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Returns to buying upward revision and selling downward revision: Some preliminary evidence from Canada

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Returns to buying upward revision and selling downward revision: Some preliminary evidence from Canada

Abstract

Purpose – The purpose of this paper is to investigate the role of earnings forecast revisions by equity analysts in predicting Canadian stock returns.

Design/methodology/approach - the sample covers 420 Canadian firms over the period 1998-2009. It analyses investors' reactions to 27,271 upward revisions and 32,005 downward revisions of analysts' forecast for Canadian quoted companies. To test whether analysts' earnings forecast revisions have impacts on stock return continuation, forecast revision portfolios similar to Jegadeesh and Titman (2001) are constructed. The paper analyses the returns gained from a trading strategy based on buying the strong upward revisions portfolio and short selling the strong downward revisions portfolio. It also separates the sample into upward and downward revisions

Findings –

a) new information in the form of analyst forecast revisions is not impounded efficiently into stock prices. Significant returns persist for a trading strategy that buys stocks with recent upward revisions and short sells stocks with recent downward revisions.

b) good news is impounded into stock prices more slowly than bad news

c) post-earnings forecast revisions drift is negatively related to analyst coverage. The effect is particularly strong for stocks with greatest number of upward revisions

d) the introduction of the better disclosure standards has made the Canadian stock market more efficient.

Originality/value – This paper adds to the limited evidence on the effect of analyst forecast revisions on the returns of Canadian stocks. It sheds light on the importance of analysts'

earnings forecast information and offers support for the investor conservatism and information diffusion hypotheses. It also shows how policy can improve market efficiency.
Keywords - Analyst forecast revisions; stock returns; under-reaction; investor behavior.

1. INTRODUCTION

The efficient market model assumes that new information is immediately impounded into a stock's price. One source of new information is analysts forecast revisions. It is assumed that analysts have an information advantage about firms' future earnings prospects compared with individual investors and therefore analysts' earnings forecast revisions act as an information intermediary between firms and investors. It is believed that analysts have better knowledge of a firm's fundamental information and that this knowledge therefore reduces the information asymmetry between firms and investors. Studies have pointed out that analysts' earnings forecasts provide investors with valuable information, for example, Asquith et al. (2005) found that analysts' reports provide new information and that the market reacts to earnings forecast revisions, recommendation revisions, and price target revisions. Franket et al. (2006) also find bad news forecast revisions have a greater impact on price than positive forecast revisions.

A number of behavioural theories have been proposed that explain the existence of these continuing abnormal returns in terms of biases in the way investors interpret new information. This paper evaluates two of them: first, based on Barberis et al. (1998), the investor conservatism theory proposes that investors are slow to change their views in the light of new information; and second, Hong et al. (2000) who argue that the speed of information diffusion explains continuing abnormal returns.

Barberis et al (1998) develop a model based on Griffin and Tversky (1992) which has two main elements – the strength and weight of information. When faced with forecast revisions, investors place too much emphasis on the strength of the revisions and too little to their weight. Barberis et al. (1998) refer to this as investor conservatism, something that

will lead to an under-reaction to new information. Thus, new information such as analyst forecast revisions are slowly incorporated into stock prices because investors do not react appropriately to the new information. Daniel et al. (1998 and 2001) propose that this may be due to investors being overconfident in their own private information, something which leads them to play down the importance of the forecast revisions. Therefore new information will only be partially incorporated into stock prices. For example analysts' forecast revisions are not fully impounded into the stock price and so abnormal returns can be earned in the future. Barberis et al. (1998) therefore argue that this conservatism is due to an investor's failure to adequately update their beliefs.

A number of studies have investigated the extent to which information in analysts' forecast revisions are efficiently impounded into US stock prices. Givoly and Lakonishok (1980) find analysts' earnings forecast revisions provide valuable information to investors and report the existence of a post-forecast revision drift. Stickel (1991) and Chan et al. (1996) find that returns persist for firms whose consensus forecasts have been recently revised upward. Barberis et al. (1998) find that investors do not always react in proper proportion to new information and that this conservatism bias leads to individuals playing down the importance of new information when updating expectations. Elgers et al. (2001) offer support for the argument that the market's earnings expectations may fail to incorporate some portion of the value-relevant information in analysts' earnings forecasts. Gleason and Lee (2003) also find abnormal returns present after analysts forecast revisions. Zhang (2006) reports that investors underreact to new information and that good news will be associated with higher future returns. Frankel et al. (2006) report that bad news forecast revisions have a greater effect on stock prices than good news forecast revisions. Peng and

Xiong (2006) found that investors pay more attention to market- and sector-wide information rather than firm-specific factors. Dellavigna and Pollet (2009) reported that the post-earnings announcement drift is caused by an under-reaction to information. Hirshleifer et al. (2011) also find that investors neglect information about a firm's future earnings which further leads to stock price under-reactions to earnings surprises announcements. Hui and Yeung (2013) report that investors under-react to analysts forecast revisions that contain industry-wide news.

Other studies have analysed the efficiency with which non-US stock markets reacted to new information relating to analyst forecast revisions. Dische (2002) shows that stock prices on the German stock market under-react to analysts' forecast revisions. Liu et al (2003) find that the UK stock market is inefficient when reacting to analyst forecast revisions. Doukas and McKnight (2005) and McKnight and Todd (2006) find that European stocks under-reaction to forecast revisions.

We therefore propose

Hypothesis 1: consistent with the investor conservatism theory, we expect new information not to be fully incorporated into stock prices in the short run

Hong et al. (2000) propose that the speed of information diffusion can be proxied by the extent of analyst cover. The greater the number of analysts covering a firm, the faster will be the information diffusion. Similarly, the fewer the analysts covering a firm, the slower will be the information diffusion. Forecast revisions will therefore have less of an effect for low analyst covered firms because investors will be less aware of the new forecasts. Analyst coverage can therefore reduce information asymmetry among investors (Bowen et al., 2008) and lead to an increase in stock price informativeness. Thus, more

informative prices, with respect to future earnings, lead to a faster incorporation of common information into prices (Brennan et al., 1993; Ayers and Freeman, 2003). Consistent with this, Hong et al. (2000) find that information is incorporated into stock prices more slowly in low analyst coverage stocks. Doukas and McKnight (2005) find a significant return continuation effect in low analyst coverage stocks, a finding that supports the information diffusion hypothesis**.** In contrast, McKnight and Todd and Hou et al. (2012) find no evidence of slow information diffusion for European and Pacific Region countries respectively. In addition, Dou et al. (2015) find no evidence that analyst cover affects post earnings announcement drift.

Although the evidence is mixed, we hypothesise:

Hypothesis 2: analyst cover will affect the speed with which new information is incorporated into stock prices.

In addition, prior research has also shown the importance of firm characteristics such as size, book-to-market ratio, and analyst coverage as determinants of stock abnormal returns. Investors have easier access to firm-specific information for large firms, value stocks, and stocks covered by large numbers of analysts. The importance of the size anomaly is reported by Jegadeesh and Titman (2001), Hong et al. (2000), and Hameed and Kusnadi (2002) who find that the stock return continuation effect is stronger in small firms and tends to decrease as firm size increases. Fama and French (1998) find evidence of a value premium for high book-to-market stocks.

Given the dearth of research with regard to the impact new information has on Canadian stock prices, this study investigates investors' reactions to analysts' earnings forecast revisions in a Canadian setting. It therefore provides an out of sample test of the

Jegadeesh and Titman (2001) portfolio revisions approach. Canada's stock market is enormously important to world investors. To make it a preferred investment setting, the Canadian stock market has undergone more change in the past decade than in the previous century. Through a combination of regulatory change and the opening of the industry to competition where multiple markets are all competing to trade the same stocks (especially, the emergence of electronic trading), Canada's stock market is somewhat complex.

Like other developed markets, Canada has been challenging traditional participants such as traders and investors with regard to public policy issues in an effort to reduce its complexity. Although the stock market is fragmented, it is less complicated than the United States. For example, where Canada does have high-frequency trading it is not as problematic as it is in the United States. This is because of the way Canada addresses public policy issues. Canada's regulators have set internationally recognized standards to facilitate the enforcement of their policies.

Similar to the U.S implemented Regulation Fair Disclosure (FD) to eliminate selective disclosure to a few privileged interested parties since October 23, 2000, the Canadian Securities Administrators (CSA) also adopted a new disclosure policy (National Policy 51-201) on July 12, 2002. It sets out timely disclosure obligations and disclosure practices for reporting companies and best disclosure practices that are adopted by companies to help manage their disclosure obligations. Puri (2012) asserted that Canadian capital markets are closely integrated with the United States and have generally followed its lead on major legislative reforms. Investor perceptions about the disclosure practices and enforcement effectiveness in Canada should, therefore, be similar to those found in the United States.

Nevertheless, with the landscape ever changing and the enforcement of rules

becoming even more critical, Canada has shown a strong commitment to having a sound reputation for a visible stock market and it is doing its best to regulate where necessary to ensure price transparency. The likeness of disclosure practices between countries offer Canada as a preferred investment setting for both retail and institutional investors. As a result of the above arguments, it is believed that this study can increase our understanding of the Canadian capital market and provide a better understanding of how individual investors adjust their beliefs given a change in analysts' earnings forecasts information.

Our contributions to the literature are as follows. First, we study the relationship between analyst forecast revisions and post-forecast price drift by forming a trading strategy that buys stocks with the upward revisions and short sells stocks with the downward revisions. There is limited evidence of the factors influencing the impact on new information on the efficiency of the Canadian stock market. One study, Chudek et al. (2011), found evidence that Canadian stock prices tend to drift in the direction of an earnings surprise, defined as new information relative to the consensus analyst forecast. However, they did not look at the effect of analyst forecast revisions, something which this paper does. Second, we test two theories, Barberis et al's (1998) investor conservatism model and Hong et al.'s (2000) speed of information diffusion in relation to Canada. Third, we incorporate the 2008 recession into the analysis to study its potential impact on the post-forecast revision price drift. Fourth, we assess the impact of the introduction of a policy that was designed to improve disclosure on price drift.

Our results show that new information is not impounded efficiently into stock prices on the Canadian Stock market. Overall, we find support for the findings of Barberis et al. (1998) Bloomfield et al. (2000) and Zhang (2006), who argue that investors do not always

react in proper proportion to new information. We find that investors tend to underreact to forecast revisions news which leads to returns continuing over a one month holding period. However, this result holds only for good news. In contrast, there is evidence that bad news is efficiently incorporated into stock prices We also find that low analyst coverage increases abnormal returns for both negative and positive revision counts portfolios, thus supporting the information diffusion hypothesis of Hong et al. (2000). This study therefore finds that positive information contained in analysts' earnings forecast revisions has a short-term investment value.

Moreover, we find that firm characteristics are important determinants of the post-forecast revision price drift. The results also indicate that post-earnings forecast revisions drift is positively related to book-to-market which suggests that investors tend to underreact to value stocks compared to their reaction to revisions for growth stocks. We also find reduced abnormal stock returns after the new disclosure standards were put in place suggesting that the policy has been effective in increasing the market's efficiency. Finally, we report that the financial crisis reduced stock returns, particularly in relation to positive revisions, further showing how the market seems to be less willing to accept positive news.

The remainder of this paper is organized as follows. Section 2 presents the data and sample. Section 3 describes the portfolio strategy. Section 4 reports the results of the regression analysis and Conclusions are presented in Section 5.

2. **DATA AND SAMPLE**

The data for the Canadian firms were collected from two sources. The primary data were collected from the Institutional Brokerage Estimate System (I/B/E/S) International Summary database. The sample consists of monthly stock returns, the number of shares

outstanding, the number of analysts covering a firm and the number of upward and downward revisions. Book to market equity value and other financial data are from DataStream. The sample period runs from July 1998 to June 2009. We include all firms from the dataset in our analyses to minimize survivorship bias. However, each stock must have available data on market capitalization at the beginning of each month with a minimum 12 months returns history. Our net sample is 420 Canadian firms for the testing period.

Table 1 reports the year-by-year descriptive statistics for the whole testing period. The number of covered firms steadily increased from 134 in 1998 to 363 in 2008, but fell to 340 in 2009. The total number of firms covered is 420 over the testing period for this study. The average number of analysts covering each firm is 6.2. We also observe that the average number of analysts peaks in 2001 at 7.54 and falls to a low of 5 in 2008.

Table 1 also shows analysts issued more downward earnings forecasts than upward earnings forecasts over the period. This implies that analysts are more pessimistic about firms' future earnings during the period under analysis. When the data are examined by year we find analysts are more optimistic in the first three years but more pessimistic in each of the following nine years. The increased pessimism since 2001 may initially be explained by the financial markets fall after the 2001 terrorist attacks in the United States. The year which experienced that largest difference between upwards and downwards was 2008, the year of the financial crisis following the collapse of Lehman Brothers in mid-September 2008.

Table 1 also reports mean and median size and book-to-market ratios for our sample firms. The average firm size is 3.2 billion Canadian dollars and book-to-market ratio is

0.76. We also find that the median firm size continuously increased until 2002 and then starts to decline, and the median firm size reaches the lower point in 2009; in contrast, their book-to-market ratio peaks in 2009.

[Table 1 about here]

3. PORTFOLIO STRATEGIES

To test whether analysts' earnings forecast revisions affect stock return continuation, we construct forecast revision portfolios similar to Jegadeesh and Titman (2001). As McKnight and Todd (2006) and Zhang (2006) we use a revision count variable to show the extent to which analysts forecast revisions move in the same direction, or the extent to which they differ in terms of the direction of the forecast. It therefore identifies the degree of optimism or pessimism associated with the revisions. It is proposed that the measure reflects the greater emphasis that investors place on the volume of revisions rather than on the size of the revisions. The revision count approach also allows us to analyse the extent to which there are any differences in the reaction to upward revisions (good news) and downward revisions (bad news).

We construct a revision count variable, REV_t, at month *t* defined as the difference between the number of upward ($UP_{t,t-1}$) and downward ($DOWN_{t,,t-1}$) revisions made by analysts in the last monthly report. It is therefore defined as:

$$REV_t = UP_{t,.t-1} - DOWN_{t,,t-1}$$

If

(i) $REV_t > 0$, the forecast revision count is positive and indicates that analysts are optimistic about a firm's futures earnings

(ii) $REV_t < 0$, the forecast revision count is negative and indicates that analysts are pessimistic about a firm's futures earnings

(iii) $REV_t = 0$, analysts have not changed their expectations about a firm's future earnings

At beginning of each month, we sort all the stocks from the sample into three portfolios based on the previous month's revisions count values. Portfolio P3 (P1) is a strong upward (downward) portfolio which contains those stocks with the highest (lowest) forecast revision values. Table 2 reports descriptive statistics for the whole sample sort by three revisions count values. It shows that the strong upward revision count portfolio (P3) has more upward revisions (20,949) than downward revisions (3,708), and the downward revision count portfolio (P1) has more downward (25,352) than upward revisions (3,827). The average size for the upward revision count portfolio (P3) is 4,940.86 million and 3,921.l5 million for the downward revision count portfolio (P1). It also shows more growth stocks in the upward revision count portfolio and both the upward (P3) and downward revision count portfolios (P1) attract more analyst interesting than P2 portfolio.

[Table 2 about here]

These portfolios are equally weighted at the end of the formation period and held for the following 1, 3, 6, 9, 12 months. We also skip one-month between formation and holding period to mitigate the effect of information announcements on market microstructure. The trading strategy P3 – P1 consists of buying the strong upward portfolio (P3) and short selling the strong downward portfolio (P1).

We do not scale the REV by the total number of analysts covering a specific stock because we believe that investors will be more aware of the absolute volume of revisions rather than the relative volume of revisions. Moreover, our forecast revisions measure captures the degree of herding among equity analysts (Welch, 2000).

Table 3 reports the characteristic based benchmark portfolio method to calculate the abnormal return, with the characteristics based on size and book-to-market ratios and rebalanced every month. It also shows the returns gained from a trading strategy based on buying the strong upward portfolio and short selling the strong downward portfolio, that is, P3 – P1. For the one-month holding period, the trading strategy generates statistically significant one month average returns of 1.76% The table also shows that the trading strategy P3 – P1, yields decreasing monthly average returns as the holding period is extended. For example, the returns fall to 0.69% after six months and 0.65% after 12 months. Having established that the post-forecast revisions drift seems stronger in the most recent period, the following regression analysis concentrates on one-month holding period trading strategy.

[Table 3 about here]

Table 4 reports the characteristic based benchmark-adjusted monthly portfolio returns for the sub-period analysis for all stocks in Canada. The policy is National Policy 51-201 which the Canadian Securities Administrators have adopted on 2002 to address concerns about the practice of selective disclosure. Column 1 reports one-month holding period returns before the policy and Column 2 reports return for after the policy for three revision count portfolios. As predicted, returns post the introduction of the policy are less than those before policy. Column 4 reports the return difference between the Column (2) and (1). The return difference in the strong upward count revision portfolio (P3) is -1.09% and is statistically significant. The downward revision count portfolio (P1) is -0.92% and is also significant. Column 3 reports returns for the period during the financial crisis of 2008. The downward revision count portfolio is significantly negative and lower than upward revision

count portfolio. The last Column reports the difference between crisis period (2008-2009) and the after policy (2002-2007) time period. It shows significantly lower returns during the crisis period, some -2.67% for downward revision count portfolio and -2.08% for upward revision count portfolio.

[Table 4 about here]

4. REGRESSIONS ANALYSIS

We continue our analysis by performing a Fama and MacBeth (1973) cross sectional regression of Canadian stock returns. Post-announcement monthly abnormal returns at time t+1 are regressed on a set of explanatory variables. This provides information about determinants of post-announcement monthly abnormal returns for Canadian stocks. The regression specification for the pooled sample is as follow:

$$Ret_{i,t+1} = \beta_0 + \beta_1 REV_{i,t} + \beta_2 MEi_{i,t} + \beta_3 BM_{i,t} + \beta_4 RAC_{i,t} + \beta_5 DISP_{i,t} + \beta_6 MOMENTUM_{i,t} + \beta_7 Policy_t + \beta_8 REV_{i,t} \times Policy_t + \beta_9 CRISIS_t + \beta_{10} REV_{i,t} \times CRSIS_t + \varepsilon_{i,t} \quad (1)$$

Where $Ret_{i,t+1}$ is market adjusted returns for stock *i* at time *t+1*. The forecast revision (REV) is the difference between the number of upward revisions and the number of downward revisions by analysts since last monthly report at time t. Firm size, (ME), is the natural logarithm of the market value of the equity in Canadian dollars at time t. BM is the book-to-market value of equity at time t. RAC is residual analyst cover measured by the residual from the regression of log (1+number of analysts) on log (firm size) at time t. It controls for the influence of firm size on analyst coverage, Hong et al. (2000). Following Diether, Malloy, and Scherbina (2002), dispersion (DISP) is the standard deviation of analysts' current-fiscal-year annual earnings per share forecasts scaled by the absolute value of the mean earnings forecast at time t. MOMENTUM is measured as the difference

between the equally-weighted average return of firms with the higher 30 percent of 11-month returns lagged by 1 month and the average return of firms with the lower 30 percentage. CRISIS is a dummy variable that takes a value of 1 during the sub-prime crisis period (year 2008), and 0 otherwise. POLICY is a dummy variable equal to 1 if the analyst forecast revision is made after 2002 when National Policy 51-201 became effective and equal to 0 if made before 2002. REV×POLICY is the interaction term of REV and Policy. $REV \times CRISIS$ is the interaction term of REV and CRISIS. A negative value for REVxPOLICY would imply that the more upward forecast revisions, the greater the effect of the new disclosure policy on stock returns. A positive value for REV×CRISIS suggests that the financial crisis would have a larger effect on the abnormal returns of stocks that had more upward forecast revisions.

Table 5 reports results from Fama and MacBeth cross-sectional regressions of monthly stock returns on consensus recommendation revisions (Column 1), and interacted with the National Policy 51-201 (Column 2) and interacted with the 2008 financial crisis (Column 3).

As hypothesized, column 1 shows a positive, significant relationship between forecast revisions count (REV) and post-announcement stock returns. This suggests that upward earnings forecast revisions lead to strong post-forecast revisions drifts. Therefore, analyst forecasts of earnings are not fully incorporated into the stock price which suggests that investors do not fully adjust their expectations to the newly arriving earnings news (Hirshleifer et al., 2001). In terms of magnitude, a two standard deviations increase in REV increases abnormal returns by 0.015%. Given that the mean abnormal returns is 0.0038, this represents a significant 3.95% change

However, we find no evidence to support the speed of diffusion hypothesis given that RAC is insignificant. It also found that future stock returns are statistically significant and positively related to BM. The results therefore support the value premium argument proposed by Fama and French (1998). We also find some evidence that return momentum is statistically significant in explaining the cross-sectional differences in expected returns. This is consistent with Jegadeesh and Titman (2001) who found that momentum profits are driven by cross-sectional differences in expected stock returns.

Column 2 shows during the post-Policy period, the coefficient on POLICY is significant and negative. This suggests that the policy of "best disclosure" practices has reduced abnormal stock returns since it was introduced and that it helped make the market more efficient. The coefficient on CRISIS is significant and negative and suggesting that the US subprime crisis had a significant negative impact on the Canadian equity market to the extent that the crisis reduced stock returns by 2.67% per month. Moreover, the coefficient on REV×CRISIS is positive and significant supporting the view that 2008 financial crisis has a greater impact on stock returns for stocks with more upward forecast revisions. The result is consistent with Table 4, and indicates that investors tend to underreact to upward forecast revisions news, in particular during a period of financial difficulties.

[Table 5 about here]

Table 6 reports the results of estimation based on the extended model (1) for positive and negative revisions and investigates the differential impact of good and bad news. The results reported in Columns 1-3 refer to bad news, the negative revision count, and

Columns 4-6 to good news, the positive revision count. The results show that the positive revisions count subsample produces a different outcome to that of the negative revisions count group.

We find an insignificant and negative relationship between forecast revisions and stock returns for the negative revision count group. This suggests that bad news, indicated by negative revisions, is incorporated quickly into prices. In contrast, we find a positive and significant relationship between forecast revisions and stock returns for the positive forecast revision group. This supports the hypothesis that good news is incorporated slowly into prices. Therefore, overall, positive forecast revisions lead to stronger post-forecast revisions drift than negative forecast revisions. This may reflect the view that investors are sceptical of good news revisions because they believe analysts to have incentives to be optimistic, McKnight and Todd (2006). The result is consistent with the investor conservatism hypothesis, Barberis et al. (1998).

We also find that stock returns are negatively related to residual analyst coverage (RAC), for both positive and negative analyst revisions. This is consistent with the speed of information diffusion hypothesis of Hong et al. (2000) which posits that return persistence is stronger in lower analyst coverage stocks. Our results show that information diffusion is slow irrespective of the type of revision made by analysts. We find that the results are statistically stronger for positive revision count group than for the negative revision count group.

We also report that BM is positive and significant for both positive and negative revision count groups. This suggests that value premium existence in the Canadian capital market (Athanassakos, 2009). A possible explanation for this phenomenon is that value

stocks are neglected stocks, and investors tend to underreact to value stocks compared to their reaction to revisions for growth stocks.

We report a positive and significant relationship between MOMENTUM and stock returns for positive revision count group, but not for negative revision count group. It indicates the underreaction of stocks with good news is partly attributable to the stock momentum effect Moreover, the negative association between analyst divergence of opinion, DISP, and stock returns for the negative revision count groups indicates that the dispersion effect only exists in firms with bad news The results consistent with Diether et al (2002) and support the argument that the larger the disagreements about a stock's value, the higher the market price relative to the true value of the stock, and the lower its future returns.

Finally, as shown in the positive revision count group, we find that the coefficient on POLICY is negative and significant, suggesting that the introduction of improved disclosure has reduced abnormal returns and probably made the market more efficient for positive revisions. Furthermore, the 2008 subprime crisis had a negative and significant impact on the post-forecast revision drift for the positive revision count group. The result confirms previous findings in Table 5 that analysts' upward forecast revisions was slowly incorporated into stock prices during a period of significant financial uncertainty.

[Table 6 about here]

5 CONCLUSIONS

This paper investigates the role of earnings forecast revisions of equity analysts in predicting Canadian stock returns. It finds significant returns continuation for a trading

strategy that buys stocks with recent upward revisions when netted against stocks with the most downward revisions. Specifically, with a one-month holding period, the trading strategy generates 1.76% monthly average return however, the returns decrease as the holding period increases. In addition, it was found that the drift is gradually reduced in the following months as more investors respond to the earnings revision news. We also find that new information is not impounded symmetrically and that bad news is incorporated more quickly than good. This suggests that investors are less inclined to act on positive news but take more account of negative revisions. This is consistent with the investor conservatism model. We also find, consistent with the information diffusion hypothesis, that earnings drift is higher for firms followed by fewer analysts. We also find evidence that the policy designed to improve disclosure improved market efficiency. Finally, we report that the financial crisis reduced stock returns, particularly in relation to positive revisions, further showing how the market seems to be less willing to accept positive news.

The results also indicate that post-earnings forecast revisions drift is positively related to book-to-market which suggests that investors tend to underreact to value stocks compared to their reaction to revisions for growth stocks.

The findings therefore show that equity analysts do provide useful earnings forecasts information to market participants. However, some investors pay limited attention to the news of forecast revisions and only gradually learn from the event. Thus, the delayed response by investors appears to lead to the short-term stock return continuation.

The results suggest a number of areas for further research. First, it may be useful to know more about the characteristics of the analysts that produce the largest number of upgrades and the largest number of downgrades. How far do these characteristics differ?

Second, the impact of transaction costs and alternative methods of return measurement should be investigated. Finally, further research is needed to explore the institutional and regulatory differences across countries that may impact on the informativeness of analysts' research reports.

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Table 1 Descriptive statistics

Year	Number of Firms	Number of Analysts	Number of Upwards	Number of Downwards	Size (C$*mils*)		Book-to-market	
					Mean	Median	Mean	Median
All	420	6.19	27271	32005	3274.14	462.60	0.76	0.55
1998	134	7.42	1498	1290	2287.03	451.49	0.66	0.51
1999	144	7.27	1715	1519	2575.88	501.85	0.68	0.57
2000	141	7.40	1996	1383	3040.97	627.01	0.70	0.57
2001	143	7.54	1430	2004	3408.02	733.89	0.71	0.57
2002	149	6.62	1830	1948	3332.85	867.72	0.70	0.56
2003	168	6.94	2238	2278	3322.73	710.83	0.71	0.58
2004	190	6.68	2559	2473	3646.62	698.98	0.58	0.51
2005	224	6.41	3044	3202	3948.55	612.13	0.56	0.48
2006	274	5.89	3321	3305	3883.54	478.05	0.60	0.49
2007	331	5.33	3434	4425	3706.23	367.49	0.64	0.50
2008	363	5.00	3624	5306	2832.32	230.74	0.87	0.61
2009	340	5.30	1582	2872	2213.60	148.18	1.76	0.97

Notes: Table 1 reports descriptive statistics for the period July 1998 through June 2009 for all stocks in Canada. For each year, we report the number of I/B/E/S firms, mean analysts covered for each firm, the total number of upward and downward revisions since the last monthly production, mean and median firm size (in C$ millions), mean and median book-to-market ratio (BM) for each year.

Table 2 Descriptive statistics

	Number of	Number of	Size (C$*mils*)		Book-to-market		Number of Analysts		Percentiles		
Portfolio	Upwards	Downwards	Mean	Median	Mean	Median	Mean	Median	25	50	75
P1 (Strong downward)	3827	25352	3921.15	738.01	0.78	0.57	7.62	7.0	4.0	7.0	11.0
P2	2495	2945	1880.77	211.66	0.78	0.56	4.29	3.0	2.0	3.0	6.0
P3 (Strong upward)	20949	3708	4940.86	1042.80	0.68	0.52	7.83	7.0	4.0	7.0	11.0

Table 3 Monthly stock returns for all sample periods

	Characteristic based benchmark portfolio method				
	Monthly return (Holding period)				
Portfolio	1	3	6	9	12
P1	-0.0041***	-0.0018	0.0031***	0.0020***	0.0017***
(Strong downward)	(-2.63)	(-0.51)	(3.34)	(2.89)	(2.82)
P2	0.0047***	0.0079***	0.0076***	0.0046***	0.0032***
	(3.27)	(6.33)	(8.72)	(6.55)	(5.43)
P3	0.0135***	0.0133***	0.0101***	0.0092***	0.0082***
(Strong upward)	(9.14)	(11.04)	(11.45)	(12.55)	(13.49)
P3 – P1	0.0176***	0.0151***	0.0069***	0.0072***	0.0065***
	(8.12)	(7.11)	(5.31)	(6.98)	(7.71)

Notes: Table 3 reports the characteristic based benchmark-adjusted monthly portfolio returns for the period July 1998 through June 2009 for all stocks in Canada. We estimate the regression to find the characteristic based benchmark-adjusted monthly returns for a portfolio. The forecast revision is defined as the difference between the number of upward and downward revisions by equity analysts since the last monthly production. Each month we sort stocks into three forecast revisions portfolios based on analyst forecast revisions, REV in month t, which stocks in portfolio P3 (P1) are those contain higher (lower) net upward (downward) revisions. The portfolio is equally weighted at the formation month and held for 1, 3, 6, 9, 12 months. We skip one-month between formation and holding period to mitigate the market-microstructure effects. *t*-statistics are reported in parenthesis. *, ** and *** significant at 10%, 5%, and 1%, respectively.

Table 4 Monthly stock returns for sub-periods

	Characteristic based benchmark portfolio method One-month Holding Period Return				
Portfolio	1998-2001 Before Policy (1)	2002-2007 After Policy (2)	2008-2009 Crisis (3)	Difference (2) – (1)	Difference (3) –(2)
P1	0.0078**	-0.0014	-0.0281***	-0.0092*	-0.0267***
(Strong downward)	(2.38)	(-1.09)	(-6.36)	(-1.78)	(-7.77)
P2	0.0062**	0.0094***	-0.0070*	0.0032	-0.0164***
	(2.25)	(6.16)	(-1.71)	(1.05)	(-4.61)
P3	0.0235***	0.0126***	-0.0082	-0.0109**	-0.0208***
(Strong upward)	(7.71)	(10.12)	(-1.63)	(-2.46)	(-6.05)
P3 – P1	0.0156***	0.0140***	0.0198***		
	(3.51)	(6.12)	(2.88)		

Notes: Table 4 reports the characteristic based benchmark-adjusted monthly portfolio returns for the period July 1998 through June 2009 for all stocks in Canada. The forecast revision is defined as the difference between the number of upward and downward revisions by equity analysts since the last monthly production. Each month we sort stocks into three forecast revisions portfolios based on analyst forecast revisions, REV in month t, which stocks in portfolio P3 (P1) are those contain higher (lower) net upward (downward) revisions. The Policy is National Policy 51-201 (the "Policy") which the Canadian Securities Administrators (the "CSA") have adopted on 2002 to address concerns about the practice of selective disclosure. The crisis refers to the financial crisis of 2008. The portfolios are equally weighted at formation and held for 1 month. We skip one-month between formation and holding period to mitigate the market-microstructure effects. *t*-statistics are reported in parenthesis. *, ** and *** significant at 10%, 5%, and 1%, respectively.

Table 5 Effect of Policy 51-201 Disclosure Standard and 2008 Financial Crisis on Forecast Revision and Post-revision Drift

Dependent Variable: 1-month return	(1)	(2)	(3)
REV	0.0015***	0.0014***	0.0011***
	(4.31)	(3.94)	(3.30)
ME	0.0011	0.0093	0.0026
	(1.42)	(1.23)	(0.34)
BM	0.0110***	0.0108**	0.0123***
	(5.47)	(5.36)	(6.14)
RAC	-0.0015	-0.0076	-0.0072
	(-0.58)	(-0.29)	(-0.27)
DISP	-0.0014	-0.0032	-0.0013
	(0.05)	(-0.11)	(-0.05)
MOMENTUM	0.0014*	0.0015**	0.0011*
	(2.26)	(2.49)	(1.77)
Policy		-0.0394*	
		(-1.78)	
REV*Policy		0.0033	
		(0.54)	
CRISIS			-0.0267***
			(-5.75)
REV*CRISIS			0.0032*
			(1.79)
INTERCEPT	-0.0021	0.0024	0.0131
	(-0.24)	(0.25)	(1.49)
Number of Observations	20354	20354	20354
R-squared	0.1528	0.1628	0.2120

Notes: This table reports results from month-by-month Fama-MacBeth cross-sectional regression of monthly abnormal returns on consensus recommendation revisions (Column 1), and interacted with Regulation FD (Column 2) and interacted with 2008 financial crisis (Column 3). REV is the forecast revision and is the difference between the number of upward revisions and the number of downward revisions by analysts since the last monthly report; ME is the log of the market value of the equity at time t-1; BM is the book-to-market ratios at time t-1; RAC is residual analyst cover measured by the residual from the regression of log (1+number of analysts) on log (firm size) at time t. DISP is the standard deviation of analysts' current-fiscal-year annual earnings per share forecasts scaled by the absolute value of the mean earnings forecast at time t. MOMENTUM is measured as the difference between the equally-weighted average return of firms with the higher 30 percent of 11-month returns lagged by 1 month and the average return of firms with the lower 30 percentage, CRISIS is a dummy variable that takes a value of 1 during the sub-prime crisis period (year 2008), and 0 otherwise. POLICY is an indicator variable equal to 1 if the analyst forecast revision is made after 2002 when National Policy 51-201 became effective and equal to 0 if made before 2002. REV *POLICY is the interaction term of REV and POLICY. REV *CRISIS is the interaction term of REV and CRISIS. The time-series average coefficients and Newey-West adjusted t-statistics (in parentheses) are

presented. The symbols, *, **, and ***, indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 6 Effect of Policy 51-201 Disclosure Standard and 2008 Financial Crisis on Forecast Revision and Post-revision Drift for Positive and Negative Revision Count Group

Dependent Variable: 1-month return	Negative Revision Count			Positive Revision Count		
	(1)	(2)	(3)	(4)	(5)	(6)
REV	-0.0092	-0.0011	-0.0011	0.0019**	0.0024**	0.0019**
	(-1.28)	(-1.53)	(-1.66)	(2.48)	(2.38)	(2.53)
ME	0.0079	0.0039	-0.0021	-0.0011	-0.0017	-0.0016
	(0.72)	(0.34)	(-0.19)	(-1.13)	(-1.53)	(-1.52)
BM	0.087***	0.0079***	0.0118***	0.0171***	0.0166***	0.0176***
	(2.10)	(1.89)	(2.83)	(2.79)	(2.72)	(2.78)
RAC	-0.0082*	-0.0076*	-0.0055	-0.0099**	- 0.0101**	-0.0083**
	(-1.81)	(-1.64)	(-1.28)	(-2.39)	(-2.30)	(-2.07)
DISP	-0.0047	-0.0049*	-0.0057*	-0.0058	-0.0046	0.0013
	(-1.57)	(-1.64)	(-1.85)	(-1.07)	(-0.84)	(0.22)
MOMENTUM	0.0019	0.0019	0.0051	0.0023***	0.0023***	0.0016***
	(1.36)	(1.38)	(0.89)	(2.97)	(2.85)	(2.66)
Policy		-0.0027			-0.0693*	
		(-0.62)			(-1.78)	
REV*Policy		0.0122			0.0069	
		(0.73)			(0.34)	
CRISIS			0.0120			-0.0137**
			(0.21)			(-1.97)
REV*CRISIS			0.0074			-0.0037
			(0.75)			(-1.34)
INTERCEPT	-0.0138	-0.0065	-0.0085	0.0022	0.0108	0.0101
	(-0.77)	(-0.34)	(-0.36)	(0.15)	(0.67)	(0.68)
Number of Observations	7077	7077	7077	5686	5686	5686
R-squared	0.2747	0.2862	0.3639	0.2788	0.3005	0.3779

Notes: This table reports results from month-by-month Fama-MacBeth cross-sectional regression of monthly abnormal returns on consensus recommendation revisions, Column 1 to 3 is for negative revision count, Column 4 to 6 is for positive revision count group, and interacted with Policy (Column 2 and 5) and interacted with 2008 financial crisis (Column 3 and

6). REV is the forecast revision count and is the difference between the number of upward revisions and the number of downward revisions by analysts since the last monthly report; ME is the log of the market value of the equity at time t-1; BM is the book-to-market ratios at time t-1; RAC is residual analyst cover measured by the residual from the regression of log (1+number of analysts) on log (firm size) at time t. DISP is the standard deviation of analysts' current-fiscal-year annual earnings per share forecasts scaled by the absolute value of the mean earnings forecast at time t. MOMENTUM is measured as the difference between the equally-weighted average return of firms with the higher 30 percent of 11-month returns lagged by 1 month and the average return of firms with the lower 30 percentage, CRISIS is a dummy variable that takes a value of 1 during the sub-prime crisis period (year 2008), and 0 otherwise. POLICY is an indicator variable equal to 1 if the analyst forecast revision is made after 2002 when National Policy 51-201 became effective and equal to 0 if made before 2002. REV *POLICY is the interaction term of REV and POLICY. REV *CRISIS is the interaction term of REV and CRISIS. The time-series average coefficients and Newey-West adjusted t-statistics (in parentheses) are presented. The symbols, *, **, and ***, indicate significance at the 10%, 5%, and 1% levels, respectively.