[NOTE – I SHALL BE PRESENTING THIS PAPER DURING MY VISIT TO OHIO STATE. HOWEVER, I HAVE ALSO ENCLOSED A COPY OF CHAPMAN (2008) AS BACKGROUND SHOULD YOU WISH TO REFER TO IT]

The Hangover Effects of Real Earnings Management:

Patterns of Real Earnings Management and Subsequent Performance

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1. Introduction

Using a new supermarket scanner data set for multiple product categories, this paper shows a relation between subsequent firm performance (in terms of earnings and stock prices) and retail prices. In a period of economic slowdown, these effects are different for price changes which are made at a firm's fiscal year-end than at other times of the year consistent with year-end price changes being associated

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with earnings management behavior. Further, these effects vary depending on how severe prior-year price changes were as well as the price elasticity of demand for each individual product.

Prior research shows that firms use a variety of real actions to increase short-term earnings. However, the effects on subsequent firm performance are less well studied. This is due, in part, to the possibility that the firm may be able to repeat the earnings management behavior in successive periods making it especially hard to detect subsequent weak performance. The economic conditions involving an increase in many input prices and general slowdown in demand during 2008 suggest that firms which have engaged in real earnings management behavior in the past may be less able to successfully repeat these actions in this period and may therefore report less positive earnings than those firms not engaging in the same practices. As such, it is more likely that subsequent poor performance will be observed for firms managing their earnings in 2008 than in periods of steady economic growth.

This paper considers firms which use price changes as a method of affecting reported earnings and how these alleged earnings management behavior affects their performance in subsequent periods.

The remainder of this paper is organized as follows: Section 2 provides background, describes prior research and develops testable hypotheses about the timing and effects of price discounting behavior. Section 3 describes the sample selection procedure and research methodology. Section 4 presents empirical results and section 5 contains concluding remarks.

2. Hypothesis Development

2.1. The Relation of Retail Prices to Subsequent Performance

Independent of any earnings management, simple micro-economic theory suggests that firms should increase prices if either the demand or supply curve shift upwards. If price changes are due to demand curve shifts (either due to greater aggregate demand at a specific price point or reduced competition

which permits one vendor to capture a greater market share at a specific price) earnings should increase. In contrast, if price changes are due to increased variable costs, earnings should fall. Although I do not make a prediction as to whether observed price changes are due to changes in supply or demand curves, these concepts lead to a first hypothesis *H1* which suggests that retail price changes have an effect on subsequent period earnings at the corporate level: *Firms that have increased prices are more likely to experience positive earnings changes in subsequent periods.*

2.2. The relation of year-end product prices to subsequent performance

Degeorge, Patel and Zeckhauser (1999) propose that earnings management behavior can be divided into two distinct categories:

- "misreporting" earnings management – involving merely the discretionary accounting of decisions and outcomes already realized; and
- "direct" or "real" earnings management - the strategic timing of investment, sales, expenditures and financing decisions.

Although the first category has received much attention since Healy (1985), the second has received greater recent attention and appears to be widespread in practice. As noted by Douglas R. Conant, President and Chief Executive Officer of Campbell Soup Company during a recent quarterly earnings conference call "We then managed our marketing plans to manage our [earning][1]….to ensure that we were supporting the business but also delivering our earnings and at the same time competition was more competitively successful than they had been in prior years." (Campbell Soup Company, 2008).

Gunny (2005) expands the 'real earnings management' category and describes four real activities that research shows firms use to manage earnings:

[1] The word "earning" can be clearly heard at time 33:40 in the audio version of the conference call but has been redacted from the call transcript available at http://seekingalpha.com/article/77913-campbell-soup-f3q08-qtr-end-4-27-08-earnings-call-transcript?page=-1

- cutting Research and Development ("R&D") to increase income;[2]
- changing Sales, General and Administration ("SG&A") expenditure to increase income;[3]
- timing income (and loss) recognition from the disposal of long-lived assets and investments;[4]
- discounting prices to boost sales in the current period and/or overproducing to decrease Cost of Goods Sold ("COGS").[5]

Related to the work of Graham, Harvey and Rajgopal (2005), studies of each of these methods of earnings management tend to include an assumption that specified firms seek to increase earnings prior to a specific financial reporting date.[6] In a similar manner to the concept that accruals should reverse in time, such income-increasing behaviors are assumed to be costly overall. For example, in the case of non-perishable goods, at least some of the incremental sales garnered when prices are reduced are due to consumer stockpiling.[7] When the earnings management stops, sales volumes should be lower in subsequent periods as consumers consume their stockpiles. As a result, long-term profits should be reduced, despite the current period gains as the average price of product sold is reduced as customers learn to purchase when produce is on sale[8] consistent with both Stein's (1989) model of myopic behavior and the "borrowing of earnings" discussed by Degeorge, Patel and Zeckhauser (1999).

[2] See Baber et al (1991), Dechow and Sloan (1991), Bushee (1998), Bens, Nagar and Wong (2002) and Cheng (2004) for further discussions of the role of changing R&D expenditure in various earnings management contexts.
[3] See Mizik and Jacobsen (2007), Chapman (2008) and Chapman and Steenburgh (2008) for further discussion of the role of marketing expenditure in this context.
[4] See Bartov (1993) and Herrmann, Inoue and Thomas (2003) for further discussions on the use of asset sales or McNichols and Wilson (1988) on the use of opportunistic provisioning in this context.
[5] See Thomas and Zhang (2002) on the use of overproduction and Roychowdhury (2006) or Chapman and Steenburgh (2008) for further discussion on the role of price discounting.
[6] In contrast, Healy (1985) and Goel and Thakor (2003) identify several situations where managers have incentive to reduce earnings.
[7] See Gupta (1988) and Hendel and Nevo (2003, 2004, 2006a and 2006b)
[8] See Medeiros (2007)

The 'post-promotion dip' in sales volumes can be seen clearly in the weeks following a promotion in Figure 1 and is consistent with the findings of multiple authors including van Heerde, Leeflang, and Wittink (2000, 2004), Macé and Neslin (2004), Chapman (2008) and Chapman and Steenburgh (2008).[9]

However, as proposed in the extension of Stein's model, firms may be able to repeat, or even increase, the earnings management behavior in subsequent periods to mask the true costs, making it almost impossible to observe subsequent poor performance. Chapman (2008) shows that price reductions associated with a single earnings management target are persistent over multiple reporting periods.[10] Similarly, anecdotal evidence of such repeating behavior was provided to the author by a management consultant who admitted to accelerating the client billing of one week's work at the end of each quarter (with the client's agreement) repeatedly for a period of three years. When asked why he stopped the accelerated billing, his response was that he had met his annual target in the fourth year due to the internal accounting system recording being based upon a 53-week year.

These observations raise the question as to whether poor subsequent performance associated with earnings management behavior will be observable, especially in an economy that is growing. Fortunately, for the research design used here, economic conditions during late 2007 and early 2008 represent a significant slowdown and general reduction in retail sales.[11] This suggests that firms which have engaged in real earnings management behavior in the past may be less able to repeat these actions during this time-period resulting in less positive earnings for real earnings managers as consumers reduce purchases and use their stockpiled product. As such, it is more likely that subsequent poor performance

[9] In contrast to the idea that real earnings management is costly, Chapman (2008) identifies circumstances where price reductions at the fiscal year-end may not be as costly in terms of relative performance as previously thought. In response to a competitor price cut, total firm profits may no different in a scenario of taking no action compared to reducing prices. Figures 1 and 2 show examples of how contribution margin may be no worse for a firm which discounts compared to one which does not when faced with competitors who reduce their prices.

[10] See figure 3 for a graphical representation of the year-end price evolution over several years around a single period where the firm had incentive to boost earnings.

[11] See figure 4 which shows some evidence of reduced spending at the sample stores which may relate to the beginning of the economic slowdown.

will be observed for firms managing their earnings than in periods of steady economic growth. At a minimum, first time price reducers may see more impressive results than repeating offenders.

This leads to the hypothesis H2: *Firms exhibiting potential earnings management behavior at their fiscal year-end are more likely to experience weaker performance (in terms of both earnings and stock prices) in 2008 than those not which do not.*

2.3. The relation of subsequent earnings and stock prices to multi-year price changes

As mentioned above, some firms may have the ability to repeat or increase earnings management promotion in sequential periods. If we observe firms continuing to reduce prices at the fiscal year-end, it is consistent with them still have earnings management slack which may confound tests of the previous hypothesis. This leads to the hypothesis H3: *Firms reducing prices from a lower starting point are more likely to experience weaker performance (in terms of both earnings and stock prices) in 2008.*

2.4. The effect of price elasticity of demand

In order for a firm to use price reductions as a successful earnings management tool, it needs a product which has a material increase in sales volumes (in terms of intertemporal shifting of purchase) resulting from a small price reduction. This suggests that products with high price elasticity of demand will provide stronger results for tests of the hypotheses discussed above.

3. Data and Methodology

For this study, I use a new dataset collected between October 2005 and September 2007 from a leading US supermarket chain. The dataset contains information on all purchases by consumers using the customer loyalty card made at 7 stores in New Hampshire. This represents more than 20 million individual purchases of over 89,000 different UPC codes by over 79,000 households. The dataset is different from the one used in Chapman (2008) in that it contains data about purchases of all products

sold in the store including the location within the store (equivalent to the aisle number). Furthermore, when combined with a separate UPC identifying dataset, the specific products and their manufacturers can be readily identified.

For each individual UPC code, the dataset is expanded by identifying the product producer and ultimate parent company. This represents approximately 8.6 million (42%) of the transactions representing 72 different companies which can be identified by their gvkey in the CRSP/COMPUSTAT dataset. For each of the parent companies for which information is available, fiscal year-end, financial performance and stock prices were retrieved from the CRSP/COMPUSTAT merged database.

Summary statistics and variable correlations of this dataset over the two years of observation are shown in tables 1 and 2.

Firms operate in competitive markets and have been shown to respond to competitor earnings management.[12] More specifically, Chapman (2008) shows that competitors reduce prices when other firms within their industry are expected to discount prices to meet earnings targets. Given this and the potential for seasonally effects, any tests of real earnings management incentives should take into account the general level of prices and competition within the marketplace. Therefore, a monthly fixed effect is incorporated into each of the regression estimations.

To eliminate any bias which might be caused by the inclusion of multiple purchases of the same product at similar prices in the same week, the mean price observed for each UPC-week pair is used. Only products which have sales observations in more than 26 different weeks are included in the sample to

[12] See Beatty, Karaoglu and Sandino

eliminate seasonal or low volume products from the analysis.[13] Where quoted, pseudo-R^2 is the McKelvey-Zavonia pseudo-R^2.[14]

A caveat to any conclusions drawn using these data is that only retail prices are observed, not the manufacturer sale price. Therefore, this interpretation of results requires that the supermarket chain passes through manufacturer price changes as opposed to selectively targeting manufacturers' performance or fiscal calendar with their own pricing activities.[15] Discussion with representatives of several manufacturing companies contained in the sample confirmed that trade funding[16] is usually structured so that the bulk of the units shipped to the supermarket at a discount must also be sold to the consumers at a discount. However, a small percentage "slip" through the system and are sold to consumers at or near full-price. If the supermarket does not pass on the price discounts from the manufacturers, this would bias my tests against finding results.

4. Results and Discussion

4.1 The Relation of Retail Prices to Subsequent Performance

To measure the effect of retail prices on subsequent firm performance, three measures of subsequent firm performance are used. Two of these relate to whether earnings per share increased or not in the fourth quarter of 2007 and the first quarter of 2008 compared to the same quarter a year earlier. The third relates to whether the stock price of the manufacturing firm increased or not from the end of the third quarter 2007 and the middle of 2008.

This permits estimation of three variants of the following logistic regression to test Hypothesis *H1*,

[13] Sales volumes are consolidated to a single observation per UPC-week when used. Where no sales are observed in a specific week, it is assumed that sales volumes are zero and that prices are the same as the prior week.
[14] The McKelvey-Zavonia pseudo-R^2 is defined as $\text{var}(\hat{y}_i) / [1+ \text{var}(\hat{y}_i)]$ where $\text{var}(\hat{y}_i)$ is the variance of the forecasts values for the latent dependent variable (Hagle and Mitchell (2001)).
[15] This is consistent with the approach used by Chintagunta, Kadiyali and Vilcassim (1996, 1999) who assume the retailer is non-strategic and charges an exogenous constant margin.
[16] Money given to supermarkets to temporarily reduce prices, display product in prime merchandising space, or feature product in circulars.

$$L(Variable\ Increase_{it}) = \beta_0 + \beta_1 PriceChange_{it} + \sum_{j=1}^{11} \gamma_j Month_{ijt} + \varepsilon_{it}$$

where $VariableIncrease_{it}$ is a dummy variable which equals one if a) the quarterly earnings in the fourth quarter of 2007 exceed those of the fourth quarter of 2006, b) the quarterly earnings in the first quarter of 2008 exceed those of the first quarter of 2007, and c) the stock price in the middle of 2008 exceeds the stock price at the end of the third quarter of 2007 for the three estimations; and zero otherwise. *PriceChange* is the ratio of the price of product *i* sold in week *t* as compared to the same week one year earlier in the sample period minus 1. *Month* represents dummy variables for each calendar month. The calendar month fixed effects are used to control for any calendar seasonality of demand effects in the data (as shown in figure 5) consistent with prior literature.[17] The error term ε_{it} contains information on performance changes not contained in prices. The dependent variables were chosen to represent performance after the end of the observed price period.

Assuming a conventional downward sloping demand curve and upward sloping supply curve, increases in pricing should occur in periods of increasing demand or decreasing competition. As mentioned above, if price increases are due to demand curve shifts (either due to greater aggregate demand at a specific price point or reduced competition which permits one vendor to capture a greater market share at a specific price) earnings should increase and β_1 will be positive. In contrast, if price changes are due to increased variable costs, earnings should fall and β_1 will be negative.

The results of these three model estimations are shown in table 3, columns 1 through 3 and consistently show β_1 to be positive and significantly different from zero suggesting that price increases during the observation period are related to positive subsequent performance effects. However, the economic magnitude of this effect is not especially large with a price increase of 10% being associated with an increase in the probability of an improvement in each of the three performance measures of 0.6-0.7%.

[17] See Oyer (1998) or Chapman and Steenburgh (2008).

This suggests that current period prices are positively related to subsequent performance but that the price increases are related, at least in part, to corresponding increases in input costs, not simply demand curve shifts.

4.2 The relation of year-end product prices to subsequent performance

In order to test whether firms exhibiting potential earnings management behavior at their fiscal year-end are more likely to experience weaker performance (in terms of both earnings and stock prices) in 2008 than those not which do not, three versions of the following logistic regression are estimated:

$$L(VariableIncrease_{it}) = \beta_0 + \beta_1 PriceChange_{it} + \beta_2 Fiscal_{it} + \beta_3 Fiscal_{it} * PriceChange_{it} + \sum_{j=1}^{11} \gamma_j Month$$

where $VariableIncrease_{it}$ is a dummy variable which equals one if a) the quarterly earnings in the fourth quarter of 2007 exceed those of the fourth quarter of 2006, b) the quarterly earnings in the first quarter of 2008 exceed those of the first quarter of 2007, and c) the stock price in the middle of 2008 exceeds the stock price at the end of the third quarter of 2007 for the three estimations; and zero otherwise. *PriceChange* is the ratio of the price of product *i* sold in week *t* as compared to the same week one year earlier in the sample period minus 1. *Fiscal* is a dummy variable if the transaction occurs in the last month of the manufacturer's fiscal quarter, and zero otherwise. *Month* represents dummy variables for each calendar month.

Based upon Chapman (2008) and Chapman and Steenburgh (2008), firms which change prices at the last month of their fiscal year may be doing so to manipulate reported earnings. If firms are doing so and the

short-term gains are reversed in subsequent periods, we should observe a positive coefficient on β_3. (Price decreases at the year-end lead to negative future performance).

The results of these three model estimations are shown in table 3, columns 4 through 6. Column 4 shows β_3 to be positive and significantly different from zero suggesting that price changes in the last month of the fiscal year are positively related to changes in earnings in the quarter immediately following the sample period. This is consistent with the hypothesis that earnings management behavior reverse and that firms cutting prices at the fiscal year end will suffer in subsequent periods. However, in contrast, β_3 is negative and significantly different from zero in both Column 5 and 6 implying that firms which increase (decrease) prices in the last month of the fiscal year underperform (outperform) in both earnings and stock price terms by the second quarter of 2008. One possible explanation for this somewhat unexpected result is that firms were still able to repeat and increase the price reductions in 2008 and were therefore not 'discovered.' This raises the question of how much earnings management 'slack' exists for each product. This will be considered further in the next section.

4.3 The relation of subsequent earnings and stock prices to multi-year price changes

As mentioned above, it is possible that firms are able to repeat and even increase the magnitude of earnings management price reductions. Firms which are changing prices from an already low base have, on average, less slack remaining and are predicted to suffer more following additional fiscal year-end price reductions. To test this, I estimate three versions of each of the following logistic regressions:

$$L(Variable\ Increase_{it}) = \beta_0 + \beta_1 PriceChange_{it} + \beta_4 PriorYearPrice_{it} + \sum_{j=1}^{11} \gamma_j Month_{ijt} + \varepsilon_{it}$$

$$L([Variable\ Increase]_{it}) = \beta_1 0 + \beta_1 1\ [PriceChange]_{it} + \beta_1 2\ [Fiscal]_{it} + \beta_1 3\ [PriceChange$$

where $VariableIncrease_{it}$ is a dummy variable which equals one if a) the quarterly earnings in the fourth quarter of 2007 exceed those of the fourth quarter of 2006, b) the quarterly earnings in the first quarter of 2008 exceed those of the first quarter of 2007, and c) the stock price in the middle of 2008 exceeds the stock price at the end of the third quarter of 2007 for the three estimations; and zero otherwise. *PriceChange* is the ratio of the price of product *i* sold in week *t* as compared to the same week one year earlier in the sample period minus 1. *Fiscal* is a dummy variable if the transaction occurs in the last month of the manufacturer's fiscal quarter, and zero otherwise. *PriorYearPrice* is the ratio of the price charged in the same week one year before divided by the highest price observed for that specific UPC code in the sample. *Month* represents dummy variables for each calendar month.

The results of the first of these estimations are shown in Table 4. These all show positive coefficients for β_1,[18] the effect of price changes on future performance, which is consistent with hypothesis H1 above that firms that have increased prices are more likely to experience positive earnings changes in subsequent periods.

However, now we find that the coefficient on β_3 (The incremental effect of price changes at the fiscal year-end) is negative and significantly different from zero in Columns 4 and 5 implying that firms which increase (decrease) prices in the last month of the fiscal year underperform (outperform) in earnings terms by the second quarter of 2008. Furthermore, the positive coefficient on β_3 in column 6 suggests that firms which reduce prices at their fiscal year-end (i.e. those which might be suspected of earnings management) are penalized by the stock market for such behavior. This suggests that when controlling for prior year pricing behavior, firms which reduced prices further were able to boost reported earnings through the middle of 2008 but that the stock market was able to see through such behavior.

Interacting the current year price change with the prior year price level and splitting the sample to consider the effects of price changes at the fiscal year end and other months independently, I estimate

[18] Not significantly different from zero in Columns 1 and 4 relating to change in Earnings per Share for the fourth quarter of 2007.

three versions of the following regression for months where *Fiscal* is equal to zero and separately when *Fiscal* is equal to one.

$$L(Variable\ Increase_{it}) = \beta_0 + \beta_1 PriceChange_{it} + \beta_4 PriorYearPrice_{it} + \beta_6 PriorYearPrice_{it} * PriceChar$$

The results of these estimations are shown in Table 5. Of most interest here is the interaction term β_6 at the fiscal year end (Columns 2, 4 and 6) and how these differ between these columns and also how they differ from the non-year-end months (Columns 1, 3 and 5). Firms that did not reduce prices last year (*PriorYearPrice* close to 1) benefit more from a year-end price cut this year ($\beta_6<0$ in column 2) in terms of earnings in the fourth quarter of 2007. However, these are the firms which suffer most in both 2008 Q1 earnings and stock price changes through the middle of 2008 (Columns 4 and 6) suggesting that first time earnings managers may have earnings reversions more than those who are more experienced in the behavior.

4.4 Variation in results due to differences in product price elasticity of demand

This section considers how the earlier results vary based upon cross-sectional variation in the price elasticity of demand. Demand for products with low price elasticity of demand does not change materially when prices are changed. As such, any observed price reductions for these products are more likely due to competitive pricing strategies as opposed to attempts by the firm to manage short term earnings. This leads to the prediction that any effects observed for tests of the earlier hypotheses will be weaker for low elasticity products.

To test this, we estimate the following regressions for the three dependent variables discussed above

$$L(Variable\ Increase_{it}) = \beta_0 + \beta_1 PriceChange_{it} + \beta_i Elasticity_{it} + \sum_{j=1}^{11} \gamma_j Month_{ijt} + \varepsilon_{it}$$

$$L([VariableIncrease]_{it}) = \beta_0 + \beta_1 [PriceChange]_{it} + \beta_4 [PriorYearPrice]_{it} + \beta_6 [Pric$$

Where *Elasticity* is estimated for each product individually in the sample by regressing demand on price for each of the 104 weeks in the sample.[19]

In the second of these sets of estimations, we are most interested in the coefficient on β_8 which we predict to be positive since the effects on earnings of price changes are expected to be amplified for products with larger price elasticity of demand. Results are presented in Table 6 and show the positive predicted coefficient for the change in earnings for the first quarter of 2008 but not for Q4 2007 or the stock price change variable.[20] In each case, the coefficient on β_1 on the price change variable remains positive and significantly different from zero consistent with hypothesis *H1* but not fully supporting the earnings management hypotheses.

These mixed results are difficult to interpret. I therefore re-estimate independently for months where *Fiscal* is equal to zero and when *Fiscal* is equal to one as follows:

$$L([VariableIncrease]_{it}) = \beta_0 + \beta_1 [PriceChange]_{it} + \beta_4 [PriorYearPrice]_{it} + \beta_6 [Pric$$

The coefficients on β_8 (the interaction of price changes and elasticity) are of primary interest here with a focus on the fiscal year-end columns 2, 4 and 6 of Table 7. Consistent with the earnings management hypothesis, price changes at the fiscal year end have a larger impact on products with high price elasticity of demand than price changes at other months with high elasticity products reducing prices at the year-end (year-on-year) benefitting future performance.

Of interest also are the values of β_4 and β_6 here, firms which reduced prices at the fiscal year-end in the prior year appear to benefit from such price reductions ($\beta_4<0$). However, those that did not reduce prices

[19] A small number of products from one pet food manufacturer are excluded due to unusually high estimates of elasticity. Further consideration of the data suggests that this may be due to a period contained in the sample where certain types of pet food were potentially contaminated.
[20] Coefficient in Colum 6 is positive but not significantly different from zero.

last year (*PriorYearPrice* close to 1) benefit more from a year-end price cut this year ($\beta_7<0$) in terms of earnings in the fourth quarter of 2007. However, these are the firms which suffer most in both 2008 Q1 earnings and stock price changes through the middle of 2008.

5. Conclusion

Using a new dataset of supermarket scanner data, this paper considers the effects of price changes over time at different times of the fiscal year for products with varying price elasticity of demand on subsequent firm level performance metrics.

Consistent with simple micro-economic theory suggesting firms with higher demand curves should increase prices, results are generally consistent with firms that reduce prices during the sample period demonstrating earnings and stock price reductions in subsequent periods compared to firms which do not increase prices.

In contrast, when controlling for prior-year price levels, price reductions at the fiscal year end appear to result in subsequent improved performance consistent with the possibility of earnings management. These effects are most pronounced for products with high elasticity of demand as well as for first time price reducers which benefit more from price cuts in the short term but less in the long run than those manufacturing products which were offered at reduced prices at the fiscal year-end in 2006.

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Figure 1: The Effect on Sales Volumes (Left) and Contribution (Right) of a Two-Week Promotion in Weeks 5 & 6 with Competitors Maintaining Stable Prices[21]

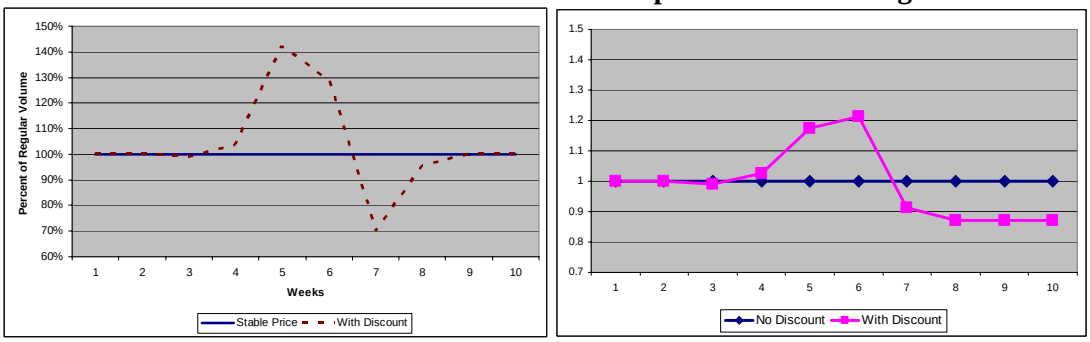


Figure 2: The Effect on Sales Volumes (Left) and Contribution (Right) of a Two-Week Promotion in Weeks 5 & 6 with Competitors Reducing Prices in Weeks 5&6[22]

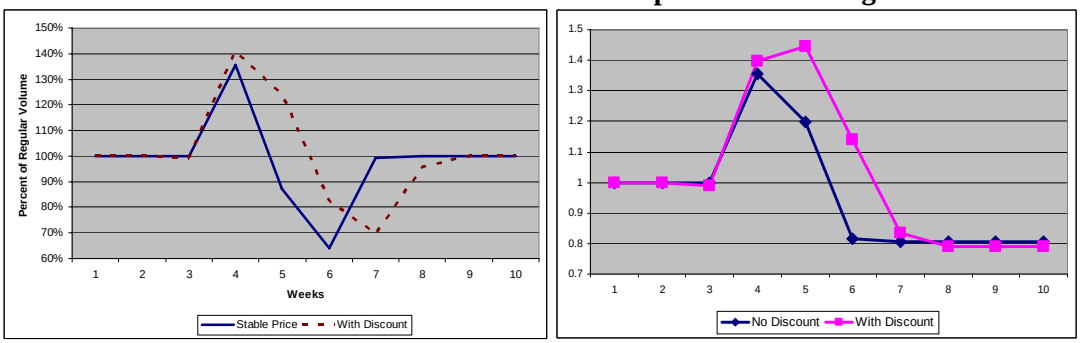
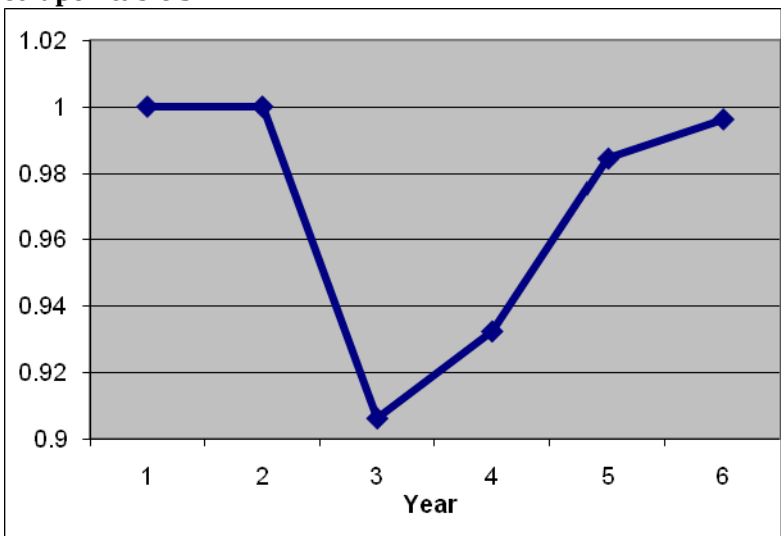


Figure 3: The Effect on Year-end Prices of an Earnings Management Incentive in Year 3 based upon table 3[23]



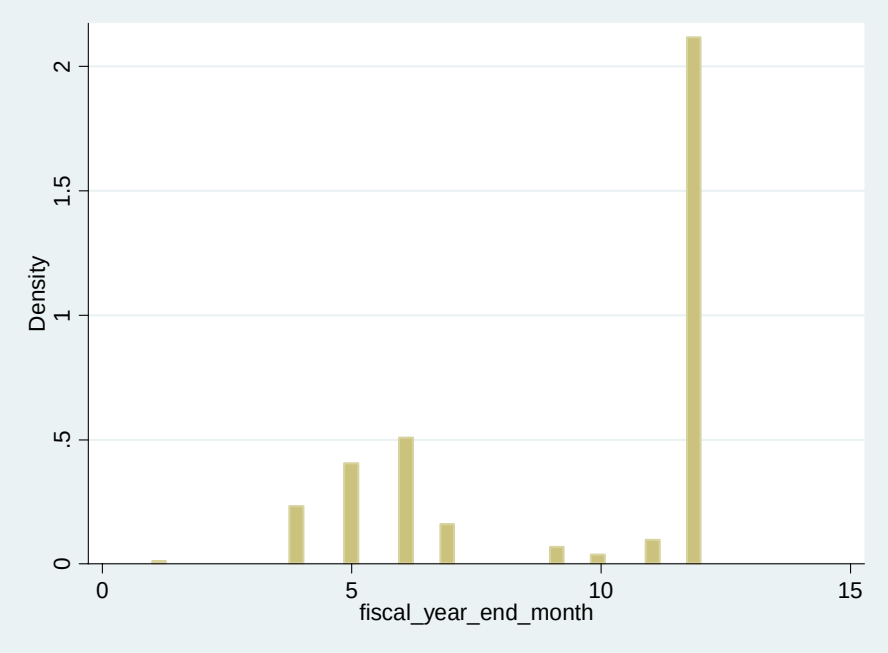
[21] Source: Chapman (2008)
[22] Source: Chapman (2008)
[23] Source: Chapman (2008)

Regular Price scaled to One.

Figure 4: Sales Revenues by Week

Graph of weekly sales in dollars. Week 44 is the first week in the sample.

Figure 5: Fiscal Year-End Frequency Distribution for Companies in Sample (by UPC)



January is Month 1

Table 1: Summary Statistics

	n	Mean	s.d.			n	Mean	s.d.
Positive Change in Q4 07 EPS					**Positive Change in Q1 08 EPS**			
Full Sample	814,931	0.586	0.493		Full Sample	571,483	0.659	0.474
Tables 3 & 4	271,413	0.547	0.498		Tables 3 & 4	182,189	0.631	0.482
Table 6	268,242	0.548	0.498		Table 6	180,318	0.630	0.483
Positive Change in Stock Price					**Fiscal Year End**			
Full Sample	547,137	0.280	0.449		Full Sample	858,409	0.090	0.286
Tables 3 & 4	175,906	0.226	0.418		Tables 3 & 4 Col 4	271,413	0.086	0.281
Table 6	173,870	0.226	0.418		Tables 3 & 4 Col 5	182,189	0.086	0.280
					Tables 3 & 4 Cols 6	175,906	0.086	0.281
Price Change					**Prior Year Price**			
Full Sample	341,023	0.005	0.161		Full Sample	341,028	0.836	0.132
Tables 3 & 4 Cols 1 & 4	271,413	0.003	0.159		Tables 3 & 4 Cols 1 & 4	271,413	0.838	0.131
Tables 3 & 4 Cols 2 & 5	182,189	0.001	0.153		Tables 3 & 4 Cols 2 & 5	182,189	0.847	0.126
Tables 3 & 4 Cols 4 & 6	175,906	0.000	0.154		Tables 3 & 4 Cols 4 & 6	175,906	0.847	0.127
Table 6 Cols 1, 4 & 7	268,242	0.003	0.160		Table 6 Cols 1, 4 & 7	268,242	0.837	0.131
Table 6 Cols 2, 5 & 8	180,318	0.001	0.153		Table 6 Cols 2, 5 & 8	180,318	0.846	0.126
Table 6 Cols 3 & 6	173,870	0.000	0.155		Table 6 Cols 3 & 6	173,870	0.846	0.127
Price Change * Fiscal Year End					**Prior Year Price*Fiscal Year End**			
Full Sample	286,640	0.001	0.045		Full Sample	286,645	0.072	0.237
Tables 3 & 4 Col 4	271,413	0.001	0.045		Tables 3 & 4 Col 4	271,413	0.072	0.237
Tables 3 & 4 Col 5	182,189	0.000	0.044		Tables 3 & 4 Col 5	182,189	0.072	0.238
Tables 3 & 4 Cols 6	175,906	0.000	0.044		Tables 3 & 4 Cols 6	175,906	0.073	0.239
Table 6 Col 7	268,242	0.001	0.045		Table 6 Col 7	268,242	0.072	0.237
Table 6 Col 8	173,870	0.000	0.044		Table 6 Col 8	180,318	0.072	0.238
Table 6 Col 7	286,640	0.001	0.045		Table 6 Col 7	173,870	0.072	0.239
Elasticity					**Price Change * Elasticity**			
Full Sample	994,033	(0.379)	0.567		Full Sample	337,051	(0.001)	0.107
Table 6 Cols 1, 4 & 7	268,242	(0.472)	0.546		Table 6 Cols 4 & 7	268,242	0.001	0.105
Table 6 Cols 2, 5 & 8	180,318	(0.429)	0.568		Table 6 Cols 5 & 8	180,318	0.001	0.099
Table 6 Cols 3 & 6	173,870	(0.446)	0.572		Table 6 Col 6	173,870	0.002	0.100
Prior Year Price * Elasticity								
Full Sample	337,056	(0.396)	0.473					
Table 6 Cols 4 & 7	268,242	(0.389)	0.475					
Table 6 Cols 5 & 8	180,318	(0.358)	0.496					

Table 2: Correlation of Variables

	Positive Change in Q4 07 EPS	Positive Change in Q1 08 EPS	Positive Change in Stock Price	Price Change	Fiscal Year End	Price Change * Fiscal Y.E.	Prior Year Price	Prior Year Price * Fiscal Y.E.	Elasticity
Positive Change in Q1 08 EPS	-0.23								
Positive Change in Stock Price	0.42	0.39							
Price Change	-0.02	0.02	0.02						
Fiscal Year End	-0.02	-0.01	-0.02	0.00					
Price Change * Fiscal Year End	-0.01	-0.02	-0.02	0.28	0.00				
Prior Year Price	-0.02	0.00	0.04	-0.55	-0.01	-0.15			
Prior Year Price * Fiscal Year End	-0.02	-0.01	-0.02	-0.02	0.99	-0.08	0.03		
Elasticity	0.08	-0.02	0.15	0.02	-0.01	0.00	0.07	-0.01	
Price Change * Elasticity	0.01	0.00	0.00	-0.65	-0.01	-0.19	0.39	0.01	0.00

Table 3: The relation of subsequent performance to price changes at the fiscal year-end

Dependent Variable	*Positive Change in*					
	Q4 07 EPS	Q1 08 EPS	Stock Price	Q4 07 EPS	Q1 08 EPS	Stock Price
Column #	Logistic 1	Logistic 2	Logistic 3	Logistic 4	Logistic 5	Logistic 6
Price Change β_1	0.238	0.291	0.353	0.217	0.355	0.465
	(3.69)**	(3.37)**	(3.38)**	(3.34)**	(4.05)**	(4.42)**
Fiscal Year End β_2				0.001	-0.048	-0.091
				(0.06)	(-2.78)**	(-2.53)*
Price Change * Fiscal Year End β_3				0.259	-0.779	-1.463
				(2.22)*	(-5.18)**	(-7.68)**
Constant	0.129	0.520	-1.300	0.001	0.519	-1.301
	(4.71)**	(15.02)**	(-31.77)**	(0.06)	(15.00)**	(-31.79)**
N	271,413	182,189	175,906	271,413	182,189	175,906
Pseudo R^2	0.2%	0.1%	0.1%	0.2%	0.1%	0.1%
Fixed Effects for Calendar Months	Yes	Yes	Yes	Yes	Yes	Yes

* Significant at the 5% level (two tail)
** Significant at the 1% level (two tail)

Note: Models are estimated using Huber-White[1] standard errors to allow for any lack of independence between observations for the same UPC within the sample.

[1] See Huber (1967), White (1980) and Froot (1989).

Table 4: The relation of subsequent performance to price changes at the fiscal year-end over time

Dependent Variable	*Positive Change in*					
	Q4 07 EPS	Q1 08 EPS	Stock Price	Q4 07 EPS	Q1 08 EPS	Stock Price
Column #	Logistic 1	Logistic 2	Logistic 3	Logistic 4	Logistic 5	Logistic 6
Price Change β_1	0.112	0.376	1.036	0.152	0.421	1.212
	(1.10)	(2.77)**	(6.53)**	(1.48)	(3.05)**	(7.40)**
Fiscal Year End β_2				1.422	-0.479	1.593
				(9.52)**	(-2.70)**	(6.73)**
Price Change * Fiscal Year End β_3				-0.483	-0.563	0.838
				(-3.31)**	(-3.18)**	(3.71)**
Prior Year Price β_4	-0.277	0.189	-1.483	-0.145	0.148	-2.027
	(-1.73)	(0.89)	(-6.34)**	(-0.91)	(0.69)	(-8.88)**
Prior Year Price * Fiscal Year End β_5				-1.688	0.509	-1.091
				(-9.58)**	(2.43)*	(-4.29)**
Constant	0.359	0.362	-2.551	0.250	0.396	-2.646
	(2.63)**	(1.98)*	(-12.65)**	(1.83)	(2.16)*	(-12.96)**
N	271,413	182,189	175,906	271,413	182,189	175,906
Pseudo R^2	0.2%	0.1%	1.2%	0.3%	0.1%	1.4%
Fixed Effects for Calendar Months	Yes	Yes	Yes	Yes	Yes	Yes

* Significant at the 5% level (two tail)
** Significant at the 1% level (two tail)

Note: Models are estimated using Huber-White Standard errors to allow for any lack of independence between observations for the same UPC within the sample.

Table 5: The relation of subsequent performance to price changes this year and last at different periods of the fiscal year-end

Dependent Variable	*Positive Change in*					
	Q4 07 EPS Non Y-E	Q4 07 EPS Year End	Q1 08 EPS Non Y-E	Q1 08 EPS Year-End	Stock P Non Y-E	Stock P Year End
	Logistic	Logistic	Logistic	Logistic	Logistic	Logistic
Column #	1	2	3	4	5	6
Price Change β_1	-0.049	0.953	-0.039	-2.232	-0.928	-5.473
	(-0.16)	(1.04)	(-0.08)	(-2.11)*	(-1.56)	(-2.27)*
Prior Year Price β_4	-0.222	-1.325	0.137	0.050	1.455	-1.146
	(-1.33)	(-4.04)**	(0.61)	(0.14)	(5.88)**	(-2.10)*
Price Change * Prior Year Price β_6	0.260	-2.352	0.529	2.838	2.557	5.560
	(0.70)	(-2.14)*	(0.97)	(2.21)*	(3.55)**	(1.77)
Constant	0.323	-17.633	0.403	18.351	-2.506	0.284
	(2.26)*	(-51.76)**	(2.06)*	(52.18)**	(-11.64)**	(0.56)
N	248,008	18,056	166,536	14,349	160,738	14,732
Pseudo R^2	0.8%	4.1%	0.8%	11.3%	2.7%	48.4%
Fixed Effects for Calendar Months	Yes	Yes	Yes	Yes	Yes	Yes

* Significant at the 5% level (two tail)
** Significant at the 1% level (two tail)

Note: Models are estimated using Huber-White Standard errors to allow for any lack of independence between observations for the same UPC within the sample.

Table 6: The relation of subsequent performance to price changes depending on price elasticity of demand

Dependent Variable	*Positive Change in*							
	Q4 07 EPS	Q1 08 EPS	Stock Price	Q4 07 EPS	Q1 08 EPS	Stock Price	Q4 07 EPS	Q1 08 EPS
	Logistic	Logistic	Logistic	Logistic	Logistic	Logistic	Logistic	Logistic
Column #	1	2	3	4	5	6	7	8
Price Change β_1	0.230	0.301	0.301	0.218	0.479	0.444	-0.059	-0.059
	(3.59)**	(3.48)**	(2.90)**	(2.03)*	(3.81)**	(3.05)**	(-0.19)	(-0.13)
Prior Year Price β_4							-0.371	0.079
							(-2.21)*	(0.35)
Price Change * Prior Year Price β_6							0.148	0.717
							(0.40)	(1.35)
Elasticity β_7	0.136	-0.030	0.605	0.136	-0.030	0.602	0.144	-0.033
	(2.89)**	(-0.53)	(8.98)**	(2.90)**	(-0.55)	(8.94)**	(3.05)**	(-0.58)
Price Change * Elasticity β_8				-0.026	0.427	0.405	-0.009	0.412
				(-0.17)	(2.27)*	(1.66)	(-0.06)	(2.19)*
Constant	0.196	0.500	-1.053	0.196	0.498	-1.056	0.509	0.439
	(5.63)**	(12.06)**	(-22.43)**	(5.64)**	(12.02)**	(-22.43)**	(3.47)**	(2.23)*
N	268,242	180,318	173,870	268,242	180,318	173,870	268,242	180,318
Pseudo R^2	0.3%	0.1%	3.9%	0.2%	0.1%	3.9%	0.2%	0.1%
Fixed Effects for Calendar Months	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

* Significant at the 5% level (two tail) ** Significant at the 1% level (two tail)

Note: Models are estimated using Huber-White Standard errors to allow for any lack of independence between observations for the same UPC within the sample.

Table 7: How price elasticity of demand affects the relation of subsequent performance to price changes this year and last at different periods of the fiscal year-end

Dependent Variable	*Positive Change in*					
	Q4 07 EPS Non Y-E	Q4 07 EPS Year End	Q1 08 EPS Non Y-E	Q1 08 EPS Year-End	Stock P Non Y-E	Stock P Year End
	Logistic	Logistic	Logistic	Logistic	Logistic	Logistic
Column #	1	2	3	4	5	6
Price Change β_1	-0.169	-0.178	0.152	-2.360	-1.631	-6.264
	(-0.51)	(-0.19)	(0.31)	(-2.14)*	(-2.78)**	(-2.58)**
Prior Year Price β_4	-0.365	-1.978	0.074	-0.156	0.047	-3.398
	(-1.41)	(-4.23)**	(0.23)	(-0.33)	(0.15)	(-4.71)**
Price Change * Prior Year Price β_6	0.343	-1.964	0.532	2.924	2.798	5.666
	(0.93)	(-1.80)	(0.97)	(2.25)*	(4.04)**	(1.71)
Elasticity β_7	0.236	1.019	-0.018	0.177	3.008	6.343
	(0.72)	(1.85)	(-0.05)	(0.31)	(6.20)**	(5.90)**
Price Change * Elasticity β_8	-0.010	-1.679	0.498	-0.228	-0.785	-2.280
	(-0.04)	(-3.62)**	(1.74)	(-0.47)	(-2.21)*	(-2.48)*
Prior Year Price * Elasticity β_9	-0.107	-1.259	-0.015	-0.482	-2.782	-6.491
	(-0.29)	(-2.00)*	(-0.03)	(-0.73)	(-5.15)**	(-5.32)**
Constant	0.515	-17.023	0.433	18.410	-1.037	2.449
	(2.28)*	(38.02)**	(1.55)*	(42.26)**	(-3.67)**	(3.80)**
N	245,105	17,882	164,824	14,203	158,878	14,564
Pseudo R^2	0.9%	4.4%	0.8%	11.6%	4.7%	[25]50.3%
Fixed Effects for Calendar Months	Yes	Yes	Yes	Yes	Yes	Yes

[25] Increase in explanatory power of regressions is due to material multi-collinearity effects relating to the inclusion of monthly fixed effects in these models. Omission of the monthly fixed effects does not materially change the coefficients of interest in these regressions.