JUSTMEET}$ is 0.083, 8.3\% of my sample is JUSTMEET firms.

Table 3 reports the Pearson correlations of the variables in equations (5) to (7). Consistent with Roychowdhury (2006) and Zang (2012), earnings management proxies, that is, $A_{\text{CFO}}, A_{\text{DISX}},$
A_PROD, REM_1, REM_2, and A_ACC, are positively correlated with each other. This result suggests that managers tend to engage in three types of REM and AEM at the same time.

[Insert Table 3 about here]

(ii) Regression Results

Table 4 presents the regression results from estimating equation (5). As expected, when the dependent variable is A_CFO or A_PROD, the coefficients on JUSTMEET are positive (0.002 and 0.011 respectively) and statistically significant (t-statistic = 2.14 and t-statistic = 4.19 respectively). This result indicates that JUSTMEET firms more manage earnings upward through sales manipulation and overproduction than other firms. When the dependent variable is A_DISX, the coefficient on JUSTMEET is significantly positive (0.004, t-statistic = 2.60). This result indicates that JUSTMEET firms more manage earnings upward through the reduction of discretionary expenditures than other firms.

For the aggregated REM measures, REM_1 and REM_2, the coefficients on JUSTMEET are positive (0.016 and 0.014 respectively) and statistically significant (t-statistic = 3.93 and t-statistic = 3.75 respectively). This result indicates that JUSTMEET firms more manage earnings upward through REM than other firms. When the dependent variable is A_ACC, the coefficient on JUSTMEET is also positive and statistically significant (0.003, t-statistic = 2.60). This result indicates that JUSTMEET firms more manage earnings upward through AEM. In total, these results indicate that JUSTMEET firms exhibit more income-increasing earnings management than other firms. Thus, the results in Table 4 support H1 and suggest that managers engage in
income-increasing earnings management to achieve industry-average profitability.\textsuperscript{18}

The results of estimating equation (6) are reported in Table 5. The coefficients on \textit{JUSTMEET*COMPETITION} are significantly positive for all six dependent variables.\textsuperscript{19} This result indicates that JUSTMEET firms in more competitive industries engage in greater income-increasing REM and AEM than JUSTMEET firms in less competitive industries. Consequently, the results in Table 5 support H2 and suggest that firms in more competitive industries engage in greater income-increasing earnings management to achieve industry-average profitability.\textsuperscript{20}

Table 6 reports the regression results from estimating equation (7) and shows that the coefficients on \textit{JUSTMEET*A_ACC} are significantly positive (0.051, \textit{t}-statistic = 3.11) only when

\textsuperscript{18} I re-estimate equation (5) including firm and year dummies to control for firm and year fixed effects instead of industry and year dummies. The results show that the coefficients on \textit{JUSTMEET} are not significant but still positive for \textit{A_CFO}, \textit{A_PROD}, \textit{REM_1}, \textit{REM_2}, and \textit{A_ACC}. Additionally, when JUSTMEET firms are defined as firms with industry-average-adjusted ROA of between 0 and 0.01, the coefficients on \textit{JUSTMEET} are significantly positive for all dependent variables other than \textit{A_CFO}.

\textsuperscript{19} As with Markarian and Santalo\' (2014), I conduct a robustness test using import penetration instrumented by import tariffs as another proxy for \textit{COMPETITION}. Import penetration is measured as the ratio of imports divided by the sum of domestic production and imports. I calculate import penetration using the data from \textit{Japan Industrial Productivity Database} in The Research Institute of Economy, Trade and Industry (RIETI), which is organized by 108 unique industry codes. I obtain import tariffs of most favored nations from \textit{The Trade Statistics of Japan} in Ministry of Finance Japan, where commodities are classified based on 9-digit statistical code. Finally, I aggregate the import penetration and the tariff rate at the \textit{Nikkei gyoushu sho-bunrui} (three-digit) level to obtain industry average import penetration and tariff rates. These processes yield the data of import penetration and import tariffs covering 67 manufacturing industries (\textit{Nikkei gyoushu sho-bunrui} level) for the period 2003-2011. Estimating results of equation (6) with this another proxy for \textit{COMPETITION} indicate that the coefficient on \textit{JUSTMEET*COMPETITION} remains significantly positive at 5\% level when dependent variable is \textit{A_ACC}. The coefficient is not significant but still positive for \textit{A_CFO}, \textit{A_PROD}, \textit{REM_1}, and \textit{REM_2}. The coefficient is insignificant negative for \textit{A_DISX}. Given that import penetration measures the extent of the presence of foreign competitors in domestic market, it might not have a large impact on earnings management incentives to achieve average profitability within domestic competitors.

\textsuperscript{20} When I use firm and year dummies instead of industry and year dummies, the results show that the coefficients on \textit{JUSTMEET*COMPETITION} are significantly positive for \textit{A_CFO} and \textit{A_ACC}. The coefficients are insignificant but still positive for \textit{A_DISX}, \textit{A_PROD}, \textit{REM_1}, and \textit{REM_2}.
the dependent variable is $A_{\text{CFO}}$. This result indicates that JUSTMEET firms exhibit more complementary relationship between two types of REM (sales manipulation and overproduction) and AEM than other firms. The result supports H3b and suggests that JUSTMEET firms complementarily use the two types of REM and AEM to achieve industry-average profitability.\(^{21}\)

[Insert Table 6 about here]

5. ADDITIONAL ANALYSES

(i) Other Industry Profitability Benchmarks

In this subsection, I conduct two additional tests regarding the industry profitability benchmark. Though this paper adopts industry-average profitability as a benchmark, managers may try to achieve industry-median profitability in order to rank their firm in the top half (the top 50%) of an industry in terms of comparative advantage. Additionally, some papers suggest that the probability of management turnover increases when firms miss industry-median ROA (DeFond and Park, 1999; Engel et al., 2003).\(^{22}\) Hence, I re-estimate equation (5) using $JUSTMEET\_\text{MEDIAN}$ instead of $JUSTMEET$, where $JUSTMEET\_\text{MEDIAN}$ is defined as a dummy variable that equals 1 if industry-median-adjusted ROA is greater than or equal to 0 but less than 0.005, and 0 otherwise.\(^{23}\) In Table 7, the results show that the coefficients on $JUSTMEET\_\text{MEDIAN}$ are significantly positive for all six dependent variables.\(^{24}\) This suggests that managers engage in REM and AEM in order to

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\(^{21}\) When firm and year dummies are included instead of industry and year dummies, the results are unchanged. That is to say, the coefficients on $JUSTMEET \times A\_\text{ACC}$ are significantly positive at 1% level only when the dependent variable is $A\_\text{CFO}$ and insignificant for other dependent variables.

\(^{22}\) Specifically, DeFond and Park (1999) show that the industry-median-adjusted ROA of CEO turnover firms is significantly lower than that of control firms. Engel et al. (2003) observe that forced CEO turnover firms have a lower industry-median-adjusted change in ROA than the control firms.

\(^{23}\) There are 2,552 firm-year observations where $JUSTMEET\_\text{MEDIAN}$ equals 1.

\(^{24}\) When I add $COMPETITION$ and $JUSTMEET\_\text{MEDIAN} \times COMPETITION$ as independent variables, the results
rank their firm in the top 50% of an industry.

[Insert Table 7 about here]

Next, I take account for managers' earnings forecast. Specifically, as a further benchmark of industry profitability, I use industry-average forecast ROA based on the last managers’ forecast earnings in a fiscal year. Managers cannot precisely know industry-average actual profitability until earnings announcement dates after a fiscal year-end. However, managers can preliminarily know the forecast earnings of other firms in the same industry before a fiscal year-end. Thus, managers may try to achieve industry-average forecast profitability rather than industry-average actual profitability. Consequently, I re-estimate equation (5) using JUSTMEET_FORECAST instead of JUSTMEET, where JUSTMEET_FORECAST is defined as a dummy variable that equals 1 if firm-specific actual ROA minus industry-average forecast ROA is greater than or equal to 0 but less than 0.005, and 0 otherwise. In Table 8, the results show that all the coefficients on JUSTMEET_FORECAST are significantly positive for all six dependent variables. This suggests that managers engage in REM and AEM to achieve industry-average forecast ROA.

[Insert Table 8 about here]

indicate that the coefficient on JUSTMEET_MEDIAN*COMPETITON are significantly positive for all dependent variables, suggesting that firms in more competitive industries engage in greater income-increasing earnings management to achieve industry-median profitability.

25 For Japanese firms, a manager’s forecast is more prevalent than an analyst's forecast.
26 There are 2,147 firm-year observations where JUSTMEET_FORECAST equals 1.
27 When I also include COMPETITON and JUSTMEET_FORECAST*COMPETITON as independent variables, the results indicate that the coefficients on JUSTMEET_FORECAST*COMPETITON are significantly positive for A_DISX, A_PROD, REM_1, and REM_2, suggesting that firms in more competitive industries engage in greater income-increasing REM to achieve industry-median profitability. The coefficients are not significant but positive for A_CFO and A_ACC.
(ii) Other Control Variables

Equations (5) to (7) include SIZE, MTB, and ROA as control variables. However, prior research suggests that leveraged firms engage in AEM (e.g. Becker et al., 1998) and REM (e.g. Roychowdhury, 2006) to avoid debt covenant violations. In addition, prior research indicates that low accounting flexibility decreases AEM and increases REM (e.g. Zang, 2012). Therefore, I add DEBT and NOA at the beginning of the year as control variables in equations (5) to (7). DEBT is total debt divided by total assets. NOA is net operating assets divided by sales, where net operating assets are defined as net assets less cash and marketable securities, plus total liabilities. High (low) NOA means low (high) accounting flexibility (Barton and Simko, 2002). Again, since the dependent variables are deviation from normal levels in an industry-year group, DEBT and NOA are also measured as deviations from the means in the same industry-year group. Consistent with prior research, the untabulated results show that the coefficients on DEBT and NOA are significantly positive when the dependent variables are A_DISX, A_PROD, REM_1, and REM_2. While the coefficients on DEBT and NOA when dependent variables are A_CFO and A_ACC are inconsistent with prior research, the coefficients and significant levels for the other variables are essentially the same as the results reported in Tables 4 to 8. Overall, the evidence of main regression results is not affected by including DEBT and NOA.

(iii) Comparison between JUSTMEET firms and firms in other interval groups

H1 predicts that JUSTMEET firms exhibit more income-increasing earnings management than other firms. To illustrate the characteristic of earnings management activities to industry-average profitability in more detail, I separate the other firms into three groups, that is, MISS, JUSTMISS, MISS28

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28 In particular, the coefficients on DEBT are significantly negative when the dependent variables are A_CFO and A_ACC. The coefficients on NOA are significantly positive for A_ACC and insignificant for A_CFO.
and BEAT firms, and compare each of them with JUSTMEET firms. MISS firms are defined as firms with industry-average-adjusted ROA of less than $-0.005$. JUSTMISS firms are defined as firms with industry-average-adjusted ROA of greater than or equal to $-0.005$ but less than $0$. BEAT firms are defined as firms with industry-average-adjusted ROA of greater than or equal to $0.005$.

Based on Roychowdhury (2006, p.352), I use residuals from the following regression model as the levels of earnings management in order to control for size, market-to-book, and net income.

$$EM_{i,t} = \alpha + \beta_1 SIZE_{i,t-1} + \beta_2 MTB_{i,t-1} + \beta_3 NI_{i,t} + \varepsilon_{i,t}$$ (8)

All variables in equations (8) are winsorized at the 1% and 99% levels to mitigate the influence of outliers. In estimating these regression models, I include industry and year dummies, where industries are identified by Nikkei gyoushu chu-bunrui. $R_{CFO}$, $R_{DISX}$, $R_{PROD}$, $R_{REM1}$, $R_{REM2}$, and $R_{ACC}$ represent residuals when $EM$ is $A_{CFO}$, $A_{DISX}$, $A_{PROD}$, $REM_1$, $REM_2$, and $A_{ACC}$, respectively.

Table 9 reports the results of comparison of earnings management levels between JUSTMEET firms and firms in other interval groups. The results indicate MISS firms exhibit significantly lower values than JUSTMEET firms for $R_{DISX}$, $R_{PROD}$, $R_{REM1}$, and $R_{REM2}$, suggesting that JUSTMEET firms engage in more income-increasing REM than MISS firms. For BEAT firms, all of residuals exhibit significantly lower values than JUSTMEET firms which are consistent with JUSTMEET firms exhibiting more income-increasing REM and AEM than BEAT firms. BEAT firms relatively largely exceed industry-average profitability and they seem to be able to achieve

It is very important to compare between firms below and above earnings threshold in the research of earnings benchmarks such as Athanasakou et al. (2009, 2011) and Gunny and Zhang (2014). In addition, the comparison between JUSTMEET firms and BEAT firms is meaningful in this paper. BEAT firms are less likely to manage earnings upward to achieve industry-average profitability, because they relatively largely exceed industry-average profitability and they seem to be able to achieve industry-average profitability without using income-increasing earnings management. Therefore, I expect that even compared to BEAT firms, JUSTMEET firms exhibit more income-increasing earnings management.
industry-average profitability without using income-increasing earnings management. Therefore, BEAT firms probably did not engage in income-increasing earnings management to achieve industry-average profitability. For JUSTMISS firms, although most residuals are lower than those of JUSTMEET firms, only the median of $R_{DISX}$ is significantly lower than that of JUSTMEET firms. Possible explanations for this result are as follows: although JUSTMISS firms manage earnings upward, they still miss industry-average profitability because industry-average profitability is higher than they expected or they do not have enough flexibility for earnings management to achieve industry-average profitability.

[Insert Table 9 about here]

(iv) The treatment of diversified firms

Firms that operate in more than one industry are likely to also have competitors other than the industry defined in this paper. To mitigate this problem, I exclude diversified firms as with Markarian and Santaló (2014, footnote 4) and re-estimate equation (5) to (7). Diversified firms are defined as firms with more than two industrial codes at three-digit Japan SIC level in Nikkei-Needs Financial Quest as diversified firms. I require at least 3 observations in each three-digit Japan SIC grouping per year and recalculate industry-average-adjusted ROA and HHI with three-digit Japan SIC code. This approach yields 12,898 non-diversified firm-years including 145 industries at three-digit Japan SIC level.

Regression results of equation (5) excluding diversified firms lead similar results as main results including diversified firms. In particular, the coefficients on JUSTMEET are positive for all

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30 The analysis aggregating JUSTMISS firms and MISS firms to one group yields similar results for MISS firms. 
31 Since three-digit Japan SIC code is finer than Nikkei gyoushu chu-bunrui (two-digit), competitors in industry would be more narrowed down.
dependent variables and significant for \( A_{CFO}, A_{PROD}, REM_1 \), and \( ACC \). Thus, the regression results of equation (5) are generally robust for excluding diversified firms. When I estimate equation (6) excluding diversified firms, the coefficients on \( JUSTMEET*COMPETITION \) are positive and significant for \( A_{ACC} \) as with main results, but not significant for dependent variables other than \( A_{ACC} \).\(^{32}\) When equation (7) is estimated without diversified firms, the coefficient on \( JUSTMEET*A_{ACC} \) for \( A_{CFO} \) is not significant but still positive.\(^{33}\)

(v) Different cut-off points for \( JUSTMEET \) firms

In my main results, \( JUSTMEET \) is defined as a dummy variable that equals 1 if industry-average-adjusted ROA is greater than or equal to 0 but less than 0.005, and 0 otherwise. In this subsection, I re-estimate equations (5) to (7) with different cut-off points of 0.0025, 0.01, and 0.015 in the definition of \( JUSTMEET \) to check the robustness for the results (untabulated). In general, estimating equation (5) with these different cut-off points leads almost the same results as the results using the cut-off point of 0.005. Specifically, when 0.01 and 0.015 are used as cut-off points, the coefficients on \( JUSTMEET \) are positive and significant at 5% or better levels for all dependent variables. When I use 0.0025 as a cut-off point, the coefficients are positive for all dependent variables and significant for dependent variables other than \( A_{CFO} \).

Regression results of equation (6) with these different cut-off points are also nearly the same as the results with the cut-off point of 0.005. In particular, the coefficients on \( JUSTMEET*COMPETITION \) are positive and significant at 5% or better levels for all dependent

\(^{32}\) This result may be caused by without using the precise calculation method of HHI used in Markarian and Santaló’ (2014, p.583) who compute total sales in industry \( i \) as total sales of non-diversified firms and those divisions of diversified firms that report industry \( i \) as a sector of business. However, the segment database of Nikkei-Needs Financial Quest does not allow me to do so. In particular, the sales of each industry cannot be calculated from the database because two or more industry codes are attached even for each business segment in the database.

\(^{33}\) When I calculate an industry-average ROA for firm \( i \) using a sample including firm \( i \) (please also see footnote 11), the coefficient on \( JUSTMEET*A_{ACC} \) for \( A_{CFO} \) remain positive and significant at 5% level even when equation (7) is estimated without diversified firms.
variables when 0.01 is used as a cut-off point. When 0.0025 is used as a cut-off point, the coefficients are positive for all dependent variables, and significant for dependent variable other than $A_{\text{CFO}}$. When I use 0.015 as a cut-off point, the coefficients are positive for all dependent variables and significant at 5% or better level for dependent variables other than $A_{\text{DISX}}$.

Regression results of equation (7) with these different cut-off points are similar to the result with the cut-off point of 0.005 for $A_{\text{CFO}}$. Specifically, the coefficients on $\text{JUSTMEET} \ast A_{\text{ACC}}$ for $A_{\text{CFO}}$ are positive and significant when 0.01 and 0.015 are used as cut-off points. When 0.0025 is used as a cut-off point, the coefficients on $\text{JUSTMEET} \ast A_{\text{ACC}}$ for $A_{\text{CFO}}$ are not significant but still positive. Thus, the positive relationship between $A_{\text{CFO}}$ and $A_{\text{ACC}}$ in JUSTMEET firms is some robust for using these different cut-off points for JUSTMEET firms.

(vi) Alternative proxies for competition

The results of table 5 suggest that firms in more competitive industries engage in greater income-increasing earnings management to achieve industry-average profitability where HHI is used as a proxy for the level of competition in an industry. In this subsection, I re-estimate equation (6) with four alternative proxies for competition in an industry to check the robustness for the results of Table 5, where industries are identified by Nikkei gyoushu chu-bunrui. In general, the interpretation of the results of Table 5 still holds even when these alternative proxies are used as a proxy for competition (untabulated).

First, following Datta et al. (2013), I use the number of firms in the industry as a proxy for competition. Meanwhile, for dependent variables other than $A_{\text{CFO}}$, there are some cases that the coefficients on $\text{JUSTMEET} \ast A_{\text{ACC}}$ are significantly negative, suggesting JUSTMEET firms exhibit more substitutive relationship between REM and AEM than other firms. However, all the coefficients of $A_{\text{ACC}}$ are significantly positive, indicating non-JUSTMEET firms exhibit complementary relationship between REM and AEM. In addition, F-tests of a linear restriction on the coefficients ($A_{\text{ACC}} + \text{JUSTMEET} \ast A_{\text{ACC}}$) are significantly positive for all dependent variables except only when the cut-off point is 0.0025 and dependent variable is $A_{\text{DISX}}$. These results suggest that, although the degree of the complementarity between REM and AEM is smaller for JUSTMEET firms than other firms, the complementarity in JUSTMEET firms still exists.
competition. The number of firms is one of the main factors that shape the intensity of rivalry in an industry where larger number of firms in the industry magnifies competition (Porter, 1980). When I re-estimate equation (6) where COMPETITION is the number of firms in the industry, the coefficients on JUSTMEET*COMPETITION are positive for all dependent variables and significant for A_CFO, A_PROD, REM_1, and A_ACC.

Second, I examine market size as a proxy for competition where market size reflects market demand and the density of consumer in an industry. More market size increases, more firms attracted to the industry by the prospects of higher profitability, and thus price competition increases (Sutton, 1991). As with Karuna et al. (2012) and Balakrishnan and Cohen (2013), I calculate market size as the natural logarithm of total sales in an industry. When COMPETITION is defined as the market size, the coefficients on JUSTMEET*COMPETITION of equation (6) are positive for all dependent variables and significant for A_PROD, REM_1, and REM_2.

Third, entry costs are considered as a proxy for competition. Higher entry costs can be the barriers to entry in an industry resulting in lower market competition (Sutton, 1991). Based on Jong et al. (2012), I calculate capital intensity to measure entry costs. Then, in order to capture low entry costs that indicate high competition, I use a dummy variable that equals 1 if the average value of the ratio of property, plant, and equipment over number of employees in an industry falls below the median value across all industries and 0 otherwise. When I re-estimate equation (6) where COMPETITION is the dummy variable, the coefficients on JUSTMEET*COMPETITION are positive for all dependent variables and significant for A_CFO, A_PROD, REM_1, and A_ACC.

Fourth, following Hou and Robinson (2006), I use another HHI calculated with total assets to compute market share. They point out that, although a common way to calculate HHI is to use sales to calculate market sales, HHI calculated with total assets to compute market share also produce reasonable values to some extent. When COMPETITION is defined as the assets-based HHI
multiplied by $-1$, the coefficients on $JUSTMEET*COMPETITION$ of equation (6) are significantly positive for all dependent variables.

Overall, the interpretation of the results is same as before even when these alternative proxies for industry competition and suggest that firms in more competitive industries engage in greater income-increasing REM and AEM to achieve industry-average profitability.

6. CONCLUSION

This paper investigates whether Japanese firms engage in earnings management to achieve industry-average profitability. Although prior research documents that managers use earnings management to achieve zero earnings, prior period earnings, and forecast earnings, this paper provides evidence that managers engage in REM and AEM to achieve industry-average profitability. Specifically, I find evidence of income-increasing REM and AEM in firms that just meet or slightly beat industry-average profitability. The results also indicate that firms in more competitive industries engage in greater income-increasing earnings management to achieve industry-average profitability. In addition, this paper shows the complementary relationship between two types of REM (sales manipulation and overproduction) and AEM to achieve industry-average profitability. This paper also provides evidence of REM and AEM to achieve industry-median profitability and industry-average forecast profitability.

This paper makes three contributions to earnings management literature. First, it is the first research to investigate the use of REM to achieve industry average profitability. Markarian and Santalo’ (2014) find a negative relationship between the absolute value of discretionary accruals and industry-average adjusted profitability. This paper corroborates Markarian and Santalo’ (2014) by showing that managers engage in not only AEM but also REM to achieve industry-average
profitability. In contrast to zero earnings, prior period earnings, and forecast earnings, industry-average profitability is a moving target that depends on the profitability of other firms in the same industry. This paper suggests that managers tend to engage in REM and AEM activities with an awareness of the profitability of competing firms in the same industry.

Second, this paper corroborates the research on the relationship between earnings management and competition by showing that the intensity of competition in each industry affects managers’ use of REM and AEM to achieve industry-average profitability. Third, and most importantly, this paper contributes to the research on the relationship between REM and AEM. Although many prior research finds a substitutive relationship between REM and AEM (e.g., Cohen et al., 2008; Zang, 2012; Achleitner et al., 2014), this paper shows the complementary relationship between two types of REM (sales manipulation and overproduction) and AEM in Japanese context of meeting or slightly beating industry-average profitability. This implies that, the two types of REM and AEM are both used to a considerable degree in the context where managers consider that the costs of missing earnings target are higher than those of using both REM and AEM.

The results in this paper have significant implications. First, for policymakers who are considering competition policy, this paper suggests that increasing competition leads to the use of earnings management to achieve industry-average profitability. Thus, policymakers should consider the effect of competitive pressure on earnings management when they create or amend competition policy. Second, this paper suggests that firms that just meet or slightly beat industry-average profitability are highly likely to engage in earnings management. Thus, it is potentially useful for investors and security analysts to evaluate a firm in comparison with other firms in the same industry. Third, for accounting researchers who are interested in the relationship between REM and AEM, this paper makes them recognize the importance of considering the context in which REM and AEM are used because it implies that the relationship between REM and AEM changes
according to the situation.

In the future, it would be interesting to investigate whether firms’ managers in countries other than Japan engage in earnings management to achieve industry-average profitability. In addition, this paper focuses on only one country and excludes global business competition. Thus, future research could use global data and investigate whether managers engage in earnings management to achieve industry-average profitability in the context of global competition. Finally, it would be interesting to find target benchmarks that managers try to achieve other than zero earnings, prior period earnings, forecast earnings, and industry-average profitability. Such research would lead to a better understanding of managers' earnings management activities.
## APPENDIX

### Variable Definitions

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
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<tr>
<td>CFO</td>
<td>Cash flow from operations reported in the cash flow statement</td>
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<tr>
<td>DISX</td>
<td>Discretionary expenses, calculated as the total of R&amp;D, advertisement, selling, and personnel and welfare expenses</td>
</tr>
<tr>
<td>PROD</td>
<td>Production costs, calculated as the cost of goods sold plus the change in inventory</td>
</tr>
<tr>
<td>A</td>
<td>Total assets</td>
</tr>
<tr>
<td>S</td>
<td>Sales</td>
</tr>
<tr>
<td>ΔS</td>
<td>Change in sales</td>
</tr>
<tr>
<td>ACC</td>
<td>Total accruals, calculated as net income minus cash flow from operations reported in the cash flow statement</td>
</tr>
<tr>
<td>PPE</td>
<td>Property, plant, and equipment</td>
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<td>A_CFO</td>
<td>Abnormal CFO multiplied by $-1$, where abnormal CFO is the residuals from the following regression in the corresponding industry-year: $CFO_{i,t}/A_{i,t-1} = \beta_0 + \beta_1 (1/A_{i,t-1}) + \beta_2 (S_{i,t}/A_{i,t-1}) + \beta_3 (\Delta S_{i,t}/A_{i,t-1}) + \epsilon_{i,t}$</td>
</tr>
<tr>
<td>A_DISX</td>
<td>Abnormal discretionary expenses multiplied by $-1$, where abnormal discretionary expenses are the residuals from the following regression in the corresponding industry-year: $DISX_{i,t}/A_{i,t-1} = \beta_0 + \beta_1 (1/A_{i,t-1}) + \beta_2$</td>
</tr>
</tbody>
</table>
\[(S_{it-1}/A_{it-1}) + \varepsilon_{it}\]

**A_PROD**

The abnormal level of production costs, calculated as the residuals from the following regression in the corresponding industry-year:

\[
PROD_{it}/A_{it-1} = \beta_0 + \beta_1 (1/A_{it-1}) + \beta_2 (S_{it}/A_{it-1}) + \beta_3 (\Delta S_{it}/A_{it-1}) + \beta_4 (\Delta S_{it-1}/A_{it-1}) + \varepsilon_{it}
\]

**REM_1**

The total of **A_CFO**, **A_DISX**, and **A_PROD**

**REM_2**

The total of **A_DISX** and **A_PROD**

**A_ACC**

Abnormal accruals, calculated as the residuals from the following regression in the corresponding industry-year: **ACC_{it}/A_{it-1} = \beta_0 + \beta_1 (1/A_{it-1}) + \beta_2 (\Delta S_{it}/A_{it-1}) + \beta_3 (PPE_{it}/A_{it-1}) + \varepsilon_{it}**

**EM**

**A_CFO, A_DISX, A_PROD, REM_1, REM_2, and A_ACC**.

**REM**

**A_CFO, A_DISX, A_PROD, REM_1, and REM_2**.

**SIZE**

The natural logarithm of the market value of equity, measured as deviations from the means in the same industry-year group

**MTB**

The market value of equity divided by the book value of equity, measured as deviations from the means in the same industry-year group

**NI**

Net income divided by lagged total assets, measured as deviations from the means in the same industry-year group

**JUSTMEET**

A dummy variable that equals 1 if industry-average-adjusted ROA is greater than or equal to 0 but less than 0.005, and 0 otherwise
**COMPETITION**

The Herfindahl-Hirschman Index (HHI) in a given year multiplied by −1, where HHI is calculated by squaring the market shares of all firm in an industry and then summing the squares.

**JUSTMEET_Median**

A dummy variable that equals 1 if industry-median-adjusted ROA is greater than or equal to 0 but less than 0.005, and 0 otherwise.

**JUSTMEET_FORECAST**

A dummy variable that equals 1 if firm-specific actual ROA minus industry-average forecast ROA is greater than or equal to 0 but less than 0.005, and 0 otherwise.

**DEBT**

Total debt divided by total assets, measured as deviations from the means in the same industry-year group.

**NOA**

Net operating assets divided by sales, measured as deviations from the means in the same industry-year group, where net operating assets is defined as net assets less cash and marketable securities, plus total liabilities.
REFERENCES
Accounting, Vol. 33, Nos. 5-6, pp. 633-652.


Enomoto, M., F. Kimura and T. Yamaguchi (2015), ‘Accrual-Based and Real Earnings


Figure 1
Number of firm years by industry-average-adjusted ROA interval

Notes:
Over the period 2000-2013, 26,103 firm-years are classified into industry-average-adjusted ROA intervals. The distribution ranges from -0.1 to +0.1 and each interval width is 0.005. The figure has 24,760 firm-years because of cutoff at both ends.
Table 1
Sample distribution

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<td>1,814</td>
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Notes:
This table presents sample distribution by industry and year. Industries are identified by *Nikkei gyosha chu-bunrui*. 

47
### Table 2
Descriptive statistics

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<th>Mean</th>
<th>Median</th>
<th>Std. Dev.</th>
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<th>75%</th>
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**Notes:**
This table shows the descriptive statistics of the variables in the regression models used to test the hypotheses. The variables are defined in the Appendix. The sample consists of 26,103 firm-years during the period 2000-2013.
Table 3
Pearson correlation matrix (n = 26,103)

|        | A
CFO | A
DISX | A
PROD | REM_1 | REM_2 | A
ACC | SIZE | MTB | NI | JUSTMEET | COMPETITION | JUSTMEET* | COMPETITION |
|--------|-----|-------|-------|-------|-------|------|------|-----|---|----------|-------------|-----------|-------------|
| A
DISX  | 0.057 |       |       |       |       |      |      |     |   |          |              |           |             |
|        | (0.000) |   |       |       |       |      |      |     |   |          |              |           |             |
| A
PROD  | 0.294 | 0.783 |       |       |       |      |      |     |   |          |              |           |             |
|        | (0.000) | (0.000) |       |       |       |      |      |     |   |          |              |           |             |
| REM_1  | 0.474 | 0.828 | 0.956 |       |       |      |      |     |   |          |              |           |             |
|        | (0.000) | (0.000) | (0.000) |       |       |      |      |     |   |          |              |           |             |
| REM_2  | 0.223 | 0.903 | 0.972 | 0.961 |       |      |      |     |   |          |              |           |             |
|        | (0.000) | (0.000) | (0.000) | (0.000) |       |      |      |     |   |          |              |           |             |
| A
ACC   | 0.611 | 0.056 | 0.111 | 0.258 | 0.098 |       |      |     |   |          |              |           |             |
|        | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |       |      |     |   |          |              |           |             |
| SIZE   | −0.090 | −0.093 | −0.108 | −0.121 | −0.109 | −0.015 |      |     |   |          |              |           |             |
|        | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.015) |      |     |   |          |              |           |             |
| MTB    | −0.094 | −0.098 | −0.177 | −0.166 | −0.159 | 0.015 | 0.295 |     |   |          |              |           |             |
|        | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.018) | (0.000) |     |   |          |              |           |             |
| NI     | −0.384 | −0.038 | −0.200 | −0.240 | −0.152 | 0.310 | 0.226 | 0.155 |   |          |              |           |             |
|        | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |   |          |              |           |             |
| JUSTMEET | 0.008 | 0.018 | 0.026 | 0.024 | 0.024 | 0.017 | 0.010 | −0.032 | 0.010 |          |                |           |             |
|        | (0.187) | (0.004) | (0.000) | (0.000) | (0.000) | (0.007) | (0.124) | (0.000) | (0.111) |          |                |           |             |
| COMPETITION | 0.000 | 0.005 | 0.007 | 0.006 | 0.007 | 0.002 | −0.001 | −0.029 | 0.009 | −0.021 |              |                |           |             |
|        | (0.946) | (0.425) | (0.271) | (0.316) | (0.268) | (0.759) | (0.918) | (0.000) | (0.167) | (0.001) |              |                |           |             |
| JUSTMEET* | 0.000 | −0.005 | −0.011 | −0.008 | −0.009 | −0.007 | −0.013 | 0.016 | −0.008 | −0.835 | 0.185 |              |                |           |             |
| COMPETITION | 0.960 | (0.443) | (0.089) | (0.218) | (0.163) | (0.249) | (0.039) | (0.008) | (0.190) | (0.000) | (0.000) |              |                |           |             |
| JUSTMEET* | 0.197 | 0.017 | 0.038 | 0.082 | 0.032 | 0.231 | −0.021 | −0.008 | 0.001 | 0.067 | 0.015 | −0.027 |              |                |           |             |
| A
ACC   | (0.000) | (0.008) | (0.000) | (0.000) | (0.000) | (0.001) | (0.216) | (0.918) | (0.000) | (0.018) | (0.000) |             |                |           |             |

Notes:
This table shows the Pearson correlations of the variables in the regression models used to test the hypotheses. The variables are defined in the Appendix. The sample consists of 26,103 firm-years during the period 2000-2013. p-values are presented in parentheses (two-tailed).
Table 4

Regression results regarding earnings management to achieve industry-average profitability

<table>
<thead>
<tr>
<th></th>
<th>$A_{CFO}$</th>
<th>$A_{DISX}$</th>
<th>$A_{PROD}$</th>
<th>REM_1</th>
<th>REM_2</th>
<th>$A_{ACC}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>$-0.001$</td>
<td>$0.001$</td>
<td>$-0.002$</td>
<td>$-0.002$</td>
<td>$-0.002$</td>
<td>$-0.001$</td>
</tr>
<tr>
<td></td>
<td>($-0.57$)</td>
<td>$(0.09)$</td>
<td>$(0.13)$</td>
<td>$(0.10)$</td>
<td>$(0.09)$</td>
<td>$(0.43)$</td>
</tr>
<tr>
<td>$SIZE$</td>
<td>$0.000$</td>
<td>$-0.003^{***}$</td>
<td>$-0.002$</td>
<td>$-0.005^{**}$</td>
<td>$-0.005^{**}$</td>
<td>$-0.003^{***}$</td>
</tr>
<tr>
<td></td>
<td>$(0.73)$</td>
<td>$(-3.65)$</td>
<td>$(-1.64)$</td>
<td>$(-2.20)$</td>
<td>$(-2.43)$</td>
<td>$(-9.98)$</td>
</tr>
<tr>
<td>$MTB$</td>
<td>$-0.002^{***}$</td>
<td>$-0.005^{***}$</td>
<td>$-0.017^{***}$</td>
<td>$-0.024^{***}$</td>
<td>$-0.022^{***}$</td>
<td>$-0.001$</td>
</tr>
<tr>
<td></td>
<td>$(-3.12)$</td>
<td>$(-4.19)$</td>
<td>$(-7.46)$</td>
<td>$(-6.65)$</td>
<td>$(-6.65)$</td>
<td>$(-1.10)$</td>
</tr>
<tr>
<td>$NI$</td>
<td>$-0.443^{***}$</td>
<td>$-0.015$</td>
<td>$-0.458^{***}$</td>
<td>$-0.927^{***}$</td>
<td>$-0.480^{***}$</td>
<td>$0.371^{***}$</td>
</tr>
<tr>
<td></td>
<td>$(-35.48)$</td>
<td>$(-0.75)$</td>
<td>$(-12.12)$</td>
<td>$(-15.24)$</td>
<td>$(-8.52)$</td>
<td>$(31.62)$</td>
</tr>
<tr>
<td>$JUSTMEET$</td>
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<td>$0.004^{***}$</td>
<td>$0.011^{***}$</td>
<td>$0.016^{***}$</td>
<td>$0.014^{***}$</td>
<td>$0.003^{***}$</td>
</tr>
<tr>
<td></td>
<td>$(2.14)$</td>
<td>$(2.60)$</td>
<td>$(4.19)$</td>
<td>$(3.93)$</td>
<td>$(3.75)$</td>
<td>$(2.60)$</td>
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<tr>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Year Dummies</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>$0.148$</td>
<td>$0.013$</td>
<td>$0.062$</td>
<td>$0.075$</td>
<td>$0.043$</td>
<td>$0.103$</td>
</tr>
</tbody>
</table>

Notes:

This table reports the results of estimating following regressions:

$$EM_{i,t} = a + \beta_1 SIZE_{i,t-1} + \beta_2 MTB_{i,t-1} + \beta_3 NI_{i,t} + \beta_4 JUSTMEET_{i,t} + \epsilon_{i,t}$$

The variables are defined in the Appendix. The sample consists of 26,103 firm-years during the period 2000-2013. The $t$-statistics in parentheses are based on robust standard errors clustered by firm. $^{***}$, $^{**}$, and $*$ indicate statistical significance at 1%, 5%, and 10% levels, respectively (two-tailed).
Table 5

Regression results regarding the effects of competition on earnings management to achieve industry-average profitability

<table>
<thead>
<tr>
<th>Variable</th>
<th>Intercept</th>
<th>A_CFO</th>
<th>A_DISX</th>
<th>A_PROD</th>
<th>REM1</th>
<th>REM2</th>
<th>A_ACC</th>
</tr>
</thead>
<tbody>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>-0.001</td>
<td>0.000</td>
<td>-0.004</td>
<td>-0.007</td>
<td>-0.005</td>
<td>-0.005</td>
<td>-0.000</td>
</tr>
<tr>
<td></td>
<td>(-0.40)</td>
<td>(0.02)</td>
<td>(-0.28)</td>
<td>(-0.25)</td>
<td>(-0.19)</td>
<td>(-0.07)</td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>0.000</td>
<td>-0.003***</td>
<td>-0.002</td>
<td>-0.005**</td>
<td>-0.005**</td>
<td>-0.003***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.73)</td>
<td>(-3.65)</td>
<td>(-1.63)</td>
<td>(-2.20)</td>
<td>(-2.43)</td>
<td>(-9.97)</td>
<td></td>
</tr>
<tr>
<td>MTB</td>
<td>-0.002***</td>
<td>-0.005***</td>
<td>-0.017***</td>
<td>-0.024***</td>
<td>-0.022***</td>
<td>-0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-3.11)</td>
<td>(-4.18)</td>
<td>(-7.45)</td>
<td>(-6.63)</td>
<td>(-6.64)</td>
<td>(-1.09)</td>
<td></td>
</tr>
<tr>
<td>NI</td>
<td>-0.443***</td>
<td>-0.015</td>
<td>-0.458***</td>
<td>-0.928***</td>
<td>-0.480***</td>
<td>0.371***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-35.48)</td>
<td>(-0.75)</td>
<td>(-12.13)</td>
<td>(-15.25)</td>
<td>(-8.52)</td>
<td>(31.63)</td>
<td></td>
</tr>
<tr>
<td>JUSTMEET</td>
<td>0.005***</td>
<td>0.010***</td>
<td>0.023***</td>
<td>0.039***</td>
<td>0.034***</td>
<td>0.066***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2.88)</td>
<td>(3.55)</td>
<td>(4.52)</td>
<td>(4.61)</td>
<td>(4.34)</td>
<td>(3.33)</td>
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<tr>
<td>COMPETITION</td>
<td>-0.006</td>
<td>-0.010</td>
<td>-0.030</td>
<td>-0.052</td>
<td>-0.036</td>
<td>0.001</td>
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<tr>
<td></td>
<td>(-0.22)</td>
<td>(-0.37)</td>
<td>(-0.59)</td>
<td>(-0.63)</td>
<td>(-0.50)</td>
<td>(0.06)</td>
<td></td>
</tr>
<tr>
<td>JUSTMEET*</td>
<td>0.047**</td>
<td>0.094***</td>
<td>0.176***</td>
<td>0.321***</td>
<td>0.274***</td>
<td>0.050***</td>
<td></td>
</tr>
<tr>
<td>COMPETITION</td>
<td>(2.40)</td>
<td>(2.64)</td>
<td>(3.44)</td>
<td>(3.55)</td>
<td>(3.26)</td>
<td>(2.59)</td>
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<tr>
<td>Industry Dummies</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Year Dummies</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.148</td>
<td>0.013</td>
<td>0.062</td>
<td>0.076</td>
<td>0.043</td>
<td>0.103</td>
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</tr>
</tbody>
</table>

Notes:

This table reports the results of estimating following regressions:

\[
EM_{i,t} = \alpha + \beta_1 SIZE_{i,t-1} + \beta_2 MTB_{i,t-1} + \beta_3 NI_{i,t} + \beta_4 JUSTMEET_{i,t} + \beta_5 COMPETITION_{i,t-1} + \beta_6 JUSTMEET_{i,t} \times COMPETITION_{i,t-1} + \epsilon_{i,t}
\]

The variables are defined in the Appendix. The sample consists of 26,103 firm-years during the period 2000-2013. The t-statistics in parentheses are based on robust standard errors clustered by firm. *** , ** , and * indicate statistical significance at 1%, 5%, and 10% levels, respectively (two-tailed).
Table 6
Regression results on the relationship between REM and AEM to achieve industry-average profitability

<table>
<thead>
<tr>
<th></th>
<th>$A_{CFO}$</th>
<th>$A_{DISX}$</th>
<th>$A_{PROD}$</th>
<th>REM_1</th>
<th>REM_2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.000</td>
<td>0.001</td>
<td>-0.001</td>
<td>-0.001</td>
<td>-0.002</td>
</tr>
<tr>
<td></td>
<td>(-0.45)</td>
<td>(0.09)</td>
<td>(-0.11)</td>
<td>(-0.06)</td>
<td>(-0.08)</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.003***</td>
<td>-0.003***</td>
<td>-0.001</td>
<td>-0.001</td>
<td>-0.004*</td>
</tr>
<tr>
<td></td>
<td>(12.04)</td>
<td>(-3.36)</td>
<td>(-0.70)</td>
<td>(-0.34)</td>
<td>(-1.71)</td>
</tr>
<tr>
<td>MTB</td>
<td>-0.001***</td>
<td>-0.005***</td>
<td>-0.017***</td>
<td>-0.023***</td>
<td>-0.022***</td>
</tr>
<tr>
<td></td>
<td>(-3.51)</td>
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<td>(-6.82)</td>
<td>(-6.68)</td>
</tr>
<tr>
<td>NI</td>
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<td>-0.047**</td>
<td>-0.623***</td>
<td>-1.452***</td>
<td>-0.680***</td>
</tr>
<tr>
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<td>(-77.92)</td>
<td>(-2.09)</td>
<td>(-15.57)</td>
<td>(-23.80)</td>
<td>(-11.25)</td>
</tr>
<tr>
<td>JUSTMEET</td>
<td>-0.000</td>
<td>0.004**</td>
<td>0.010***</td>
<td>0.013***</td>
<td>0.013***</td>
</tr>
<tr>
<td></td>
<td>(-0.27)</td>
<td>(2.45)</td>
<td>(3.89)</td>
<td>(3.31)</td>
<td>(3.49)</td>
</tr>
<tr>
<td>$A_{ACC}$</td>
<td>0.845***</td>
<td>0.086***</td>
<td>0.445***</td>
<td>1.414***</td>
<td>0.538***</td>
</tr>
<tr>
<td></td>
<td>(113.73)</td>
<td>(5.48)</td>
<td>(14.93)</td>
<td>(32.72)</td>
<td>(12.44)</td>
</tr>
<tr>
<td>JUSTMEET*$A_{ACC}$</td>
<td>0.051***</td>
<td>-0.010</td>
<td>-0.087</td>
<td>-0.076</td>
<td>-0.100</td>
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<tr>
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<td>(-1.34)</td>
<td>(-0.79)</td>
<td>(-1.05)</td>
</tr>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Year Dummies</td>
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<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.743</td>
<td>0.017</td>
<td>0.093</td>
<td>0.193</td>
<td>0.064</td>
</tr>
</tbody>
</table>

Notes:
This table reports the results of estimating the following regressions:

$$REM_{it} = \alpha + \beta_1SIZE_{it-1} + \beta_2MTB_{it-1} + \beta_3NI_{it} + \beta_4JUSTMEET_{it} + \beta_5A_{ACC}_{it} + \beta_6JUSTMEET_{it} * A_{ACC}_{it} + \epsilon_{it}$$

The variables are defined in the Appendix. The sample consists of 26,103 firm-years during the period 2000-2013. The $t$-statistics in parentheses are based on robust standard errors clustered by firm. ***, **, and * indicate statistical significance at 1%, 5%, and 10% levels, respectively (two-tailed).
### Table 7
Regression results regarding earnings management to achieve industry-median profitability

<table>
<thead>
<tr>
<th></th>
<th>A_CFO</th>
<th>A_DISX</th>
<th>A_PROD</th>
<th>REM_1</th>
<th>REM_2</th>
<th>A_ACC</th>
</tr>
</thead>
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<tr>
<td>Intercept</td>
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<td>0.001</td>
<td>-0.002</td>
<td>-0.003</td>
<td>-0.003</td>
<td>-0.001</td>
</tr>
<tr>
<td></td>
<td>(-0.52)</td>
<td>(0.08)</td>
<td>(-0.15)</td>
<td>(-0.11)</td>
<td>(-0.11)</td>
<td>(-0.39)</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.000</td>
<td>-0.003***</td>
<td>-0.002*</td>
<td>-0.005**</td>
<td>-0.005**</td>
<td>-0.003***</td>
</tr>
<tr>
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<td>(-9.99)</td>
</tr>
<tr>
<td>MTB</td>
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<td>-0.005***</td>
<td>-0.017***</td>
<td>-0.024***</td>
<td>-0.022***</td>
<td>-0.001</td>
</tr>
<tr>
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<td>(-6.60)</td>
<td>(-6.61)</td>
<td>(-1.08)</td>
</tr>
<tr>
<td>NI</td>
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<td>-0.016</td>
<td>-0.460***</td>
<td>-0.931***</td>
<td>-0.483***</td>
<td>0.371***</td>
</tr>
<tr>
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<td>(-0.79)</td>
<td>(-12.19)</td>
<td>(-15.29)</td>
<td>(-8.58)</td>
<td>(31.56)</td>
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<td>0.005***</td>
<td>0.015***</td>
<td>0.021***</td>
<td>0.019***</td>
<td>0.002***</td>
</tr>
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<td>(3.30)</td>
<td>(6.04)</td>
<td>(5.20)</td>
<td>(5.23)</td>
<td>(2.53)</td>
</tr>
<tr>
<td>Industry Dummies</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Year Dummies</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.148</td>
<td>0.013</td>
<td>0.063</td>
<td>0.076</td>
<td>0.043</td>
<td>0.103</td>
</tr>
</tbody>
</table>

Notes:
This table reports the results of estimating following regressions:

$$EM_{it} = \alpha + \beta_1 SIZE_{i,t-1} + \beta_2 MTB_{i,t-1} + \beta_3 NI_{i,t} + \beta_4 JUSTMEET\_MEDIAN_{i,t} + \epsilon_{i,t}$$

The variables are defined in the Appendix. The sample consists of 26,103 firm-years during the period 2000-2013. The $t$-statistics in parentheses are based on robust standard errors clustered by firm. ***, **, and * indicate statistical significance at 1%, 5%, and 10% levels, respectively (two-tailed).
<table>
<thead>
<tr>
<th></th>
<th>$A_{CFO}$</th>
<th>$A_{DISX}$</th>
<th>$A_{PROD}$</th>
<th>$REM_{1}$</th>
<th>$REM_{2}$</th>
<th>$A_{ACC}$</th>
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</thead>
<tbody>
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<td>Intercept</td>
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<td>0.001</td>
<td>-0.001</td>
<td>-0.002</td>
<td>-0.002</td>
<td>-0.001</td>
</tr>
<tr>
<td></td>
<td>(-0.52)</td>
<td>(0.10)</td>
<td>(-0.09)</td>
<td>(-0.07)</td>
<td>(-0.07)</td>
<td>(-0.34)</td>
</tr>
<tr>
<td>$SIZE$</td>
<td>0.000</td>
<td>-0.003***</td>
<td>-0.002*</td>
<td>-0.005**</td>
<td>-0.005**</td>
<td>-0.003***</td>
</tr>
<tr>
<td></td>
<td>(0.72)</td>
<td>(-3.66)</td>
<td>(-1.65)</td>
<td>(-2.22)</td>
<td>(-2.44)</td>
<td>(-9.98)</td>
</tr>
<tr>
<td>$MTB$</td>
<td>-0.002***</td>
<td>-0.005***</td>
<td>-0.017***</td>
<td>-0.024***</td>
<td>-0.022***</td>
<td>-0.001</td>
</tr>
<tr>
<td></td>
<td>(-3.11)</td>
<td>(-4.17)</td>
<td>(-7.43)</td>
<td>(-6.62)</td>
<td>(-6.63)</td>
<td>(-1.09)</td>
</tr>
<tr>
<td>$NI$</td>
<td>-0.444***</td>
<td>-0.016</td>
<td>-0.459***</td>
<td>-0.930***</td>
<td>-0.482***</td>
<td>0.371***</td>
</tr>
<tr>
<td></td>
<td>(-35.47)</td>
<td>(-0.78)</td>
<td>(-12.15)</td>
<td>(-15.27)</td>
<td>(-8.55)</td>
<td>(31.58)</td>
</tr>
<tr>
<td>$JUSTMEET_FORECAST$</td>
<td>0.002**</td>
<td>0.004***</td>
<td>0.011***</td>
<td>0.018***</td>
<td>0.016***</td>
<td>0.002**</td>
</tr>
<tr>
<td></td>
<td>(2.26)</td>
<td>(2.88)</td>
<td>(4.40)</td>
<td>(4.28)</td>
<td>(3.99)</td>
<td>(2.26)</td>
</tr>
<tr>
<td>Industry Dummies</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Year Dummies</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.148</td>
<td>0.013</td>
<td>0.062</td>
<td>0.075</td>
<td>0.043</td>
<td>0.103</td>
</tr>
</tbody>
</table>

Notes:
This table reports the results of estimating following regressions:

$$EM_{ij} = \alpha + \beta_1SIZE_{ij-1} + \beta_2MTB_{ij-1} + \beta_3NI_{ij} + \beta_4JUSTMEET\_FORECAST_{ij} + \epsilon_{ij}$$

The variables are defined in the Appendix. The sample consists of 26,103 firm-years during the period 2000-2013. The $t$-statistics in parentheses are based on robust standard errors clustered by firm. ***$, **$, and * indicate statistical significance at 1%, 5%, and 10% levels, respectively (two-tailed).
### Table 9

Comparison of the levels of earnings management between JUSTMEET firms and firms in other interval groups

<table>
<thead>
<tr>
<th></th>
<th>MISS (n=9,360)</th>
<th>JUSTMISS (n=2,128)</th>
<th>JUSTMEET (n=2,154)</th>
<th>BEAT (n=12,461)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
<td>Mean</td>
<td>Median</td>
</tr>
<tr>
<td>$R_{CFO}$</td>
<td>0.002</td>
<td>0.003</td>
<td>0.001</td>
<td>0.002</td>
</tr>
<tr>
<td>$R_{DISX}$</td>
<td>0.000**</td>
<td>0.008***</td>
<td>0.002</td>
<td>0.009*</td>
</tr>
<tr>
<td>$R_{PROD}$</td>
<td>0.001***</td>
<td>0.012***</td>
<td>0.008</td>
<td>0.016</td>
</tr>
<tr>
<td>$R_{REM1}$</td>
<td>0.003***</td>
<td>0.020**</td>
<td>0.011</td>
<td>0.025</td>
</tr>
<tr>
<td>$R_{REM2}$</td>
<td>0.001***</td>
<td>0.018***</td>
<td>0.010</td>
<td>0.025</td>
</tr>
<tr>
<td>$R_{ACC}$</td>
<td>0.002</td>
<td>0.004</td>
<td>0.002</td>
<td>0.004</td>
</tr>
</tbody>
</table>

**Notes:**

This table reports the results regarding comparison of the levels of earnings management between JUSTMEET firms and firms in other interval groups. MISS firms are defined as firms with industry-average-adjusted ROA of less than −0.005; JUSTMISS firms are defined as firms with industry-average-adjusted ROA of greater than or equal to −0.005 but less than 0; JUSTMEET firms are defined as firms with industry-average-adjusted ROA of greater than or equal to 0 but less than 0.005; BEAT firms are defined as firms with industry-average-adjusted ROA of greater than or equal to 0.005. The levels of earnings management are measured as residuals from following regressions:

$$EM_{it} = \alpha + \beta_1 SIZE_{i,t-1} + \beta_2 M TB_{i,t-1} + \beta_3 N I_{i,t} + \epsilon_{i,t}$$

$R_{CFO}$, $R_{DISX}$, $R_{PROD}$, $R_{REM1}$, $R_{REM2}$, and $R_{ACC}$ represent residuals when $EM$ is $A_{CFO}$, $A_{DISX}$, $A_{PROD}$, $REM_1$, $REM_2$, and $A_{ACC}$, respectively. Other variables are defined in the Appendix. Industry and year dummies are included, where industries are identified by *Nikkei gyoushu chu-bunrui*. The sample consists of 26,103 firm-years during the period 2000-2013. ***, **, and * indicate statistical significance for the difference compared to JUSTMEET firms at 1%, 5%, and 10% levels, respectively (two-tailed).