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Asymmetry of Investors' Reactions to Consistency of Good and Bad Earnings News

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Using consistency of past growth rates in firms' annual accounting-based performance measures as a proxy for good and bad economic news, I show that the market overreacts to favourable and unfavourable earnings news. However, bad news plays a stronger role in shaping market expectations than good news. Consistently low-performing firms exhibit stronger and more persistent return reversals over the long horizon compared to consistently high-growth firms across all estimation periods and investment horizons. This result is robust to the inclusion of firm beta, earning surprises and short-term financial momentum. Evidence documented in this study provides general support to recent behavioural models but none of the existing models fully captures the asymmetry of investors' reactions to good and bad earnings news.

1. Introduction

There is a growing literature over the last three decades showing that a firm's expected returns can be predicted from its performance in the past such as stock returns (e.g., DeBondt and Thaler, 1985) and change-in-sales, earnings and cash flow (e.g., Lakonishok, Shleifer, and Vishny, 1994). A number of explanations for this predictability of expected returns is offered, ranging from data mining (e.g., Conrad and Kaul, 1989) to risk exposure (e.g., Fama, 1998) to investors' cognitive biases (e.g., Daniel, Hirshleifer and Subrahmanyam, 1998; Barberis, Shleifer and Vishny, 1998). The investors' sentiment link has gained prominence in recent years (e.g., Shiller, 2003). In recent years, a number of authors (e.g., Barberis et al., 1998; Daniel et al., 1998) have developed theories based on evidence drawn from the psychology literature to explain how investors' cognitive biases affect the formation of asset market prices. According to Barberis et al., (1998) and Daniel et al., (1998), investors overreact to a string of change-in-earnings moving in the same direction for a sufficient period of time. All behavioural models assume implicitly or explicitly that the effect of good and bad past financial performance on investors' expectations is symmetric. However, the psychology literature suggests that negative information has a more profound impact on individuals' decisions and impression formation than positive information (e.g., Ronis and Lipinski, 1985; Singh and Teoh, 2000).

Despite a growing body of behavioural models that attempt to account for market regularities in terms of investors' cognitive biases, little is known about whether investors put a different weight on firms' good and bad past financial

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performance when projecting the future outlooks of these firms. In this study, I use consistency in firms' past accounting measures over various estimation intervals ranging from two to five years as a proxy for good and bad economic news to examine whether bad news plays a greater role in shaping investors' expectations relative to good news. To understand better whether bad earnings news has a greater impact on influencing investors' expectations than good news, I assign my sample firms to one of three groups: top 30 percent, middle 40 percent or bottom 30 percent based on consistency of their past financial performance. Firms ranking in the highest 30 percent in all years comprising the estimation intervals are defined as consistent high-growth firms. Similarly, firms consistently ranking in the lowest 30 percent are classified as consistent low-growth firms. Firms in the middle 40 percent are defined as non-growing firms. Firms ranking in the middle 40 percent or non-growing firms are assumed to be fairly priced for three reasons. First, these firms are likely to be large firms with stable performance measures (e.g., earnings and cash flow) compared to firms in the extreme (top or bottom) 30 percent groups. Second, these firms are less likely to be candidates for the headlines, i.e., favourable or unfavourable media coverage that may affect their market prices. Finally, the financial performance of these firms in the past is not likely to exhibit extreme patterns that may facilitate investor overreaction. Therefore, these firms are used as a reference portfolio against which investors' responsiveness to consistency of bad and good past financial performance is measured.

Using consistency in accounting variables, i.e., earnings and cash flow of publicly listed firms from 1970 to 2007 as a proxy for good and bad news, I provide evidence that shows securities markets in which investors overreact to a string of favourable and unfavourable earnings news. However, bad news has much more influence on formulating investors' expectations than good news. Consistently poor-performing firms have superior size-and-book-adjusted returns than consistently non-growing firms. The difference in returns between these two portfolios grows monotonically as more data of past performance are included in the ranking interval. This evidence remains economically and statistically significant after controlling for firm beta, short-term financial momentum, and earnings surprises. In comparison, consistent high-growth firms earn slightly lower returns than their consistently non-growing counterparts. Overall, results reported in this paper are generally consistent with the predictions of Barberis et al. (1998) and Daniel et al, (1998). However, neither of these two models captures the asymmetrical reaction of market prices to consistency of good and bad financial performance news documented in this study. Barberis et al. (1998) and Daniel et al. (1998) assume that investors' reactions to consistency of good and bad performance are symmetric while my findings suggest that patterns of past performance of low-growth firms appear to carry more weight than those of their high-growth firm cohorts. This is evident from the magnitude and persistence of price reversals experienced by consistent low-growth firms relative to their consistent high-growth firm counterparts.

The remainder of this paper is organized as follows: Section 2 reviews the related literature and presents research hypotheses. Performance variables, the sample used in hypothesis testing, and empirical tests are presented in Section 3. Results are reported and discussed in Section 4. Finally, my conclusions are summarized in Section 5.

2. Related literature review and hypotheses development

2.1 Related literature

Despite several decades of research, the question of whether market prices reflect new information in a timely fashion and without bias remains controversial. A number of studies examining the association between expected returns and firms' accounting-based performance measures such as sales, earnings, and cash flow provides evidence suggesting that investors heavily weight firms' financial results when forecasting the future performance of these firms. This evidence has been attributed to investors' sentiments (e.g., Lakonishok et al., 1994). However, Fama (1998) argues that many of these market anomalies are due either to short-term chances or to risk factors. However, the findings of other empirical studies (e.g., Skinner and Sloan, 2002) suggest that low-growth firms are unlikely to be exposed to greater risks relative to their high-growth stock counterparts. Veronesi (1999) offers a theoretical model based on positive and negative changes in dividends in an attempt to examine whether these shifts explain volatility in market prices. He graphically presents time series changes in dividend and stock return data. From this presentation, he infers that in good times stock prices overreact to unfavourable news (negative changes in dividends). However, his study does not empirically test subsequent price performance to ascertain whether negative shifts in dividends influence market expectations. Chan, Frankel and Kothari (2004) and Alwathainani (2009) study the impact of consistency in a firm's past performance on its expected returns. However, neither of these two studies examines whether consistency of bad earnings and cash flow news plays a greater role in forming investors' expectations compared to good news.

2.2 Hypotheses development

The representative heuristic indicates that people have an inclination to focus on similarity. As a result, the most representative scenarios are heavily weighted while other plausible alternatives are ignored (Tversky and Kahneman, 1974). Barberis et al. (1998) argue that observing a firm experiencing a string of positive *or* negative earnings changes, investors are likely to expect the future earnings performance of the firm will not be very different from its recent past results. According to Daniel et al.'s (1998) theory, exceptionally strong (weak) financial measures should trigger an initial market overreaction and consistency of such performance is likely to create an additional overreaction.

All psychology-based models (e.g., Barberis et al., 1998; Daniel et al., 1998) assume implicitly or explicitly that the effect of good and bad economic news on investors' judgments and decisions is symmetric. However, evidence from the psychology literature indicates that negative information has a much greater impact on people's judgments and decisions than positive information cues. This asymmetry in people's reactions to negative and positive information signals is a result of a cognitive weighting process in which attention-grabbing cues are given more weight than alternatives (e.g., Tversky and Kahneman, 1974; Fiske, 1980). If past performance of consistent low-growth firms is likely to be given a heavier weight relative to that of their consistent high-performer counterparts, mispricing of past losers is expected to be more pronounced than that of prior winners Subsequently, poor performers should experience stronger reversals in share prices compared to their good performer counterparts when investors learn that their prior expectations are not fully warranted. This prediction is presented in the following testable alternative hypothesis.

Hypothesis: *If consistency of bad earnings news has a greater impact on shaping investors' expectations than that of good news, consistent low-growth firms will experience a stronger price reversal than their consistent high-growth firm counterparts.*

3. Performance variables, sample firms and empirical tests

3.1 Firm performance variables and data sources

Historical data for the past years 2 through 5 are used to measure firms' annual financial growth rates. Past growth rates in operating earnings (OEG), earnings before extraordinary items (EBG) and cash flow (CFG) are calculated as per share year-to-year changes in these measures divided by the absolute value of the average per share lagged values of these variables in the past two years for each measure.[1] Then the geometric average for each metric is calculated over the time period covering the measurement horizon.[2] Financial performance data are extracted from the Compustat annual files for the period 1970-2002. To be included in the sample, a firm must have sufficient data to calculate past growth rates in at least one metric of variables considered in this paper as well as monthly stock prices, returns (including delisting returns), and shares outstanding from CRSP monthly files.[3] Because portfolio strategies considered in this study have estimation horizons ranging from two to five years prior to portfolio formation date, the first test period begins in January 1, 1975 for all portfolios.[4] As well, the empirical tests employed in the present study require five-year future stock returns following the portfolio formation date. Therefore, December, 2002 is the last ranking period for all portfolios.

3.2 Consistently of past financial performance measures

Following Alwathainani (2009), I define growth consistency of a firm's past financial measures as the number of years in which the firm maintains an average annual growth rate that places it in the highest 30 percent, middle 40 percent, or lowest 30 percent of all firms in all years included in the ranking intervals.[5] Each year at the end of December, firms are ranked by the average annual financial growth rates over the past two to five years prior to the ranking period. On the basis of this ranking, firms are assigned to 3 growth groups: top 30 percent, middle 40 percent, and bottom 30 percent. Firms consistently ranking in the highest 30 percent are called "*consistent high-growth firms"* and firms ranking in the bottom 30 percent for the same period are classified as "*consistent low-growth firms.*" Similarly, firms consistently ranking in the middle 40 percent are defined as "*consistent non-growing firms*" and they are used as reference portfolios.

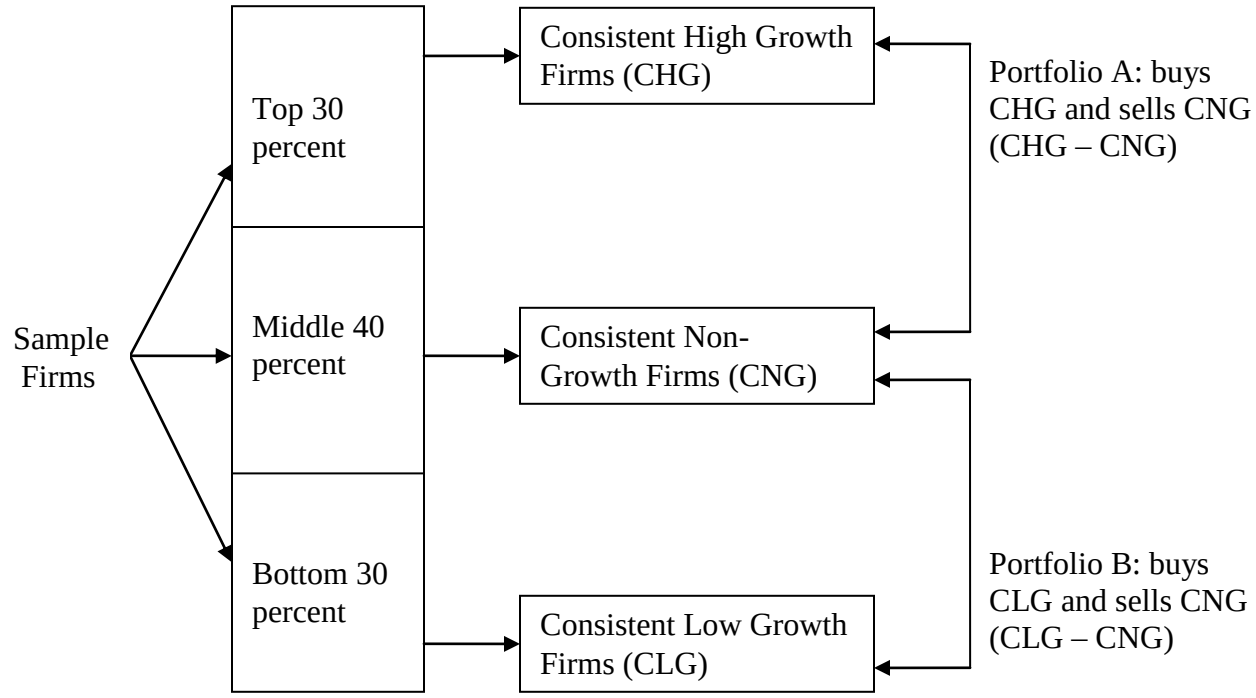
3.3 Empirical tests

3.3.1 Portfolio tests

To test my hypothesis, the three consistent growth groups: consistent high-growth firms (CHG), consistent low-growth firms (CLG), and consistent non-growth firms (CNG) are held for the next five years and their return performances are measured (please see Figure 1). Portfolio A buys CHG and sells CNG and its return is referred to as "CHG – CNG." The return differential between CHG and CNG firms, i.e., CHG – CNG is expected to be negative and distinguishable from zero, particularly for years 2 through 5. As well, Portfolio B goes long on CLG and short on CNG and its return is labeled "CLG – CNG." I expected the return for portfolio B, i.e., "CLG – CNG" to be significantly greater than zero for the same period. If a string of consecutive poor past financial performance has a greater impact on future prices relative to a series of good past performance, the price reversal of consistent low-growth firms will be stronger and more persistent than that of their consistent high-growth firm cohorts.

All portfolios are maintained without rebalancing for the next five years following the formation period. As in Alwathainani (2009), the annual buy-and-hold raw returns and size-and-book-adjusted abnormal returns (SAR) are computed each year (years 1 through 5) to avoid potential serial correlations of stock returns due to overlapping investment horizons. SAR is calculated as the buy-and-hold annual return for firm j minus the mean return for the size-and-book portfolio to which firm j belongs at the beginning of the year. The annual buy-and-hold raw returns and size-and-book adjusted abnormal returns for each portfolio are averaged over the sample period and t-tests are computed as in Fama and MacBeth (1973).

Figure1. Method used to compute portfolio return performance reported in Table 3.



Predictions: (1) Portfolio A: Returns, i.e., CHG – CNG < 0. (2) Portfolio B: Returns, i.e., CLG – CNG > 0.

3.3.2 Regression tests

To assess whether performance consistency of low-growth firms carries a greater weight in shaping investor perceptions about future firm performance than that of high-growth firms, I run three regressions (models 1 through 3; see Table 4). Size-and-book adjusted abnormal returns are the dependent variables in all these regressions. Model 1, which includes OEG as the only independent variable, is estimated each year (years 1 through 5) of the holding period. If investors believe the future performance of the firm will not be very different from its recent past, the regression coefficients on OEG variables are expected to be economically and significantly less than zero.

Models 2 and 3 are estimated annually for years 2 through 5. Model 2 includes OEG, Beta and the size-and-book adjusted abnormal return (SARj1) for firm j in the first year of the holding period. (SARj1) is added to Model 2 to control for the intermediate financial momentum. Model 3 includes Beta and SARj1 as well as CHG (which is equal to 1 if a firm j is a consistently high-growth firm and 0 otherwise) and CLG (which is equal to 1 if a firm j is a consistently low-growth firm and 0 otherwise). Additionally, Model 3 includes CNG (which is equal to 1 if a firm j is a consistently non-growing firm and 0 otherwise) and EGj, the change-in-earnings from year τ-1 to year τ to control for a possible earnings surprise. If

investors heavily weight growth consistency of firms' financial performance in the past, the coefficients of CLG variables are expected to be significantly greater than zero, particularly for years 2 through 5. Similarly, the regression coefficients for CHG will be significantly less than zero. As well, the magnitude of the slope coefficients of CLG will be greater than that of CHG variables if performance patterns of low performers are weighted more in investors' expectations than those of their high performer counterparts. The coefficients from these regressions are averaged over the sample period and t-statistics are calculated from the time series variations of these coefficients as in Fama and MacBeth (1973).

4. Empirical results

4.1 Descriptive statistics

Table 1 provides descriptive statistics of firms with required data. Firm counts are shown in Panel A while the means (medians) of past growth rates in OEG, EBG and CFG are reported in Panel B. The mean correlation coefficients of growth rates, book-to-market ratios (B/M), market betas (Betas) and market capitalizations (Size) are provided in Panel C, where Spearman (Pearson) correlation coefficients are in the upper (lower) diagonal. As shown in Panel C, OEG is highly correlated with both EBG and CFG ($r = 0.90$, $p < 0.0001$ and $r = 0.88$, $p < 0.0001$, respectively). Descriptive statistics of firms sorted by consistency in their accounting-based financial measures are presented in Table 2.[6] Consistently non-growth firms (CNG) are twice as large in terms of market capitalizations as both consistently low-growth firms (CLG) and consistently high-growth firms (CHG). As well, the number of stocks in both CHG and CLG portfolios is roughly equal across all estimation horizons (see Panels A and B). However, the CHG firms have slightly larger market values and lower B/M ratios relative to firms in CLG portfolios. Further, as shown in Table 2, the standard deviations (STD) of growth rates in OEG, EBG, and CFG for CHG and CLG firms are twice as much as those of CNG firms, suggesting that earnings and cash flow of CNG firms are more stable and predictable than those of their CHG and CLG firm counterparts.

Table 1

Descriptive Statistics and Correlations
Panel A: Firms with required data

Estimation Intervals	Statistics	Performance Measures		
		OEG	EBG	CFG
Two Years	Firms	2821	2768	2815
	Beta	1.01	1.00	1.01
	B/M	0.86	0.87	0.88
	Size	1281	1314	1298
Three Years	Firms	2534	2488	2528
	Beta	1.00	1.01	1.00
	B/M	0.88	0.88	0.86
	Size	1352	1388	1350
Five Years	Firms	2164	2198	2172
	Beta	1.01	1.01	1.00
	B/M	0.87	0.86	0.88
	Size	1268	1281	1259

Panel B: Descriptive Statistics

Variables	Mean	Std. Dev.	Median	Min	Max
OEG	0.06	0.57	0.03	-13.18	14.05
EBG	0.04	0.68	0.02	-11.29	16.24
CFG	0.06	0.61	0.03	-11.92	13.61
BETA	1.00	0.33	0.94	-0.28	1.41
B/M	0.88	0.76	0.70	0.00	19.38

Panel C: Spearman (Pearson) Correlations among Performance Measures

Variables	Variables					
	OEG	**EBG**	**CFG**	**BETA**	**B/M**	**SIZE**
OEG		0.90	0.88	-0.47	-0.51	0.62
EBG	0.85		0.86	-0.35	-0.43	0.61
CFG	0.82	0.85		-0.53	-0.37	0.55
BETA	-0.38	-0.44	-0.52		0.53	-0.17
B/M	-0.46	-0.42	-0.36	0.51		-0.76
SIZE	0.67	0.69	0.62	-0.50	-0.60	

Spearman (Pearson) correlations are in the upper-right (lower-left) diagonal of the Panel.

Variable Definitions:

OEG = the geometric growth rate average in operating earnings over the 5-year estimation period before portfolio formation.

EBG = the geometric growth rate average in earnings before extraordinary items and discontinued operations over the 5-year estimation period before portfolio formation.

CFG = the geometric growth rate average in cash over the 5-year estimation period before portfolio formation. It is calculated as the earnings before extraordinary items and discounted operations plus depreciation and amortization expense.

B/M = the book-to-market ratio at the end of the fiscal year prior to portfolio formation date.

Beta = a firm's market beta. It is computed using monthly returns over the past 60 months, with a minimum of 36 months, prior to portfolio formation date.

Size = market value of equity capital in millions at the portfolio formation date t. It is computed as the number of shares outstanding multiplied by the stock prices at portfolio formation date.

Table 2

Descriptive Statistics for Consistent Growth Portfolios
Panel A: Firms Sorted by Growth Consistency for the Prior Two Years

Portfolio	Statistics	Performance Measures		
		OEG	**EBG**	**CFG**
CLG	**Firms**	348	336	341
	Beta	1.04	1.02	1.03
	BM	1.02	1.01	1.01
	Size	712	730	738
	STD	0.66	0.75	0.69
CNG	**Firms**	457	428	451
	Beta	0.95	0.94	0.96
	BM	0.88	0.87	0.88
	Size	2420	2516	2435
	STD	0.31	0.36	0.34
CHG	**Firms**	362	349	356
	Beta	1.01	1.02	1.02
	BM	0.82	0.82	0.81
	Size	974	988	983
	STD	0.68	0.73	0.70

Panel B: Firms Sorted by Growth Consistency for Prior Five Years

Portfolio	Statistics	Performance Measures		
		OEG	EBG	CFG
CLG	Firms	118	108	115
	Beta	1.08	1.09	1.09
	BM	1.09	1.10	1.10
	Size	465	476	485
	STD	0.68	0.76	0.70
CNG	Firms	140	132	136
	Beta	0.94	0.95	0.96
	BM	0.87	0.89	0.88
	Size	2278	2390	2364
	STD	0.32	0.37	0.34
CHG	Firms	126	116	123
	Beta	1.04	1.03	1.03
	BM	0.72	0.74	0.71
	Size	1291	1260	1278
	STD	0.67	0.74	0.68

At the end of December of each year from 1974 to 2002, all firms with required data are sorted by their financial growth rates over the past two to five years and assigned into 3 categories: highest 30 percent, middle 40 percent, and lowest 30 percent. Firms ranking in the top (bottom) 30 percent based on their average annual financial growth rates in all years constituting the entire estimation horizons are defined as "consistent high (low) growth firms." Similarly, firms consistently ranking in the middle 40 percent in all years included in estimation intervals are classified as "consistent non-growing firms."
Variable Definitions: Firms = number of firms in each portfolio. CLG = consistent low-growth firms. CNG = consistent non-growing firms. CHG = consistent high-growth firms. STD = standard deviation.

4.2 Portfolio test results

The return performance for consistent low-growth, high-growth and non-growth firms is reported in Table 3. These results are for portfolios constructed based on consistency in operating earnings (OEG). The results for EBG and CFG portfolios are the same as those of OEG portfolios and they are not reported for simplicity of presentation. Panel A contains the return performance for the portfolios constructed based on the growth consistency in the past two years of annual performance data, while returns for portfolios formed based on growth consistency in the past five years are displayed in Panel B.[7] The difference in returns between consistent high-growth portfolios (CHG) and consistent non-growth firms (CNG), i.e., the CHG – CNG returns, for each estimation interval is provided in the second last rows of Panels A and B. The return differential between consistent low-growth firms (CLG) and CNG, that is, the CLG – CNG returns, is presented in the last rows of Panel A and Panel B. As well, Table 3 provides five buy-and-hold annual returns (R1 through R5) and size-and-book adjusted abnormal returns (SAR1 through SAR5) are computed for each ranking period. The average buy-and-hold annual returns (AR) and average size-and-book adjusted abnormal returns (ASAR) are calculated over the holding period (years 1 through 5).

As shown in Table 3, consistently low-growth portfolios (CLG) earn an average 5-year buy-and-hold annual raw return that falls between 18.36 for the two-year estimation interval and 20.51 percent for the five-year ranking period. Firms in the reference portfolio (CNG) provide an average return between 15.62 and 15.80 percent for the same period. Similarly, consistently high-growth (CHG) firms have an average buy-and-hold annual return ranging from 14.77 percent to 13.76 percent as shown in Panels A and B under the Average/AR column, respectively. The average of size-and-book adjusted abnormal returns exhibits a similar pattern. Results presented in Table 3 indicate that the CLG firms outperform firms in the CNG portfolios across all ranking intervals and investment periods with return differentials, the CLG – CNG returns, that are positive and statistically and economically significant. As displayed under the Average/AR column, the gap in returns between CLG and CNG firms, that is, the CLG – CNG return, varies from 2.74 percent (t = 3.82) to 4.71 percent (t = 5.65). The return spread between these two group increases monotonically as an additional year of growth consistency is included in the ranking horizons.

Firms in the CHG portfolios have marginally lower rates of returns relative to their CNG firm cohorts across all test horizons and estimation intervals. The return spread between CHG and CNG firms, i.e., the CHG – CNG return, tends to increase as the length of the estimation interval increases. However, the CHG – CNG return is not statistically distinguished from zero and its magnitude is much weaker than that of the CLG – CNG return. According to Barberis et al. (1998), a firm with a string of earnings changes drifting in the same trajectory is likely to lead investors to believe that the future earnings performance of this firm is similar to its recent past. Daniel et al. (1998) argue that overly confident investors overreact to patterns of past performance and consistency in such patterns should invite an additional overreaction. Eventually, this overreaction will result in a long run reversal in share prices.

Results presented in Table 3 show a strong price reversal. This price reversal is more pronounced and persistent for firms with consistent low financial growth rates in the past relative to consistent high-growth firms. This evidence is broadly consistent with the predictions of Barberis et al. (1998) and Daniel et al., (1998). However, neither of these two models captures the asymmetry of investors' responses to consistency of good and bad earnings news reported in this study. Both Daniel et al. (1998) and Barberis et al. (1998) assume implicitly or explicitly that the market reactions to good and bad economic news are symmetric while a closer look at evidence reported in Table 3 suggests that negative financial performance information has a much greater impact on investors' expectations than positive information signals. Investors appear to put a heavier weight on consistency in past financial measures of low-growth firms than that of good performing firms when forecasting the likelihood of future performance of these firms. This asymmetric responsiveness to past good and bad performance data leads to a stronger reversal in share prices of consistent low-growth firms compared to consistently high performing firms. Balsara et al. (2006) argue that

negative information about prior losers has a greater impact on investors' perceptions than positive information about past winners because the decline of losers is expected to last much longer than the gains of winners.

4.3 Regression test results

The annual regression estimates for OEG portfolios are presented in Table 4. Results for EBG and CFG portfolios are basically the same as those of OEG portfolios and they are omitted for simplicity of presentation. The results, displayed in Table 4 are for the third post-ranking year.[8] Model 2 indicates that the average annual regressions for OEG range from -0.052 (t = -4.11) to -0.071 (t = - 3.39) as shown in Panels A and B, respectively. The estimated regression coefficients of OEG indicate that firms' past growth rates can predict future stock price movements. The regression results of Model 3 show that the coefficients on CLG variables are all positive and economically and statistically significant varying from 0.044 (t = 3.22) to 0.057 (t = 3.41). Similarly, the regression coefficients for CHG are negative, but not statistically different from zero. The average regression coefficients for CNG variables are positive, but generally not statistically distinguishable from zero as well. This evidence affirms the findings reported in Table 3 indicating that performance consistency of good and bad performers is weighted differently. More specifically, negative economic news has stronger influence on investors' expectations than positive economic cues. This asymmetry in investor reaction to information about good and bad performers subsequently results in a greater price reversal for low-growth firms relative to that of their high-growth firm counterparts. This evidence is robust to the inclusion of firm beta, earnings surprise (EG) and short-term financial momentum (SAR1).[9]

Table 3

Return Performance for Consistent Portfolios

Panel A: Portfolios Ranked by Prior Two Year Consistency in OEG

Portfolio	Year 1		Year 2		Year 3		Year 4		Year 5		Average	
	R1	**SAR1**	**R2**	**SAR2**	**R3**	**SAR3**	**R4**	**SAR4**	**R5**	**SAR5**	**AR**	**ASAR**
CLG	16.02	2.16	18.38	3.42	19.08	3.87	19.63	3.81	18.67	3.35	18.36	3.32
	3.42	**2.61**	**4.20**	**2.56**	**4.36**	**2.88**	**4.60**	**3.08**	**3.32**	**2.73**	**10.81**	**5.16**
CNG	15.34	1.18	15.52	1.34	15.68	1.51	15.82	1.63	15.74	1.54	15.62	1.44
	3.27	**0.82**	**3.81**	**1.21**	**3.79**	**1.13**	**3.86**	**1.47**	**3.71**	**1.84**	**11.21**	**2.62**
CHG	14.27	0.10	14.21	0.12	14.54	0.36	15.01	0.94	15.82	1.60	14.77	0.62
	3.53	**0.06**	**3.41**	**0.11**	**3.45**	**0.27**	**3.51**	**0.74**	**3.64**	**1.04**	**10.09**	**1.57**
CHG–	-1.07	-1.08	-1.31	-1.22	-1.14	-1.15	-0.81	-0.69	0.08	0.06	-0.85	-0.82
CNG	**-0.79**	**-0.76**	**-1.03**	**-0.91**	**-0.85**	**-0.82**	**-0.59**	**-0.44**	**0.05**	**0.06**	**-1.63**	**-1.41**
CLG –	*0.68*	*0.98*	*2.86*	*2.08*	*3.40*	*2.36*	*3.81*	*2.18*	*2.93*	*1.81*	*2.74*	*1.88*
CNG	**0.41**	**0.67**	**2.06**	**1.76**	**2.59**	**1.96**	**2.48**	**1.61**	**2.05**	**1.49**	**3.82**	**2.49**

Panel B: Portfolios Ranked by Prior Five Year Consistency in OEG

Portfolio	Year 1		Year 2		Year 3		Year 4		Year 5		Average	
	R1	**SAR1**	**R2**	**SAR2**	**R3**	**SAR3**	**R4**	**SAR4**	**R5**	**SAR5**	**AR**	**ASAR**
CLG	19.77	4.50	20.83	5.49	20.76	5.52	20.88	5.41	20.31	4.66	20.51	5.12
	3.71	**2.84**	**4.72**	**2.89**	**4.51**	**2.96**	**4.39**	**2.52**	**4.13**	**2.30**	**11.65**	**5.82**
CNG	16.03	1.21	15.61	1.54	15.74	1.66	15.78	1.67	15.85	1.71	15.80	1.56
	3.75	**0.79**	**3.65**	**1.40**	**3.60**	**1.32**	**3.73**	**1.41**	**3.55**	**1.52**	**12.87**	**2.51**
CHG	13.87	-0.23	13.41	-0.57	13.60	-0.37	13.76	0.21	14.17	0.38	13.76	-0.12
	4.31	**0.08**	**3.52**	**-0.52**	**3.31**	**-0.29**	**3.34**	**0.62**	**3.40**	**0.73**	**9.84**	**-0.64**
CHG–	-2.16	-1.44	-2.20	-2.11	-2.14	-2.03	-2.02	-1.46	-1.21	-1.33	-2.04	-1.68
CNG	**-1.59**	**-0.95**	**-1.79**	**-1.68**	**-1.63**	**-1.38**	**-1.29**	**-0.84**	**-0.87**	**-0.79**	**-2.57**	**-2.13**
CLG –	*3.74*	*3.29*	*5.22*	*3.95*	*5.02*	*3.86*	*5.10*	*3.74*	*4.46*	*2.95*	*4.71*	*3.56*
CNG	**2.15**	**2.07**	**2.87**	**2.19**	**2.65**	**2.35**	**2.76**	**2.10**	**2.28**	**1.78**	**5.65**	**3.60**

Return results reported in this table are for portfolios constructed based on consistency in OEG (see Table 2 for portfolio construction procedures). All portfolios shown in this table are held without rebalancing for five years following the ranking period. Annual returns (R1 through R5) and size-and-book adjusted abnormal returns (SAR1 through SAR5) are computed each year of the holding horizon (year 1 through year 5) as the geometric average monthly returns. SAR is the annual raw returns for a firm j less the average size-and-book returns of a portfolio to which a firm j belongs at the beginning of the holding period. As well, average annual returns (AR) and average size-and-book adjusted abnormal returns (ASAR) are calculated for years 1 through 5 over the test period. The CHG – CNG and CLG – CNG in Panel A and Panel B refer to the return differentials between CHG (consistent high-growth portfolios) and CNG (consistent non-growth portfolios) and CLG (consistent low-growth portfolios) and CNG, respectively. Returns are computed each year and averaged over the sample period and the t-statistics are calculated as in Fama-MacBeth (1973). The t-statistics are reported in bold.

Table 4

Regression Results for Portfolios Based on Consistency in OEG

Panel A: Parameter Estimates Based on the Prior Two Year Consistency in OEG

Regression Models	Parameter Estimates								
	Int.	**OEG**	**Beta**	**CHG**	**CLG**	**CNG**	**EG**	**SAR1**	**Adj. R^2**
Model 1	0.062	-0.048							0.046
	4.21	**-3.82**							
Model 2	0.021	-0.052	0.034					-0.053	0.068
	0.82	**-4.11**	**1.52**					**-3.86**	
Model 3	0.019		0.036	-0.021	0.044	0.018	0.022	-0.057	0.092
	0.42		**1.61**	**-1.28**	**3.22**	**1.15**	**1.48**	**-3.95**	

Panel B: Parameter Estimates Based on the Prior Five Year Consistency in OEG

Regression Models	Parameter Estimates								
	Int.	**OEG**	**Beta**	**CHG**	**CLG**	**CNG**	**EG**	**SAR1**	**Adj. R^2**
Model 1	0.074	-0.065							0.041
	3.60	**-3.28**							
Model 2	0.018	-0.071	0.033					-0.034	0.063
	0.44	**-3.39**	**1.42**					**-3.28**	
Model 3	0.016		0.032	-0.024	0.057	0.019	0.018	-0.038	0.087
	0.46		**1.36**	**-1.66**	**3.41**	**1.21**	**1.34**	**-3.46**	

These regressions (models 1 through 3) in which the annual size-and-book adjusted abnormal returns (SAR) are the dependent variables are run separately each year. At the end of each post-formation year (years 1 through 5), I estimate regression model 1 while models 2 and 3 are estimated annually in years 2 through 5. Results reported in this table are for year 3 following the ranking period. [10]

Model 1: $SAR_{j\tau} = \beta_0 + \beta_1 OEG_{jt} + \mu_{j\tau}$ (1)

Model 2: $SAR_{j\tau} = \beta_0 + \beta_1 OEG_{jt} + \beta_2 Beta_{j\tau-1} + \beta_7 SAR_{j1} + \mu_{j\tau}$ (2)

Model 3: $SAR_{j\tau} = \beta_0 + \beta_2 Beta_{j\tau-1} + \beta_3 CHG + \beta_4 CLG + \beta_5 CNG + \beta_6 EG_{j\tau-1} + \beta_7 SAR_{j1} + \mu_{j\tau}$ (3)

$SAR_{j\tau}$ = the size-and-book adjusted abnormal return for firm j in each of the post-formation year (years 1 through 5), where τ varies from one to five years after the ranking horizons.

OEG_{jt} = the geometric growth rate average in OEG for various estimation intervals, ranging from two to five years prior to portfolio formation date t.

$Beta_{j\tau-1}$ = Market beta for firm j. It is computed using monthly stock returns over the prior 60 months (with a minimum of 36 months).

CHG = A dummy variable that equals 1 if a firm is consistent high growth, or 0 otherwise.

CLG = A dummy variable that equals 1 if a firm is consistent low growth, or 0 otherwise.

CNG = A dummy variable that equals 1 if a firm is consistent non-growth, or 0 otherwise.

$EG_{j\tau-1}$ = the change-in-earnings for firm j from year τ-1 to year τ. It is used as a crude measure to control for earnings surprise.

SAR_{j1} = the size-and-book adjusted abnormal return for firm j in the first post-formation year (the financial momentum return).

Adj. R^2 = the average –R-square from the annual regressions.

The average coefficients and t-statistics (in bold) presented in this table are based on annual regressions for the third post-ranking year over the sample period using the Fama-MacBeth (1973) method.

5. Conclusions

I use consistency in firms' historical accounting-based performance variables for a period varying from two to five years as a proxy for good and bad economic news to examine whether bad news plays a greater role in shaping market expectations than good news. My findings show that investors overreact to consistency of firms' historical financial performance measures. However, this overreaction is more pronounced and persistent for consistent poor performers relative to good performers. This is evident from the magnitude and persistence of the long-horizon reversal in market prices of consistent low-growth firms compared to that of their consistent high-growth counterparts. This evidence has very important implications for our understanding of the price discovery process, how investors react to consistency of good and bad economic news and psychology-based theories. Consistently low-growing firms have higher size-and-book adjusted returns than their non-growing firm counterparts. This return gap

between these two groups increases uniformly as more years of past consistency data are included in the estimation intervals. This evidence remains economically and statistically significant after controlling for firm beta, short-term financial momentum and earnings surprises. As well, consistent high performers slightly underperform their consistently non-growing firm counterparts. However, the magnitude of their return differential is much weaker than that observed in consistently low-performing portfolios.

My results provide general support for the behavioural models of Barberis et al. (1998) and Daniel et al. (1998). These two theories suggest that consistency of firms' prior performance leads investors to believe that the future prospects of these firms is unlikely to be different than their recent past. This causes share prices of good (bad) performers to be overpriced (underpriced) and subsequently market prices of these firms will return to their underlying values, resulting in long run reversals in returns. However, none of these models capture the asymmetrical reactions of investors to consistency of good and bad economic news. The models of Barberis et al. (1998) and Daniel et al. (1998) are predicated on the assumption that investors' responses to consistency of good and bad economic news are symmetric. However, my findings show that investors appear to overweight patterns of prior financial performance of low-growth firms relative to those of their high-growth firm counterparts when projecting the future outlooks of these firms. Balsara et al. (2006) argue that investors believe that the poor performance of prior losers will persist for a much longer horizon than the good performance of their winner cohorts. This asymmetry in investors' responsiveness to good and bad economic news should manifest itself in a more pronounced future price reversal for consistent low-growth firms compared to consistent high performers.

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End Notes

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[1] Operating earnings are defined as the annual operating earnings minus depreciation and amortization expense while earnings before extraordinary items are defined as the annual earnings before extraordinary and discontinued operations. Similarly, cash flow is defined as the annual earnings before extraordinary items and discontinued operations plus depreciation and amortization expense.

[2] Growth rates for each measure are winsorized to the 99 percent and 1 percent values to mitigate the influence of outlier observations.

[3] If a firm is delisted after the ranking date, its delisting return from the CRSP delisting return file is used if it is available. This approach is similar to that used by Chan (2003).

[4] All empirical tests employed in this study are repeated using holding horizons beginning on April 1 instead of January 1 and similar results are obtained.
[5] Chan et al. (2004) use the median to classify their sample as consistent high-growth and consistent low-growth firms.
[6] Unreported characteristics of firms in the 3rd and 4th measurement periods show the same patterns.
[7] Untabulated returns for portfolios based on the 3rd and 4th estimation intervals show the same patterns as those of the reported portfolios.
[8] I report only the regression results for year 3 because they represent the midpoint of the post-ranking periods. Unreported regression results for the remaining holding periods show the same patterns as those of the third year. In unreported analysis, I include industrial and year dummies as control variables and my results remain the same.
[9] Tests presented in Tables 3 and 4 are repeated using only the largest 50 percent of stocks based on their market values of equity capital and the results show that the findings of this study remain unchanged. As well, I repeat my analysis in January and outside of January and my key findings remain the same.
[10] The regression result for year 3 is reported because it represents the midpoint of the post-ranking period. Unreported regression results for the remaining periods exhibit the same patterns as that of year 3.