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Su-Ping Liu, Juan Manuel García Lara

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Departament d'Economia de l'Empresa

Coordinador / Coordinator *Documents de treball:*

David Urbano
http://selene.uab.es/dep-economia-empresa/dt
e-mail: david.urbano@uab.es
Telèfon / Phone: +34 93 5814298
Fax: +34 93 5812555

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Departament d'Economia de l'Empresa
http://selene.uab.es/dep-economia-empresa/
Universitat Autònoma de Barcelona
Facultat de Ciències Econòmiques i Empresarials
Edifici B
08193 Bellaterra (Cerdanyola del Vallès), Spain
Tel. 93 5811209
Fax 93 5812555

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Market Rewards to Patterns of Increasing Earnings: Do Cash Flow Patterns, Accruals Manipulation and Real Activities Manipulation Matter?

Su-Ping Liu
Universidad Carlos III de Madrid
C/Madrid 126, 28903 Getafe, Madrid, Spain
E-mail: sliu@emp.uc3m.es

Juan Manuel García Lara
Universidad Carlos III de Madrid
C/Madrid 126, 28903 Getafe, Madrid, Spain
E-mail: jmglara@emp.uc3m.es

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Market Rewards to Patterns of Increasing Earnings: Do Cash Flow Patterns, Accruals Manipulation and Real Activities Manipulation Matter?

Abstract

This study explores whether firms have differential price-earnings multiples associated with their means of achieving a sequential pattern of increasing positive earnings. Our main findings show that market participants assign higher price-earnings multiples to firms when their pattern of increasing earnings is supported by the same pattern of increasing cash flows. Market participants assign lower price-earnings multiples to firms suspect of having engaged in accrual-based earnings management, sales manipulation, and overproduction to achieve the earnings pattern. We find, however, that market participants do not penalize firms suspect of having achieved the earnings pattern through the opportunistic reduction of discretionary expenses.

1. Introduction

We empirically examine whether the market prices differently firms with a pattern of increasing earnings that at the same time (i) report the same pattern of increasing cash flows, (ii) have discretionary accruals that if not included in earnings would break the earnings trend, and (iii) alter optimal operational transactions to avoid breaking the earnings pattern. Prior studies show that market participants reward firms that meet or beat certain earnings benchmarks: prior year earnings (e.g., Barth et al., 1999; Francis et al., 2003; Myers et al., 2007; Koonce and Lipe, 2010), and analysts' forecasts (e.g., Kasznik and McNichols, 2002; Bartov et al., 2002). The results of prior research on whether the market rewards differently firms that manage their accounting numbers to meet or beat these targets are mixed. There is evidence showing that price-earnings multiples are reduced when a consecutive string of increasing earnings is supported by earnings management (Francis et al., 2003), and that abnormal returns do not exist for firms that meet or beat earnings forecasts through accruals management and real activities management in the UK (Athanasakou et al., 2011). In contrast, some evidence shows that the market fails to identify firms meeting or beating analysts' forecasts through earnings management (e.g., Bartov et al., 2002; Chen et al., 2010), and that analysts are unable to see through firms that employ earnings management to avoid losses and earnings decreases (Burgstahler and Eames, 2003).

Given these mixed results we contribute to prior literature analyzing whether firms with obvious signals of not having (having) engaged in earnings management to meet or beat the benchmarks receive an additional market reward (penalty). We refer to firms with obvious signals of not having managed earnings as non-suspect beaters. We define non-suspect beaters as those firms with five years of consecutive increases both in earnings and in cash flows. We identify two types of suspect firms: (a) firms with five

years of consecutive earnings increases that present discretionary accruals that, if not included in earnings, would fail to report the pattern of increasing earnings, and (b) firms with five years of consecutive earnings increases that engage in inefficient operational practices with the objective of managing earnings, and that would have broken the pattern of increasing earnings in the absence of those inefficient operational practices. We expect suspect firms to be penalized by the market.

Using a sample of 22,605 US listed non-financial, non-utility, and profit-making firm-year observations for the period 1995-2007, obtained from COMPUSTAT, our findings are consistent with Barth et al. (1999) that firms with a five-year pattern of increasing earnings have higher price-earnings multiples than other firms. Our empirical analysis also generates the following major findings. First, market participants assign higher price-earnings multiples to non-suspect beaters. Second, market participants assign lower price-earnings multiples to suspect firms that use accrual-based earnings management to achieve a five-year pattern of increasing earnings. Third, the price-earnings multiples are reduced when the earnings pattern is achieved through sales manipulation, that is, through increasing sales on credit beyond whatever is advisable by common practice. In addition, market participants assign lower price-earnings multiples to firms suspect of having increased production more than necessary. However, the market fails to reduce rewards to firms suspect of producing the earnings pattern through reductions in discretionary expenses, such as R&D expenses, and selling, general, administrative and advertising expenses.

The remainder of the paper is organized as follows: section 2 provides a discussion of the related literature and describes the hypotheses. Section 3 contains the research design. Section 4 describes the data and the empirical results. Section 5 reports robustness tests. Finally, section 6 summarizes and concludes.

2. Prior Research and Development of the Hypotheses

Recent research provides evidence that market participants reward firms that meet or beat certain earnings benchmarks, such as prior year earnings (e.g. Barth et al., 1999; Francis et al., 2003; Myers et al., 2007; Koonce and Lipe, 2010), and analysts' forecasts (e.g., Kasznik and McNichols, 2002; Bartov et al., 2002; Koonce and Lipe, 2010). Regarding earnings increases, prior research shows that benchmark beating firms enjoy higher price-earnings multiples (Barth et al. 1999, Francis et al., 2003) and positive abnormal returns (Myers et al., 2007). Koonce and Lipe (2010) conduct several experiments to investigate how and why investors react to patterns of increasing earnings and conclude that investors assign higher stock price to these firms because they consider a pattern of earnings increases as a signal of higher management's credibility and better future prospects. Overall, this evidence is consistent with the results in the survey study in Graham et al. (2005) that managers seek to meet or beat earnings benchmarks to build credibility and to inform about future growth prospects.

Among the firms that report a pattern of consecutive increases in earnings, some may achieve the pattern through intrinsic performance, while others may engage in different forms of earnings management to achieve the benchmark and mislead investors (Burgstahler and Dichev, 1997; Degeorge et al., 1999). Given that cash flows are more difficult and more costly to manage than accruals, we use them to assess whether the pattern of increasing earnings is genuine. We argue that a firm with a pattern of increasing earnings is non-suspect of having engaged in earnings management whenever the earnings pattern comes together with a pattern of increasing cash flows. If financial analysts use this simple signal to identify non-suspect beaters, we argue that these non-suspect beaters (with patterns of consecutive increases both in earnings and

in cash flows) will enjoy higher price-earnings multiples than firms with only a pattern of increasing earnings. This leads to the first hypothesis in the paper:

> **H1:** Investors assign higher price-earnings multiples to firms with a pattern of increasing earnings that is supported by the same pattern of increasing cash flows.

Our second set of hypotheses refers to whether market participants price differently benchmark beating firms suspect of meeting or beating the target through the management of accruals and/or the management of real operational activities. A large number of studies starting with Burgstahler and Dichev (1997), Degeorge et al. (1999) and Kasznik (1999) show that managers engage in earnings management to meet or beat several earnings thresholds, including zero earnings, last year's earnings, and analysts' and managerial earnings forecasts.

Earnings management can be achieved through accounting choices and estimates about accruals, and/or through altering reported earnings by adjusting the timing and the scale of underlying real business activities to mislead market participants. Burgstahler and Dichev (1997) conclude that firms manage working capital accruals to avoid reporting negative earnings, and Kasznik (1999) shows that when managers make optimistic disclosures about future earnings there are significant levels of positive discretionary accruals because managers use accruals opportunistically to achieve their own earnings forecasts. Regarding the manipulation of real operational activities to meet financial reporting goals, Roychowdhury (2006) finds empirical evidence that firms avoid reporting losses through temporal sales increases, overproduction, and the opportunistic reduction of discretionary expenses, such as R&D investment, selling, general and administrative (SGA) expenses and advertising expenses. The survey study conducted by Graham et al. (2005) shows that the majority of managers employ real

activities management to meet or beat earnings benchmarks even though real activities management decreases future cash flows and firm value (Roychowdhury, 2006). Finally, Myers et al. (2007) argue that the frequency of firms reporting patterns of increasing earnings is much larger than it would be expected, and they interpret this preliminary evidence as consistent with earnings management to achieve the patterns. They further show that firms reporting patterns of increasing earnings are more likely to maintain or extend the patterns through various means of earnings management, including reporting more positive or negative special items, increasing stock repurchases and adjusting effective tax rates.

Although there is plenty of evidence showing that firms manage earnings to achieve earnings benchmarks, it is not clear whether market participants penalize benchmark beating firms that meet the benchmarks through earnings management. Francis et al. (2003) show that price-earnings multiples are reduced or are even eliminated when the pattern of meeting last year's earnings is supported by low quality earnings, suggesting that the market is aware of earnings that are managed. Athanasakou et al. (2011) show that the market does not reward UK firms meeting or beating earnings forecasts through accrual-based earnings management and real activities management, concluding that the market provides no incentives for managers to achieve earnings expectations through earnings management. In contrast with this evidence, other studies show that market participants do not penalize firms that meet or beat certain earnings benchmarks through earnings management. Burgstahler and Eames (2003) demonstrate that analysts are unable to consistently see through firms that have engaged in earnings management to avoid earnings decreases, and Bartov et al. (2002) show that the returns to firms that meet or beat analysts' forecasts are only marginally affected depending on whether earnings are managed. Finally, Chen et al. (2010) find that market participants reward

firms meeting or beating analysts' forecasts at the earnings announcement date no matter if accruals or real activities are managed to achieve analysts' forecasts.

We contribute to this stream of literature analyzing whether firms with signals of having engaged in earnings management to meet or beat the benchmarks are penalized by market participants. We predict that price-earnings multiples are lower for firms achieving a pattern of increasing earnings either through accrual-based earnings management and/or through real activities management. This leads to our second set of hypotheses:

> **H2 (a):** Investors reduce price-earnings multiples to firms achieving a pattern of increasing earnings through the opportunistic use of accruals.
>
> **H2 (b):** Investors reduce price-earnings multiples to firms achieving a pattern of increasing earnings through real activities management, including accelerating sales on credit beyond whatever is advisable by common practice, overproduction and opportunistically reducing discretionary expenses.

3. Research Design

In our empirical tests, we choose a five-year pattern of increasing earnings as a cutoff based on the results in Barth et al. (1999) and the basic results do not change when we use different lengths of patterns in earnings increases.

3.1 Estimation model

We conduct our analysis by estimating the following regression:

$$
\begin{aligned}
PRICE_{i,t} = \; & \beta_0 + \beta_1 EPS_{i,t} + \beta_2 EPS_{i,t} * DBEAT5_{i,t} \\
& + \beta_3 EPS_{i,t} * DBEAT5_{i,t} * DCFO5_{i,t} \\
& + \beta_4 EPS_{i,t} * DBEAT5_{i,t} * D\_AM\_ACCR5_{i,t} \\
& + \beta_5 EPS_{i,t} * DBEAT5_{i,t} * D\_RM\_SALE5_{i,t} \\
& + \beta_6 EPS_{i,t} * DBEAT5_{i,t} * D\_RM\_PROD5_{i,t} \\
& + \beta_7 EPS_{i,t} * DBEAT5_{i,t} * D\_RM\_DIXP5_{i,t}
\end{aligned}
$$

$$+ \beta_8 EPS_{i,t} * Growth5_{,i,t} + \beta_9 EPS_{i,t} * Leverage_{i,t}$$
$$+ \beta_{10} EPS_{i,t} * Evar_{i,t} + \beta_{11} BVS_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where i indexes the firm and t indexes the year. PRICE is share price at the fiscal year end (COMPUSTAT #199). EPS is income before extraordinary items, NIBE (COMPUSTAT #18), divided by number of common shares outstanding for basic EPS, (COMPUSTAT #54).

Throughout our tests and to identify firms that report a pattern of increasing earnings, we focus on income before extraordinary items, NIBE. Equation (1) includes an indicator variable $\mathrm{DBEAT5_{it}}$ that takes value 1 if firm i continuously reports increasing positive earnings for five years, and 0 otherwise. We expect that β_2 is positive, indicating that firms with a five-year pattern of increasing positive earnings have higher price-earnings multiples than other firms (Barth et al., 1999).

We refer to firms with a five-year pattern both in earnings increases and cash flows increases as non-suspect beaters. We create an indicator variable $\mathrm{DCFO5_{it}}$ that captures whether a firm reports a pattern of increasing cash flows, regardless of whether the pattern of increasing cash flows is linked to a pattern of increasing in earnings. We identify non-suspect beaters using an interaction term $\mathrm{DBEAT5_{it} * DCFO5_{it}}$ taking the value of 1 if firm i reports five-year patterns of increases in positive increasing earnings and in positive increasing cash flows, and 0 otherwise. Regarding whether there are additional rewards to non-suspect beaters, we expect coefficient β_3 to be positive, implying that non-suspect beaters $(\mathrm{DBEAT5_{it} * DCFO5_{it}} = 1)$ enjoy higher price-earnings multiples than the rest of firms with a pattern of increasing earnings $(\mathrm{DBEAT5_{it} * DCFO5_{it}} = 0)$.

For the test of market rewards to firms suspect of having engaged in earnings management to achieve the earnings pattern, we expect that market participants assign

lower price-earnings multiples to suspect firms. The indicator variable $\mathrm{D\_AM\_ACCR5_{i,t}}$ captures whether firms would fail to achieve the pattern of increasing earnings if discretionary accruals are not included in earnings. The interaction term $\mathrm{DBEAT5_{i,t}} * \mathrm{D\_AM\_ACCR5_{i,t}}$ captures whether earnings beaters (firms with a five-year pattern of consecutive earnings increases) would fail to achieve the pattern of increasing earnings if discretionary accruals were not included in earnings. We expect that suspect firms ($\mathrm{DBEAT5_{i,t}} * \mathrm{D\_AM\_ACCR5_{i,t}} = 1$) are penalized by market participants, leading to lower price-earnings multiples. If that is the case, we expect coefficient β_4 to be negative. $\mathrm{D\_RM\_SALE5_{i,t}}$ is an indicator variable indicating whether firms would fail to achieve the pattern of increasing earnings if the effect of sales manipulation were not included in earnings. The interaction term $\mathrm{DBEAT5_{i,t}} * \mathrm{D\_RM\_SALE5_{i,t}}$ captures whether earnings beaters would fail to achieve the pattern of increasing earnings if the effect of sales manipulation were not included in earnings. We expect coefficient β_5 to be negative, implying those suspect firms ($\mathrm{DBEAT5_{i,t}} * \mathrm{D\_RM\_SALE5_{i,t}} = 1$) are penalized by market participants. We use an indicator variable $\mathrm{D\_RM\_PROD5_{i,t}}$ to capture whether firms would fail to sustain a five-year pattern of increasing earnings if the effect of overproduction were not included in earnings. The interaction term $\mathrm{DBEAT5_{i,t}} * \mathrm{D\_RM\_PROD5_{i,t}}$ captures whether earnings beaters would fail to achieve the earnings pattern when the influence of overproduction were not included in earnings. We expect that coefficient β_6 is negative, implying that market participants reduce price-earnings multiples to those suspect firm. Finally, the indicator variable $\mathrm{D\_RM\_DIXP5_{i,t}}$ captures whether firms would fail to report a five-year pattern of increasing earnings if the effect of the opportunistic reduction of discretionary expenses were not included in earnings. The interaction term $\mathrm{DBEAT5_{i,t}} * \mathrm{D\_RM\_DIXP5_{i,t}}$ captures whether earnings beaters would fail to achieve the earnings pattern if the

opportunistic reduction of discretionary expenses were not included in earnings. We expect coefficient β_7 to be negative, indicating that market participants reduce price-earnings multiples to firms suspect of having engaged in discretionary expenses management.

Finally, following Barth et al. (1999) we add four controls: Growth5, Leverage, Evar and BVS. Growth5 is the five-year compound growth rate of book value of equity (COMPUSTAT #60). We predict β_8 to be positive. Leverage is defined as the sum of short-term debt due within one year and long-term debt, divided by market value of equity (COMPUSTAT #34 + COMPUSTAT #9) /(COMPUSTAT #199 * COMPUSTAT #25). Evar is measured as the variance of the past five years' percentage change in earnings $(\mathrm{NIBE_{i,t}} - \mathrm{NIBE_{i,t-1}})/\mathrm{abs}(\mathrm{NIBE_{i,t-1}})$. Leverage is a measure of financial risk and Evar is a measure of operating risk. We expect β_9 and β_{10} to be negative. BVS is book value of equity per share. Following Ohlson (1995) and Barth et al. (1999), we expect coefficient β_{11} to be positive.

3.2 Identifying suspect firms

We refer to firms with signals of having engaged in accrual-based earnings management or real activities management to sustain five years of consecutive earnings increases as suspect firms. We consider suspect firms those with (a) five years of consecutive earnings increases that present discretionary accruals that, if not included in earnings, would fail to report the pattern of increasing earnings, or (b) five years of consecutive earnings increases that engage in inefficient operational practices with the objective of managing earnings, and that would have broken the pattern of increasing earnings in the absence of those inefficient operational practices.

3.2.1 Identification of firms suspect of accrual-based earnings management

We use an indicator variable $D\_AM\_ACCR5_{i,t}$ taking the value of 1 if firm i's earnings without discretionary accruals are less than previous year's actual earnings during any of the five years, and 0 otherwise. We define an interaction term $DBEAT5_{i,t} * D\_AM\_ACCR5_{i,t}$ that takes value 1 if earnings beaters (firms with a five-year pattern of increasing earnings) would fail to report the earnings pattern in the absence of discretionary accruals in the reported earnings, and 0 otherwise. We obtain earnings without discretionary accruals by subtracting the abnormal accruals from the reported earnings, in which abnormal accruals are the difference between actual accruals and fitted normal accruals estimated using the Jones (1991) model.

The Jones (1991) model we use to estimate the normal level of accruals is as follows:

$$\frac{TA_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{i,t-1}}\right) + \alpha_2\left(\frac{\Delta SALE_{i,t}}{A_{i,t-1}}\right) + \alpha_3\left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) + \varepsilon_{i,t} \quad (2)$$

where $TA_{i,t}$ (Total accruals) is measured as income before extraordinary items, NIBE, minus cash flows from operations, CFO, (COMPUSTAT #18 – #308). The variable $\Delta SALE_{i,t}$ is the change in sales revenues and $PPE_{i,t}$ is firm's gross property, plant, and equipment (COMPUSTAT #7). All variables are scaled by lagged total assets, $A_{i,t-1}$ (COMPUSTAT #6). A higher value of abnormal total accruals implies that managers are more likely to engage in income-increasing earnings management.

3.2.2 Identification of firms suspect of real earnings management

Firms suspect of having engaged in real activities management to achieve a five-year pattern of increasing earnings are those firms that undertake inefficient operating practices with the objective of avoiding breaking the pattern of increasing earnings. Following prior studies by Dechow et al. (1998) and Roychowdhury (2006), we consider three strategies of real activities management: accelerating sales on credit beyond whatever is advisable by common practice, producing more goods than

necessary and the opportunistic reduction of discretionary expenses.

Sales manipulation

We create an indicator variable $\mathrm{D\_RM\_SALE5_{i,t}}$ that takes value of 1 if firm i's earnings without the influence of sales management are less than previous year's actual earnings during any consecutive five years, and 0 otherwise. We use an interaction indicator $\mathrm{DBEAT5_{i,t} * D\_RM\_SALE5_{i,t}}$ taking value 1 if earnings beaters fail to maintain a five-year pattern of increasing earnings when the inefficient sales manipulation is not included in the calculation of earnings, and 0 otherwise. We generate earnings without the effect of sales manipulation by adding abnormal CFO to the reported earnings. The abnormal CFO is actual CFO minus the CFO that one would expect given sales.

Following Dechow et al. (1998), Roychowdhury (2006), Cohen et al. (2008), Bartov and Cohen (2009) and Cohen and Zarowin (2010), we express normal CFO from sales as a linear function of sales and the change in sales. Firms can accelerate sales to increase current earnings by offering price discounts or more lenient credit terms. The increased sales as a result of the price discounts and lenient credit terms are likely to disappear once the prices revert to the old ones. Such sales manipulation leads to higher current earnings when the sales are booked and margins are positive, however, it leads to lower current CFO given the normal sales levels (Roychowdhury, 2006). To estimate normal CFO, we run the following cross-sectional regression for each industry-year:

$$\frac{CFO_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{i,t-1}}\right) + \alpha_2\left(\frac{SALE_{i,t}}{A_{i,t-1}}\right) + \alpha_3\left(\frac{\Delta SALE_{i,t}}{A_{i,t-1}}\right) + \varepsilon_{i,t} \quad (3)$$

where $\mathrm{CFO_{i,t}}$ is cash flows from operation (COMPUSTAT #308). A more negative value of abnormal CFO implies that managers are more likely to engage in sales manipulation to increase earnings.

Overproduction

We construct an indicator variable $\mathrm{D\_RM\_PROD5_{i,t}}$ that equals 1 if firm i's earnings without the effect of overproduction are less than previous year's actual earnings during any of the five years, and 0 otherwise. We create an interaction term $\mathrm{DBEAT5_{i,t}} * \mathrm{D\_RM\_PROD5_{i,t}}$ taking value of 1 if earnings beaters break a five-year pattern of increasing earnings when the effect of overproduction is not included in earnings, and 0 otherwise.

Overproduction takes place when managers produce more goods than needed to report lower cost of goods sold (COGS) and therefore to increase current earnings. To capture and quantify overproduction, we estimate normal production costs using the following regression (e.g., Roychowdhury, 2006; Cohen et al., 2008; Cohen and Zarowin, 2010; Chen et al., 2010; Gunny 2010; Zang, 2012):

$$\frac{PROD_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{i,t-1}}\right) + \alpha_2\left(\frac{SALE_{i,t}}{A_{i,t-1}}\right) + \alpha_3\left(\frac{\Delta SALE_{i,t}}{A_{i,t-1}}\right) + \alpha_4\left(\frac{\Delta SALE_{i,t-1}}{A_{i,t-1}}\right) + \varepsilon_{i,t} \qquad (4)$$

where $\mathrm{PROD_{i,t}}$ is production costs defined as the sum of $\mathrm{COGS_{i,t}}$ (COMPUSTAT #44) and change in inventory (COMPUSTAT #3) during the year. The abnormal production costs are the difference between actual production costs and normal production costs. A higher value of abnormal production costs implies that managers are more likely to overproduce to increase earnings. We subtract abnormal production costs from earnings to obtain earnings without the effect of overproduction.

Discretionary expenses management (opportunistic decreases in discretionary expenses)

An indicator variable $\mathrm{D\_RM\_DIXP5_{i,t}}$ equals 1 if firm i's earnings without the influence of opportunistic decreases in discretionary expenses are less than previous year's actual earnings during any of the five years, and 0 otherwise. We create an

interaction term $\mathrm{DBEAT5_{i,t}} * \mathrm{D\_RM\_DIXP5_{i,t}}$ that takes value 1 if earnings beaters break a five-year pattern of increasing earnings when the effect of discretionary expenses management is not included in earnings, and 0 otherwise.

Discretionary expenses are generally expensed in the period when they are incurred; however, firms can opportunistically reduce current discretionary expenses to inflate current earnings. We estimate normal levels of discretionary expenses using the following model (e.g. Roychowdhury, 2006; Cohen et al., 2008; Cohen and Zarowin, 2010):

$$\frac{DIXP_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{i,t-1}}\right) + \alpha_2\left(\frac{SALE_{i,t-1}}{A_{i,t-1}}\right) + \varepsilon_{i,t} \quad (5)$$

where $\mathrm{DIXP_{i,t}}$ is discretionary expenses, including R&D (COMPUSTAT #46), selling, general and administrative expenses (COMPUSTAT #189) and advertising expenses (COMPUSTAT #45). The abnormal discretionary expenses are the difference between actual discretionary expenses and normal discretionary expenses estimated with equation (5). We calculate earnings without the effect of discretionary expenses management by adding abnormal discretionary expenses to the reported earnings.

4. Sample, Descriptive Statistics and Results

4.1 Sample

Our initial sample consists of all available firms on the annual industrial and research COMPUSTAT North America databases between 1990 and 2007, excluding regulated firms (SIC codes between 4400 and 4999), and banks and financial institutions (SIC codes between 6000 and 6999). We require at least fifteen observations for each industry-year to perform cross-sectional regressions to estimate normal levels of

accruals and operational activities (Roychowdhury, 2006; Zang, 2012). We drop observations with missing data of income before extraordinary items and/or number of common shares outstanding are missing. A few observations of EPS take on extreme values, so we eliminate the upper and lower 1% of the EPS for each year (Burgstahler and Dichev, 1997). This finally yields a sample of 83,443 firm-year observations from 1990 to 2007. This is the starting data set we use to estimate normal levels of total accruals in equation (2), and normal levels of the three types of real activities in equations (3), (4) and (5).[1] We employ, though, restricted subsets in our main tests.

4.2 Descriptive statistics

Table 1 presents the number of firms with different patterns of increasing positive earnings and cash flows from 1990 to 2007. Columns 2 and 3 in Table 1 show the number of firms reporting different patterns of increasing positive earnings and different patterns of increasing positive cash flows. The number of firms with earnings patterns and cash flow patterns decreases with the length of patterns. More firms report a one-year pattern of increasing cash flows than a one-year pattern of increasing earnings. However, there are more firms reporting consecutive earnings increases than cash flow increases from a two-year pattern to a twelve-year pattern. Besides, the number of firms reporting cash flow patterns decreases more rapidly with the length of patterns than the number of firms reporting earnings patterns. This is preliminary evidence that firms mainly use earnings, but not cash flows, to signal to the market that their business follows a stable growth trend. This is in line with a survey study conducted by Graham et al. (2005, p.49), showing that Chief Financial Officers think earnings volatility matters more than cash flow volatility because "the market becomes

[1] We estimate normal levels of total accruals and operating activities cross-sectionally with at least fifteen observations for each two-digit SIC industry-year between 1990 and 2007.

more skeptical of underlying cash flows when earnings are volatile." Executives believe that a firm is perceived as riskier by the market when it has more volatile earnings than another firm even if these two firms have the same cash flow volatility (Graham et al., 2005). This evidence is also in line with managers using additional tools such as accruals and/or operational activities to sustain their consecutive increases in earnings. Column 4 presents the number of firms that have the same patterns of increasing positive earnings and increasing positive cash flows. The number decays at a rate higher than 50% with the length of patterns.

To carry out our tests on whether market participants reward differently firms in line with their means of achieving a five-year pattern of increasing earnings, we first constrain the sample to firms with at least five years of earnings history and 39,275 profit- and loss-making firm-year observations remain. We require profit-making firms for our estimation sample, and this criterion eliminates 14,129 observations of negative earnings, yielding 25,146 observations. We further require an identical sample throughout all our tests to avoid empirical results varying across estimation models, and this requirement eliminates 2,541 observations, which yields our final sample of 22,605 profit-making firm-year observations between 1995 and 2007. We use this sample for testing all of our hypotheses. Table 1 also shows that out of the 2,088 earnings beaters (firms with a five-year pattern of increasing earnings), 18% (368) are non-suspect beaters (firms with five-year patterns of increasing earnings increases and increasing cash flows).

[Insert Table 1]

Table 2 presents descriptive statistics based on the sample for which we report regression results. Table 2 also presents means for earnings beaters (firms with a five-year pattern of increasing earnings) and non-earnings beaters (firms without a five-year pattern of increasing earnings) separately, and t-tests for differences in means across the two subsamples. Specifically, earnings beaters have significantly higher share price, earnings, EPS and CFO than non-earnings beaters. Non-earnings beaters have significantly lower sales, total assets, market capitalization and ratio of market value of equity to book value of equity than earnings beaters.

Total accruals scaled by lagged total assets (TA/A) are similar for earnings beaters and for non-earnings beaters and not significantly different. CFO scaled by lagged total assets (CFO/A) is 0.16 for earnings beaters versus 0.12 for non-earnings beaters, and the difference is significant. The value of production costs scaled by lagged total assets (PROD/A) is 1.15 for the earnings beaters and it is significantly higher than scaled production costs for non-earnings beaters (0.99). The scaled discretionary expenses (DIXP/A) are not significantly different across the two subsamples. In addition, earnings beaters have significant higher growth in book value of equity (Growth5) and lower financial risk (Leverage) than non-earnings beaters.

[Insert Table 2]

Table 3 presents Pearson correlations between various variables. Share price (PRICE) exhibits strong positive correlation with earnings, EPS, CFO, scaled CFO, abnormal CFO (Ab_CFO/A), Growth5 and BVS, and significantly negative correlation with scaled production costs, scaled discretionary expenses, abnormal production costs

(Ab_PROD/A) and Leverage. Consistent with prior studies, earnings are positively correlated with CFO (0.93) and scaled CFO (0.03), and negatively correlated with scaled production costs, scaled discretionary expenses and Leverage. EPS is negatively correlated with abnormal production costs. As expected, the scaled CFO and scaled total accruals exhibit a strong negative correlation, with a correlation coefficient of -0.96.

The correlation between abnormal accruals (Ab_TA/A) and abnormal CFO is significantly negative (-0.11). This is probably because accrual-based earnings management and sales manipulation take place simultaneously (Roychowdhury, 2006; Zang, 2012). The correlation coefficient between abnormal production costs and abnormal discretionary expenses (Ab_DIXP/A) is significantly negative (-0.33). This is, probably, because managers engage in overproduction, leading to abnormally high production costs; meanwhile, they reduce discretionary expenses when the common goal is to report higher earnings (Roychowdhury, 2006).

[Insert Table 3]

4.3 Empirical results

We estimate equation (1) using standard errors clustered by firm and year to control for serial correlation and cross-sectional dependence (Petersen, 2009) for 22,605 profit-making firm-year observations from 1995 to 2007.[2] We include year and industry

[2] We also estimate equation (1) using White (1980) standard errors. Results are very similar. The t-statistics are greater if we use White (1980) standard errors rather than Petersen (2009) standard errors, but inferences do not change.

dummies to control for fixed effects.

Table 4 reports the regression-based tests of hypothesis H1 regarding whether investors assign higher price-earnings multiples to non-suspect beaters (firms with five-year patterns both in earnings increases and cash flow increases). The first Column shows baseline results of basic price-earnings multiples and other factors that theory suggests and prior empirical work has shown to have significant effects on share price. The results are consistent with our predictions regarding significantly positive coefficients on growth of book value of equity ($EPS * Growth5$) (4.993, t = 2.88) and on book value of equity per share (BVS) (1.258, t = 3.60) and significantly negative coefficients on earnings variability ($EPS * Evar$) (0, t = -1.80) and on leverage ratio ($EPS * Leverage$) (-2.481, -5.98). Column 2 shows that the coefficient on the test variable $EPS * DBEAT5$ is significantly positive (2.940, t = 4.51), consistent with Barth et al. (1999) that firms with a five-year pattern of increasing earnings have higher price-earnings multiples than other firms.[3] In Column 3 the price-earnings multiple of $DBEAT5$ is 2.398 (t = 3.86) and the price-earnings multiple of the interaction term $DBEAT5 * DCFO5$ is 3.696 (t = 2.74), indicating that market participants add additional rewards to non-suspect beaters, consistent with our hypothesis H1.

[Insert Table 4]

Table 5 shows regression results of whether investors assign lower price-earnings multiples to firms that engage in several earnings management types to achieve earnings

[3] Although a five-year pattern is an arbitrary choice, untabulated tests show that market participants also assign higher price-earnings multiples to firms that have consecutive patterns of earnings increases from two years through eleven years.

patterns. Column 1 in Panel A shows that the coefficient on $EPS * DBEAT5$ is significantly positive (3.483, t = 4.70), meaning that market participants assign higher price-earnings multiple to earnings beaters. The coefficient on $EPS * DBEAT5 * D\_AM\_ACCR5$ is significantly negative (-2.203, t = -2.85), indicating that market participants assign lower price-earnings ratios to suspect firms that fail to maintain five years of consecutive increases in earnings if discretionary total accruals are not included in earnings, which is consistent with hypothesis H2 (a).[4] Column 2 shows that the coefficients on earnings beaters is 3.551 (t = 4.59) and that the interaction term $EPS * DBEAT5 * D\_RM\_SALE5$ is significantly negative (-3.821, t = -3.46), meaning that market participants penalize suspect firms that would have broken the pattern of increasing earnings if the effect of sales manipulation on earnings was not considered, consistent with hypothesis H2 (b). Column 3 shows that market participants reward earnings beaters (3.418, t = 4.40) and the coefficient on the interaction term $EPS * DBEAT5 * D\_RM\_PROD5$ is significantly negative (-1.584, t = 2.12), consistent with our hypothesis H2 (b) that firms that overproduce to avoid breaking the earnings trend have lower price-earnings multiples than the rest of benchmark beating firms. In Column 4 the coefficient on $EPS * DBEAT5 * D\_RM\_DIXP5$ is insignificant (-0.325, t = -0.33), implying that market participants do not penalize firms that opportunistically reduce discretionary expenses to achieve the earnings pattern, which is inconsistent with our hypothesis H2 (b).

Given that accrual-based earnings management and real activities earnings management probably take place at the same time (Barton, 2001; Zang, 2012), we estimate equation (1) including all earnings management proxies at the same time.

[4] This result also holds if we use discretionary working capital accruals.

Table 5 Panel B presents regression results of whether market participants assign lower price-earnings multiples to suspect firms that have used both accrual-based earnings management and each type of real activities management to increase earnings simultaneously. Column 1 in Panel B shows that earnings beaters are rewarded (4.092, t = 4.62) and that market participants reduce price-earnings multiples to suspect firms that have managed total accruals (-2.197, t = -2.69) and sales (-3.816, t = -3.47) to increase earnings. Column 2 shows that market participants reward earnings beaters (3.864, t = 4.56) and reduce price-earnings multiples to suspect firms that use accrual-based earnings management (-2.050, t = -2.68) together with overproduction (-1.385, t = -1.82). Column 3 shows that price-earnings multiples are lower for suspect firms that employ accrual-based earnings management (-2.214, t = -3.08) but not for firms with opportunistic decreases in discretionary expenses (0.048, t = 0.05). Finally, Column 4 shows that market participants do not reduce rewards to firms suspect of overproduction (-1.008, t = -1.48) when we consider all types of earnings management. This result could be explained by the overlapping classification of different types of suspect firms.

[Insert Table 5]

We carry out an additional test to check whether the results in Table 5 Panel A do not vary when the proxy for non-suspect beaters is also included in the models. Table 6 contains regression results of market rewards on earnings beaters, non-suspect beaters and each type of suspect firms. Column 1 shows that the coefficient on $EPS * DBEAT5 * DCFO5$ is 3.567 (t = 2.61) and the coefficient on $EPS * DBEAT5 * D\_AM\_ACCR5$ is -2.050 (t = -2.66), implying that market participants assign higher

price-earnings multiples to non-suspect beaters and lower price-earnings multiples to suspect firms that manage accruals. Column 2 reports that the coefficient on $EPS * DBEAT5 * DCFO5$ is 3.114 (t = 2.44) and the coefficient on $EPS * DBEAT5 * D\_RM\_SALE5$ is -3.298 (t = -3.16), indicating that market participants assign additional price-earnings multiples to non-suspect beaters and reduces price-earnings multiples to suspect firms that use sales manipulation to report a pattern of increasing earnings. Column 3 shows that market participants assign higher rewards to non-suspect beaters (3.570, t = 2.66) and penalize suspect firms that overproduce to avoid breaking the earnings pattern (-1.389, t = -1.83). Column 4 shows that the coefficient on $EPS * DBEAT5 * DCFO5$ is 3.728 (t = 2.73) and the coefficient on $EPS * DBEAT5 * D\_RM\_DIXP5$ is insignificant (-1.389, t = -1.83), indicating that market participants do not penalize suspect firms that reduce discretionary expenses opportunistically to avoid breaking the earnings trend. The regression results in Table 6 are consistent with the preceding findings in Tables 4 and 5 that market participants assign higher price-earnings multiples to non-suspect beaters and lower price-earnings multiples to suspect firms that would have broken a five-year pattern of increasing earnings if discretionary accruals, the effects of sales manipulation or the effects of overproduction were not included in the reported earnings.[5]

[Insert Table 6]

5. Robustness Tests

[5] We repeat the analysis excluding BVS. Our main inferences do not change.

5.1 Earnings increases not sustained by sales growth

Ghosh et al. (2005) show that firms reporting consecutive earnings increases together with sales growth have higher price-earnings multiples than firms reporting earnings increases alone. Given that sales are more difficult to manipulate than expenses (Ertimur et al., 2003; Ghosh et al., 2005), and continuous earnings increases supported by sales growth are perceived as higher earnings quality by the market (Ghosh et al., 2005), we use sales growth as a signal to gauge whether the pattern of increasing earnings has been fabricated. In particular, we consider firms that report earnings increases but that do not report increases in sales as suspect firms. We expect that market participants assign lower price-earnings multiples to these suspect firms.

To carry out our tests, we create an indicator variable $\mathrm{D\_NONREV5}_{i,t}$ taking the value of 1 if firm i does not report increasing sales revenues for five years, and 0 otherwise. We define an interaction term $\mathrm{DBEAT5}_{i,t} * \mathrm{D\_NONREV5}_{i,t}$ that takes value 1 if firm i reports a five-year pattern of earnings increases but not a five-year pattern of increasing sales, and 0 otherwise.

Table 7 Panel A shows that of the 2,088 earnings beaters (firms with a five-year pattern of earnings increases), 19% (398) do not report a five-year pattern of sales growth. We view this group of earnings beaters as suspect firms that might have used earnings management to maintain the earnings pattern. Panel B shows that the coefficient on $\mathrm{EPS}_{i,t} * \mathrm{DBEAT5}_{i,t}$ is significantly positive (3.530, t = 4.73), and the coefficient on $\mathrm{EPS}_{i,t} * \mathrm{DBEAT5}_{i,t} * \mathrm{D\_NONREV5}_{i,t}$ is significantly negative (-2.70, t = -3.80), meaning that market participants assign lower price-earnings multiples to suspect firms when their pattern of increasing earnings is not achieved through sales growth.

[Insert Table 7]

5.2 Additional analyses

To verify the robustness of our main findings, we repeat the tests of hypotheses H1, H2 (a) and H2 (b) using (1) a sample of 39,275 profit- and loss-making firm-year observations, and (2) a sample of 2,088 firms with a pattern of five-year earnings increases.

The results with the sample of 39,275 profit- and loss- making firm-year observations (EPS≥0 and EPS<0) are not qualitatively different from our main results. Following Francis et al. (2003), we control for the effect of loss-making firm-year observations using an indicator variable, $DLOSS_{i,t}$, taking the value of 1 if firm i's earnings in year t is less than 0, and 0 otherwise. Unreported results show that earnings beaters are rewarded throughout all model specifications and non-suspect beaters are valued higher than the rest of earnings pattern beating firms. The results also show that market participants assign lower price-earnings multiples to firms suspect of having used accrual-based earnings management, sales manipulation or overproduction to achieve a five-year pattern of increasing earnings.

Second, we repeat the test for hypotheses H1, H2(a) and H2(b) using a sample of firms meeting or beating prior year earnings for five years ($DBEAT5 = 1$), which left 2,088 firm-year observations. The results are consistent with the evidence previously reported in our main tests that non-suspect beaters have higher price-earnings multiples and that suspect firms that manage discretionary accruals, sales and production have lower price-earnings multiples than the rest of earnings pattern beating firms.

6. Summary and Conclusion

Prior research (Francis et al., 2003; Burgstahler and Eames, 2003) provides mixed results as to whether market participants can see through managerial attempts at fabricating streams of increases in earnings. In this paper we complement the existing literature by analyzing whether market participants reward firms with obvious signals of not having engaged in earnings management to meet or beat prior year's earnings. As a signal that the earnings stream is genuine we look at whether the firm also reports a pattern of increases in cash flows. We classify firms with a stream of increases in both earnings and cash flows as Non-suspect firms, and find that market rewards to benchmark beating firms are more pronounced for these Non-suspect firms.

We also analyze whether market participants penalize firms suspect of fabricating the earnings stream, either through accrual-based earnings management or through the manipulation of real activities. We find that market participants assign lower price-earnings multiples to firms suspect of using accrual-based earnings management to achieve a five-year pattern of increasing earnings. Our results also show that market participants penalize firms that increase credit sales beyond whatever is advisable by common practice or overproduce to reduce cost of goods sold, to achieve the pattern of increasing earning. However, market participants do not penalize firms that achieve the earnings pattern through opportunistic reductions in discretionary expenses, including R&D, advertising, and selling, general and administrative expenses.

While we expected firms that opportunistically reduce discretionary expenses to be penalized, our empirical results about the opportunistic reduction of discretionary expenses are consistent with those in Bhojraj et al. (2009) that firms that meet analysts'

forecasts through real earnings management are not immediately punished in the market. Whether this result can be attributed to the limited attention argument discussed by Daniel et al., 2002 and Hirshleifer and Teoh, 2003, to other market imperfections, or to other more rational explanations, is something that we do not tackle in the present study, but that should be the object of future research. An alternative explanation for this result is that the proxy that we use to capture opportunistic decreases in discretionary expenses could be noisy and not used in practice by financial analysts.

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Table 1
Number of Firms Reporting Patterns of Positive Earnings Increases, Positive CFO increases and Both in Positive Earnings and Positive CFO increases

Num. of Years	Num. of Earnings Beaters	Num. of CFO Beaters	Num. of Non-suspect Beaters (% over Earnings Beaters)
1	21995	22468	12791(0.58)
2	11369	9162	4428(0.39)
3	6292	4070	1806(0.29)
4	3601	1973	813(0.23)
5	2088	993	368(0.18)
6	1246	535	189(0.15)
7	767	291	105(0.14)
8	484	157	61(0.13)
9	313	82	33(0.11)
10	203	41	14(0.07)
11	136	19	3(0.02)
12	95	9	0(0)

Earnings = net income before extraordinary items (Compustat #18). CFO = cash flows from operations (Compustat #308).

Table 2
Descriptive Statistics of Key Variables

	Full Sample, 1995-2007 (n = 22,605)			Earnings Beaters (n = 2,088)	Non-earnings Beaters (n = 20,517)	t-statistic
Variable	**Mean**	**Median**	**Std. Dev.**	**Mean**	**Mean**	**(Diff. in Mean)**
PRICE	19.072	14.20	22.56	27.50	18.22	18.05***
Earnings	214.74	19.23	981.01	480.58	187.69	13.05***
EPS	1.04	0.74	1.10	1.46	0.99	18.69***
CFO	368.42	30.94	1622.97	720.10	332.51	10.42***
Total Accruals	-153.78	-9.11	793.16	-236.69	-145.31	-5.00***
Sales	3259.81	390.58	12921.84	6582.32	2921.68	12.37***
Total Assets	3440.72	349.77	17648.40	7291.31	3048.86	10.24***
Market Capitalization	4517.63	393.84	19808.96	11384.65	3816.87	16.73***
Market to Book	3.17	2.08	12.94	4.42	3.04	4.65***
TA/A	-0.03	-0.04	0.27	-0.03	-0.03	0.44
CFO/A	0.12	0.11	0.27	0.16	0.12	7.62***
PROD/A	1.01	0.80	0.96	1.15	0.99	6.87***
DIXP/A	0.35	0.28	0.32	0.35	0.35	1.04
Ab_TA/A	0.08	0.05	0.21	0.06	0.08	-4.27***
Ab_CFO/A	0.12	0.09	0.18	0.14	0.12	4.63***
Ab_PROD/A	0.03	-0.06	0.62	-0.03	0.04	-4.94***
Ab_DISEXP/A	-0.13	-0.10	0.30	-0.16	-0.13	-4.34***
Leverage	0.39	0.15	1.07	0.17	0.41	-9.83***
Evar	945.35	1.54	32101.12	10.21	1040.52	-1.397
Ggrowth5	0.17	0.13	0.24	0.27	0.16	21.50***
BVS	8.43	6.47	8.85	8.13	8.09	0.20

Number of observations: 22,605 firm-year observations during 1995-2007. */**/*** indicate Significance at the 10%/5% /1% .
PRICE = close price per share at the fiscal year end (Compustat #199). Earnings = net income before extraordinary items (Compustat #18). EPS = net income before extraordinary items divided by number of shares outstanding for basic EPS (Compustat #54). CFO = cash flows from operations (Compustat #308). Total Accruals = the difference between net income before extraordinary items and cash flows from operations. Sales = net sales (Compustat #12). Total Assets = Compustat #6). Market capitalization = close price per share times the number of common shares outstanding (Compustat #25). Market to Book = the market capitalization divided by the book value of common equity (Compustat

Table 2 (continued)

#60). TA/A = total accruals divided by lagged total assets. CFO/A = cash flows from operations divided by lagged total assets. PROD/A = Production costs divided by lagged total assets, where production costs are defined as the sum of cost of goods sold (Compustat #41) and the change in inventories (Compustat #3). DIXP/A = Discretionary expenses divided by lagged total assets, where discretionary expenses are the sum of R&D expenses (Compustat #46), advertising expenses (Compustat #45) and SGA expenses (Compustat #189). Ab_TA/A = the discretionary total accruals computed using the Jones Model. Ab_CFO/A = the level of abnormal cash flows from operations computed using equation (3). Ab_PROD/A = the level of abnormal production costs computed using equation (4). Ab_DIXP/A = the level of abnormal discretionary expenses computed using equation (5). Leverage = sum of short-term debt (Compustat #34) and long-term debt (Compustat #9) divided by market capitalization. Evar = variance of the past 5 years' percentage change in earnings. Growth5= 5-year compound growth rate of book value of equity. BVS = book value of equity per share.

Table 3
Correlation Matrix among Key Variables

	Firm characteristics								Abnormal earnings management				Controls		
	PRICE	Earnings	EPS	CFO	TA/A	CFO/A	PROD/A	DIXP/A	Ab_TA/A	Ab_CFO/A	Ab_PROD/A	Ab_DIXP/A	Leverage	Evar	Growth5
Earnings	0.21**	1													
EPS	0.62**	0.27**	1												
CFO	0.20**	0.93**	0.23**	1											
TA/A	-0.02	-0.01	0.01	-0.03**	1										
CFO/A	0.04**	0.03**	0.05**	0.03**	-0.96**	1									
PROD/A	-0.08**	-0.06**	0.01	-0.07**	0.03**	-0.02	1								
DIXP/A	-0.08**	-0.06**	-0.16**	-0.08**	0.02	0.04**	0.13	1							
Ab_TA/A	-0.02	-0.01	-0.02	-0.02**	-0.27**	-0.18**	-0.03**	0.05**							
Ab_CFO/A	0.06**	0.07**	-0.02	0.07**	-0.13**	0.20**	-0.27**	0.07**	-0.11**	1					
Ab_PROD/A	-0.09**	-0.06**	-0.03**	-0.07**	0.02	-0.03**	0.71**	-0.01	0.03**	-0.25**	1				
Ab_DIXP/A	-0.01	-0.01	-0.01	-0.02	-0.04**	0.05**	-0.16**	0.48	0.03**	-0.26**	-0.33**	1			
Leverage	-0.10**	-0.03**	-0.03**	0.01	0.01	-0.06**	0.05**	-0.11**	-0.01	-0.12**	0.02	-0.00	1		
Evar	-0.01	-0.01	-0.01	-0.01	0.01	-0.01	0.01	0.00	0.00	-0.02	0.01	0.01	-0.00	1	
Growth5	0.10**	0.01	0.03**	-0.00	-0.00	0.04**	-0.02	-0.03**	-0.01	0.10**	-0.09**	-0.03**	-0.09**	0.11	1
BVS	0.69**	0.09**	0.60**	0.11**	-0.01	-0.03**	-0.03**	-0.20**	-0.04**	-0.09**	-0.06**	-0.02	0.01	-0.01	0.05**

Number of observations: 22,605 firm-year observations during 1995-2007. ** represents the correlation coefficients are significant at the 5% level.
PRICE = close price per share at the fiscal year end (Compustat #199). Earnings = net income before extraordinary items (Compustat #18). EPS = net income before extraordinary items divided by number of shares outstanding for basic EPS (Compustat #54). CFO = cash flows from operations (Compustat #308). TA/A = total accruals divided by lagged total assets. CFO/A = cash flows from operations divided by lagged total assets. PROD/A = Production costs divided by lagged total assets, where production costs are defined as the sum of cost of goods sold (Compustat #41) and the change in inventories (Compustat #3). DIXP/A = Discretionary expenses divided by lagged total assets, where discretionary expenses are the sum of R&D expenses (Compustat #46), advertising expenses (Compustat # 45) and SGA expenses (Compustat #189). Ab_TA/A = the discretionary total accruals computed using the Jones Model. Ab_CFO/A = the level of abnormal cash flows from operations computed using equation (3). Ab_PROD/A = the level of abnormal production costs computed using equation (4), where production costs are defined as the sum of cost of goods sold (Compustat #41) and the change in inventories (Compustat #3). Ab_DIXP/A = the level of abnormal discretionary expenses, where discretionary expenses are the sum of R&D expenses (Compustat #46), advertising expenses (Compustat #45) and SGA expenses (Compustat #189) . Leverage = sum of short-term debt (Compustat # 34) and long-term debt (Compustat # 9) divided by market capitalization. Evar = variance of the past 5 years' percentage change in earnings. Growth5 = 5-year compound growth rate of book value of equity. BVS = book value of equity per share.

Table 4
Analysis of Market Rewards to Non-suspect Beaters (Firms with Five-year Patterns of Increasing Earnings and Increasing Cash Flows)

N=22,605		*1*	*2*	*3*
Variable	*Predicted Sign*	*Coef. (t-statistic)*	*Coef. (t-statistic)*	*Coef. (t-statistic)*
Intercept	**?**	1.061	1.057	1.047
		(0.99)	(0.97)	(0.96)
EPS	+	6.228***	5.749**	5.756**
		(3.73)	(3.37)	(3.37)
EPS*DBEAT5	+		2.940***	2.398***
			(4.51)	(3.86)
EPS*DBEAT5*DCFO5	+			3.696**
				(2.74)
EPS*Growth5	+	4.993***	4.792**	4.741**
		(2.88)	(2.46)	(2.40)
EPS*Leverage	-	-2.481***	-2.389***	-2.382***
		(-5.98)	(-5.80)	(-5.80)
EPS*Evar	-	-0.000*	-0.000	-0.000
		(-1.80)	(-1.59)	(-1.58)
BVS	+	1.258***	1.279***	1.280***
		(3.60)	(3.65)	(3.65)
R-Squared		0.574	0.579	0.580

Year and industry dummies are included in all models. t-statistic in parentheses are based on firm and year clustered standard errors. */**/*** indicate significance at 10%/5%/1% (two-tailed).
PRICE = close price per share at the fiscal year end (Compustat #199). EPS = net income before extraordinary items divided by number of shares outstanding for basic EPS (Compustat #54). DBEAT5 = indicator variable equals 1 if a firm reports a 5-year pattern of increasing positive earnings, and 0 otherwise. DCFO5 = indicator variable equals 1 if a firm reports a 5-year pattern of increasing positive cash flows, and 0 otherwise. DBEAT5*DCFO5 = interaction indicator variable equals 1 if a firm reports five-year patterns both in earnings increases and in cash flows increases, and 0 otherwise. Leverage = sum of short-term debt (Compustat # 34) and long-term debt (Compustat # 9) divided by market capitalization. Evar = variance of the past 5 years' percentage change in earnings. Growth5 = 5-year compound growth rate of book value of equity. BVS = book value of equity per share.

Table 5
Analysis of Market Rewards to Suspect Firms

Panel A: Having Used Each Type of Earnings Management to Achieve the Earnings Pattern

N=22,605		*1*	*2*	*3*	*4*
Variable	*Predicted Sign*	*Coef. (t-statistic)*	*Coef. (t-statistic)*	*Coef. (t-statistic)*	*Coef. (t-statistic)*
Intercept	**?**	1.024	1.034	1.051	1.059
		(0.94)	(0.94)	(0.96)	(0.97)
EPS	+	5.751***	5.736***	5.757***	5.748***
		(3.37)	(3.36)	(3.37)	(3.36)
EPS*DBEAT5	+	3.483***	3.551***	3.418***	3.088***
		(4.70)	(4.59)	(4.40)	(3.27)
EPS*DBEAT5*D_AM_ACCR5	-	-2.203***			
		(-2.85)			
EPS*DBEAT5*D_RM_SALE5	-		-3.821***		
			(-3.46)		
EPS*DBEAT5*D_RM_PROD5	-			-1.584**	
				(-2.12)	
EPS*DBEAT5*D_RM_DIXP5	-				-0.325
					(-0.33)
EPS*Growth5	+	4.787**	4.801**	4.756**	4.785**
		(2.45)	(2.48)	(2.42)	(2.46)
EPS*Leverage	-	-2.377***	-2.369***	-2.392***	-2.389***
		(-5.78)	(-5.84)	(-5.82)	(-5.80)
EPS*Evar	-	-0.000	-0.000	-0.000	-0.000
		(-1.58)	(-1.58)	(-1.59)	(-1.59)
BVS	+	1.279***	1.282***	1.279***	1.279***
		(3.65)	(3.66)	(3.65)	(3.65)
R-Squared		0.579	0.580	0.579	0.579

Table 5 (continued)

Panel B: Having Used Multiple Types of Earnings Management to Achieve the Earnings Pattern

N=22,605		*1*	*2*	*3*	*4*
Variable	*Predicted Sign*	*Coef. (t-statistic)*	*Coef. (t-statistic)*	*Coef. (t-statistic)*	*Coef. (t-statistic)*
Intercept	**?**	1.001	1.021	1.023	1.003
		(0.91)	(0.93)	(0.94)	(0.91)
EPS	+	5.738***	5.758***	5.751***	5.742***
		(3.36)	(3.37)	(3.37)	(3.36)
EPS*DBEAT5	+	4.092***	3.864***	3.464***	4.491***
		(4.62)	(4.56)	(3.54)	(3.43)
EPS*DBEAT5*D_AM_ACCR5	-	-2.197***	-2.050***	-2.214***	-2.011**
		(-2.69)	(-2.68)	(-3.08)	(-2.73)
EPS*DBEAT5*D_RM_SALE5	-	-3.816***			-3.750***
		(-3.47)			(-2.98)
EPS*DBEAT5*D_RM_PROD5	-		-1.385*		-1.008
			(-1.82)		(-1.48)
EPS*DBEAT5*D_RM_DIXP5	-			0.048	-0.330
				(0.05)	(-0.32)
EPS*Growth5	+	4.796**	4.756**	4.788**	4.6766**
		(2.47)	(2.42)	(2.46)	(2.45)
EPS*Leverage	-	-2.358***	-2.381***	-2.378***	-2.361***
		(-5.81)	(-5.79)	(-5.79)	(-5.82)
EPS*Evar	-	-0.000	-0.000	-0.000	-0.000
		(-1.57)	(-1.57)	(-1.58)	(-1.57)
BVS	+	1.281***	1.279***	1.279***	1.282***
		(3.66)	(3.65)	(3.65)	(3.66)
R-Squared		0.580	0.580	0.579	0.581

Year and industry dummies are included in all models. t-statistic in parentheses are based on firm and year clustered standard errors. */**/*** indicate significance at 10%/5%/1% (two-tailed).

PRICE = close price per share at the fiscal year end (Compustat #199). EPS = net income before extraordinary items divided by number of shares outstanding for basic EPS (Compustat #54). DBEAT5 = indicator variable equals 1 if a firm reports a 5-year pattern of increasing positive earnings, and 0 otherwise. D_AM_ACCR5 = indicator variable equals 1 if earnings without the influence of abnormal total accruals are less than previous year's actual earnings during any consecutive five years, and 0 otherwise. DBEAT5*D_AM_ACCR5 = interaction indicator variable equals 1 if a firm with a five-year pattern of increasing earnings presents abnormal total accruals that, if not included in earnings, would fail to report the pattern of increasing earnings, and 0 otherwise. D_RM_SALE5 = indicator variable equals 1 if earnings without the influence of sales management are less than previous year's actual earnings during any consecutive five years, and 0 otherwise. DBEAT5*D_RM_SALE5 = interaction indicator variable equals 1 if a firm with a five-year pattern of increasing earnings fails to maintain the pattern when the influence of sales management is removed from earnings, and 0 otherwise. D_RM_PROD5 = indicator variable equals 1 if earnings without the influence of production management are less than previous year's actual earnings during any consecutive five years, and 0 otherwise. DBEAT5*D_RM_PROD5 = interaction indicator variable equals 1 if a firm with a five-year pattern of increasing earnings fails to maintain the pattern when the influence of production management is removed from earnings, and 0 otherwise. D_RM_DIXP5 = indicator variable equals 1 if earnings without the influence of expenses management are less than previous year's actual earnings during any consecutive five years, and 0 otherwise. DBEAT5*D_RM_DIXP5 = interaction indicator variable equals 1 if a firm with a five-year pattern of increasing earnings fails to maintain the pattern when the influence of discretionary expense management is removed from earnings, and 0 otherwise. Leverage = sum of short-term debt (Compustat #34) and long-term debt (Compustat #9) divided by market capitalization. Evar = variance of the past 5 years' percentage change in earnings. Growth5 = 5-year compound growth rate of book value of equity. BVS = book value of equity per share.

Table 6
Analysis of Market Rewards to Non-Suspect Beaters and Suspect Firms

N=22,605		*1*	*2*	*3*	*4*
Variable	*Predicted Sign*	*Coef. (t-statistic)*	*Coef. (t-statistic)*	*Coef. (t-statistic)*	*Coef. (t-statistic)*
Intercept	**?**	1.018	1.029	1.043	1.050
		(0.93)	(0.94)	(0.95)	(0.96)
EPS	+	5.757***	5.744***	5.763***	5.755***
		(3.37)	(3.36)	(3.37)	(3.37)
EPS*DBEAT5	+	2.923**	3.011***	2.836***	2.601***
		(4.03)	(4.12)	(3.77)	(2.85)
EPS*DBEAT5*DCFO5	+	3.567***	3.114**	3.570**	3.728**
		(2.61)	(2.44)	(2.66)	(2.73)
EPS*DBEAT5*D_AM_ACCR5	-	-2.050***			
		(-2.66)			
EPS*DBEAT5*D_RM_SALE5	-		-3.298***		
			(-3.16)		
EPS*DBEAT5*D_RM_PROD5	-			-1.389*	
				(-1.83)	
EPS*DBEAT5*D_RM_DIXP5	-				-0.455
					(-0.45)
EPS*Growth5	+	4.738**	4.757**	4.711**	4.731**
		(2.40)	(2.43)	(2.37)	(2.40)
EPS*Leverage	-	-2.371***	-2.366***	-2.385***	-2.381***
		(-5.78)	(-5.84)	(-5.81)	(-5.80)
EPS*Evar	-	-0.000	-0.000	-0.000	-0.00
		(-1.57)	(-1.57)	(-1.58)	(-1.58)
BVS	+	1.280***	1.282***	1.280***	1.280***
		(3.65)	(3.66)	(3.65)	(3.65)
R-Squared		0.580	0.580	0.580	0.580

Year and industry dummies are included in all models. t-statistic in parentheses are based on firm and year clustered standard errors. */**/*** indicate significance at 10%/5%/1% (two-tailed).
PRICE = close price per share at the fiscal year end (Compustat #199). EPS = net income before extraordinary items divided by number of shares outstanding for basic EPS (Compustat #54). DBEAT5 = indicator variable equals 1 if a firm reports a 5-year pattern of increasing positive earnings, and 0 otherwise. DCFO5 = indicator variable equals 1 if a firm reports a 5-year pattern of increasing positive cash flows, and 0 otherwise. DBEAT5*DCFO5 = interaction indicator variable equals 1 if a firm reports five-year patterns both in earnings increases and in cash flows increases, and 0 otherwise. D_AM_ACCR5 = indicator variable equals 1 if earnings without the influence of abnormal total accruals are less than previous year's actual earnings during any consecutive five years, and 0 otherwise. DBEAT5*D_AM_ACCR5 = interaction indicator variable equals 1 if a firm with a five-year pattern of increasing earnings presents abnormal total accruals that, if not included in earnings, would fail to report the pattern of increasing earnings, and 0 otherwise. D_RM_SALE5 = indicator variable equals 1 if earnings without the influence of sales management are less than previous year's actual earnings during any consecutive five years, and 0 otherwise. DBEAT5*D_RM_SALE5= interaction indicator variable equals 1 if a firm with a five-year pattern of increasing earnings fails to maintain the pattern when the influence of sales management is removed from earnings, and 0 otherwise. D_RM_PROD5 = indicator variable equals 1 if earnings without the influence of production management are less than previous year's actual earnings during any consecutive five years, and 0 otherwise. DBEAT5*D_RM_PROD5 = interaction indicator variable equals 1 if a firm with a five-year pattern of increasing earnings fails to maintain the pattern when the influence of production management is removed from earnings, and 0 otherwise. D_RM_DIXP5 = indicator variable equals 1 if earnings without the influence of expenses management are less than previous year's actual earnings during any consecutive five years, and 0 otherwise. DBEAT5*D_RM_DIXP5 = interaction indicator variable equals 1 if a firm with a five-year pattern of increasing earnings fails to maintain the pattern when the influence of discretionary expense management is removed from earnings, and 0 otherwise.

Leverage = sum of short-term debt (Compustat #34) and long-term debt (Compustat #9) divided by market capitalization. Evar = variance of the past 5 years' percentage change in earnings. Growth5 = 5-year compound growth rate of book value of equity. BVS = book value of equity per shares.

Table 7
Analysis of Market Rewards to Firms with a Pattern of Increasing Earnings Not Achieved through Sales Growth

Panel A: Descriptive Statistics

Num. of Years	Num. of Total Observations	Num. of Earnings Beaters	Num. of Suspect Firms (% over Earnings Beaters)
5	22605	2088	398(0.19)

Panel B: Regression Results

N=22,605

Variable	*Predicted Sign*	*Coef. (t-statistic)*
Intercept	**?**	1.058
		(0.97)
EPS	+	5.753***
		(3.37)
EPS*DBEAT5	+	3.350***
		(4.73)
EPS*DBEAT5*D_NONREV5	-	-2.70***
		(-3.80)
EPS*Growth5	+	4.729**
		(2.38)
EPS*Leverage	-	-2.383***
		(-5.81)
EPS*Evar	-	-0.000
		(-1.58)
BVS	+	1.280***
		(3.66)
R-Squared		0.580

Year and industry dummies are included in all models. t-statistic in parentheses are based on firm and year clustered standard errors. */**/*** indicate significance at 10%/5%/1% (two-tailed).
PRICE = close price per share at the fiscal year end (Compustat #199). EPS = net income before extraordinary items divided by number of shares outstanding for basic EPS (Compustat #54). DBEAT5 = indicator variable equals 1 if a firm reports a 5-year pattern of increasing positive earnings, and 0 otherwise. DBEAT5*D_NONREV5 = interaction indicator variable equals 1 if a firm reports a five-year pattern in earnings increases but not sales growth, and 0 otherwise. Leverage = sum of short-term debt (Compustat #34) and long-term debt (Compustat #9) divided by market capitalization. Evar = variance of the past 5 years' percentage change in earnings. Growth5 = 5-year compound growth rate of book value of equity. BVS = book value of equity per share.

Appendix

Variable Descriptions and Definitions

PRICE	Close price – fiscal year end (#199)
Earnings	NIBE, net income before extraordinary items (#18)
EPS	net income before extraordinary items divided by number of shares outstanding for basic EPS (#54)
DBEAT5	An indicator variable equals to 1 if a firm reports a 5-year pattern of increasing positive earnings, and 0 otherwise
CFO	Cash flow from operations (#308)
DCFO5	An indicator variable equals 1 if a firm reports a 5-year pattern of increasing cash flows, and 0 otherwise
DBEAT5*DCFO5	An interaction indicator variable equals 1 if a firm reports 5-year patterns both in earnings increases and in cash flows increases, and 0 otherwise
A	Total assets (#6)
Total Accruals	the difference between net income before extraordinary items (#18) and cash flows from operations (#308) divided by lagged total assets (#6)
PPE	Firm's gross property, plant, and equipment, COMPUSTAT #7
Ab_TA	the level of abnormal total accruals computed using the Jones Model
D_AM_ACCR5	An indicator variable takes value of 1 if earnings without discretionary accruals (abnormal total accruals multiplied by lagged total assets) are less than previous year's actual earnings during any of the five years, and 0 otherwise
DBEAT5*D_AM_ACCR5	An interaction indicator variable takes value of 1 if a firm with a five-year pattern of increasing earnings presents discretionary total accruals that, if not included in earnings, would fail to report the pattern of increasing earnings, and 0 otherwise
Sales	Net sales (#12)
Ab_CFO	the level of abnormal cash flows from operations computed using equation (3)
D_RM_SALES5	An indicator variable takes value of 1 if earnings without sales management (abnormal CFO multiplied by lagged total assets) are less than previous year's actual earnings during any of the five years, and 0 otherwise
DBEAT5*D_RM_SALE5	An interaction indicator variable takes value of 1 if a firm with a five-year pattern of increasing earnings fails to maintain the pattern when the influence of sales management is not included in earnings, and 0 otherwise
COG	Cost of goods sold (#41)
INVT	Inventory (#3)
PROD	Production cost = COGS (#41) + ΔINVT (#3)
Ab_PROD	the level of abnormal production costs computed using equation (4)
D_RM_PROD5	An indicator variable takes value of 1 if earnings without production management (abnormal production costs multiplied by total assets) are less than previous year's actual earnings during any of the five years, and 0 otherwise
DBEAT5*D_RM_PROD5	An interaction indicator variable takes value of 1 if a firm with a five-year pattern of increasing earnings fails to maintain the pattern when production management is not included in earnings, and 0 otherwise
R&D	R&D expenses (#46)
SGA	Selling, general and administrative expenses (#189)
Advertising	Advertising expenses (#45)
Discretionary Expenses	R&D (#46) + SGA (#189) + Advertising (#45)
Ab_DIXP	the level of abnormal discretionary expenses
D_RM_ADIXP5	An indicator variable takes value of 1 if earnings without the influence of expenses management (abnormal discretionary expenses multiplied

	by total assets) are less than previous year's actual earnings during any consecutive five years, and 0 otherwise
DBEAT5*D_RM_DIXP5	An interaction indicator variable takes value of 1 if a firm with a five-year pattern of increasing earnings fails to maintain the pattern when the influence of discretionary expense management is not included in earnings, and 0 otherwise
DBEAT5*D_NONREV5	An interaction indicator variable equals 1 if a firm reports a five-year pattern of increasing earnings but not a five-year pattern of increasing sales, and 0 otherwise.
Leverage	The sum of short-term debt (#34) and long-term debt (#9) divided by market capitalization(#199*#25)
Evar	Variance of the past five years' percentage change in earnings $(\mathrm{NIBE}_{i,t} - \mathrm{NIBE}_{i,t-1})/\mathrm{abs}(\mathrm{NIBE}_{i,t-1})$
Growth5	Five-year compound annual growth rate of book value of equity (#60), $(BV_t/BV_{t-6})^{1/5}$-1
BVS	Book value of equity per share (#60/# 54).

All variables are in millions of dollars except number of common shares outstanding for basic EPS (#54), which units are millions.

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