Earnings Management and the Reconstitution of the Russell Indexes

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Past studies have shown that firms moving from the Russell 1000 to the Russell 2000 exhibit positive cumulative abnormal returns (CARs), referred to as the addition effect while firms that move up to the Russell 1000 display negative CARs, or the deletion effect. We hypothesize that firms moving down to and remaining in the Russell 2000 engage in negative earnings management. Results show that firms moving to the Russell 2000 utilize negative earnings management but that does not necessarily lead to positive CARs. In contrast, firms remaining in the Russell 2000 Index with negative earnings management exhibit significant positive CARs.

INTRODUCTION

Past studies established that stocks in the Russell 1000 Index that move to the Russell 2000 Index exhibited significant positive stock returns, referred to as the addition effect.[1] Madhavan (2003), Chen (2006), and Petajisto (2011) conclude that an addition effect exists for the ones added to the Russell 2000, but the deletion effect is mixed when stocks move from the Russell 2000 to the Russell 1000. More recently, using a regression discontinuity methodology, Chang, Hong, and Liskovich (2015, hereafter referred to as CHL) found evidence that a significant positive addition effect exists as well as a negative deletion effect. They further discover that the Russell index changes were symmetrical in magnitude and both additions and deletions were permanent. Since stocks that move from Russell 1000 to Russell 2000 benefited from a larger weight assigned to them CHL consequently find increased demand for these stocks. In contrast firms that moved up from the Russell 2000 to Russell 1000 experienced significant declines in their stock weightings due to selloffs by investment firms attempting to rebalance their portfolios. Taken together, these results explain the discontinuity in the price distributions observed by past studies on Russell indexes as well as the significance of both the addition and deletion effects.

The Russell indexes are created by taking the market capitalization of virtually all the firms traded in the U.S. and rank order them by their market capitalization.[2] The first 1000 firms with the highest market cap are included in the Russell 1000 and the firms in the next 2000 rankings of approximately 1001 to 3000 are included in the Russell 2000.[3] Firms are ranked annually, and move between the two indexes

based on the prices of the last trading day of May. Subsequently, the market weights are determined, and the new index is reconstituted and announced on the last Friday of June.

The annual index reconstitution process affects many passive indexes that mimic the Russell 1000 and 2000. Further it changes the benchmarks used to measure performance of active portfolio managers. As the information of the reconstituted weighting of each firm is published, institutional firms must rebalance their portfolios to match it. The magnitude of dollar amount benchmarked to the indexes shows the significance and its impact on the market. According to CHL passive assets invested in the Russell 1000 increased from $ 34.0 billion in year 2000 to $125.8 billion by 2011. While in the year 2000, Russell 2000 had $21.5 billion in passive index investments benchmarked to it, the dollar value rose to $60.1 billion by 2011. Additionally, actively managed investments that are benchmarked to the Russell 1000 were approximately $263.7 billion in 2008 while the Russell 2000 equaled $168.6 billion in the same year with 60 and 449 products marked to the indexes, respectively.[4] The dollar amounts highlight the significance of the Russell indexes and the impact on the market due to the annual reconstitution.

The magnitude of the dollar impact on the firms affects the dollar weighting of each firm that moves to the Russell 2000. This implies that managers might be motivated to ensure that borderline firms in the Russell 1000 move down to the lower Russell 2000 as well as firms in the Russell 2000 are driven to remain in that index. Discretionary earnings management is one way that managers might attempt to gauge stock prices, and consequently, to some degree, attempt to control which index they will be in. Hence, managers on the borderline of both indexes will manage earnings downward to affect stock prices to remain lower during the May ranking period.

Our study examines whether the managers of firms on the borderline of Russell 1000 will decrease discretionary accruals in order to decrease earnings, thereby moving down to the Russell 2000, and take advantage of the significant rise in prices caused by switch to the lower cap index. Specifically, we analyze earnings management by examining how managers report accruals. They have an incentive to engage in downward earnings management as the benefits from moving to the Russell 2000 are permanent and can impact their year-end compensation. Likewise, the firms on the border of Russell 2000 will experience permanent and negative effects from moving up to the Russell 1000 index. These firms will also manage earnings downward to stay in the Russell 2000 Index.

Numerous past studies demonstrate that firms manage their reported earnings prior to significant corporate events. For example, studies include share repurchases (Gong, Louis, and Sun (2008)), seasoned public offerings (Teoh, Welch, and Wong (1998) and Shivakumar (2000)), stock-for-stock mergers (Erickson and Wang 1999) and Louis (2004)) among others. While in most cases, such as seasoned public offerings and stock-for-stock mergers, reported earnings are managed upwards, in the case of share repurchases Gong, Louis, and Sun (2008) hypothesized and found evidence that firms engaged in pre-repurchase negative earnings management to be able to benefit from a lower price of repurchased shares, whose price declined following lower reported earnings.

We conjecture that firms that are on the borderline of Russell 1000 have an incentive to manage earnings downward to reduce the stock price and to be consequently added to the Russell 2000. With a lower market cap ranking, the move to Russell 2000 is more likely, resulting in rising stock prices after the reconstitution. For the borderline firms currently in the Russell 2000 remaining in this index will preserve their stock in portfolios of index-tracking funds thus escaping the deletion effect. Therefore, we hypothesize that managers of firms on the borderline of Russell 1000 and Russell 2000 are more likely to engage in negative earnings management in an attempt to be part of the Russell 2000 or to be a 'big fish in the smaller pond.'

However, classical finance asserts that managers' firm objective is to maximize shareholder value and they would likely manage earnings upward given the discretion in an attempt to reflect strong operational performance. As a result, we cannot say a priori whether firms are likely to manage earnings upward (to increase stock value) or downward (to decrease price to move to the Russell 2000 Index). Depending on the strategy taken by managers, they could manage earnings upward, leading to strong stock performance, or manage earnings downward to take advantage of the Russell addition effect.

Therefore, it is an empirical question as to whether firms manage earnings upward to signal strong performance or downward to be part of the Russell 2000 Index to take advantage of the addition effect. Our study examines the accrual earnings of firms to determine how managers behave around the Russell Index reconstitution period. We will further examine the market reaction to managers' actions during the Russell reconstitution period by conducting an event study analysis.

The overall results for the borderline firms of the Russell 1000 index exhibit negative earnings management when adjusted for firm performance, and are significantly different from the control sample.[5] Moreover, we find firms that actually move from Russell 1000 to Russell 2000, on average exhibit significant negative earnings management when compared to borderline firms that did not move out of the Russell 1000. In contrast, the ones that remained in the Russell 1000 display positive earnings management before and after adjusting for performance.

Generally, the borderline firms of the Russell 2000, on average, engage in positive earnings management. However, results, using the performance adjusted discretionary abnormal accruals measure (ADJDAC), show that firms remaining in the Russell 2000 utilized less positive earnings management than the ones that moved up to the Russell 1000.

When we combine the earnings management information with the cumulative abnormal stock returns (CAR), we gain additional insights. Firms in the Russell 1000 that move down to Russell 2000 and utilize negative earnings management exhibit negative CARs indicating that the addition effect as documented in past studies do not exist. However, firms that stayed in the Russell 2000 Index and managed earnings downwards display significantly higher CARs over the period when the firms are ranked in May, and subsequent significant positive CARs exist during the reconstitution subperiod and continue to be significant in July (or after the reconstitution). It implies that, on average, only a subset of firms that engaged in negative earnings management gained from the benefits of the Russell addition effect.

Finally, firms that moved in the opposite direction (from Russell 2000 to Russell 1000) exhibited significantly positive CARs after the reconstitution period if they employed positive earnings management. The results imply that it is the strong firm performance that moved them up to the Russell 1000 Index. Therefore, these firms did not experience the Russell deletion effect. However, the ones that remained in the Russell 1000 Index were less fortunate. Despite, managing earnings upward they suffered the Russell deletion effect (not getting into the Russell 2000 Index) with significant negative CARs.

In summary, the earnings management impacts the way the market reacts to the reconstitution of the Russell indexes. Our study shows that examining the effects of Russell reconstitution alone may not be sufficient, because earnings management also affects the annual re-composition of the Russell Indexes.

The next section will discuss the development of the hypotheses and the literature review while Section 3 presents the data and methodology. Empirical results are presented in Section 4 and Section 5 provides summary and conclusion.

HYPOTHESES AND LITERATURE REVIEW

Literature Review

Madhavan (2003), Chen (2006), and Petajisto (2011) conclude that stocks which move from the Russell 1000 to the Russell 2000 Index exhibit significant positive stock returns. Petajisto (2011) find that the addition to the Russell 2000 shows a 4.7% premium while a deletion from the Russell 2000 exhibits a 4.6% decline, and the effect has been growing over time and peaked in 2000, then then declined until 2007 where the sample period of his study ends. These results show the need to re-examine the data as the magnitude of the effects appears to change over time.

Chen (2006) finds that for a period from two days prior to May 31 to June 30 a permanent abnormal return exists for Russell indexes cumulating to 10% over the period. In contrast, the firms deleted from the Russell 2000 Growth Index suffered a -6.6% abnormal cumulative return.[6] Further, Chen's results also support the Imperfect substitute hypothesis, showing a significant marginal effect of 9.21% of the abnormal returns, thereby implying that firms added to the Russell 2000 are not perfect substitutes for the

deleted ones. He further shows that liquidity, measured by intra-day bid-ask spreads, added another 3.05% to firms that stayed in the Russell 1000 as well as the ones in the Russell 2000 Growth Index.

More recently, using a regression discontinuity methodology, CHL find evidence that a significant positive addition effect exists as well as a negative deletion effect. They further discover that the Russell index change effects are symmetrical in magnitude and both additions and deletions were permanent. Since stocks that move from Russell 1000 to Russell 2000 benefited from a larger weight assigned to them they consequently found increased demand for their stocks. In contrast firms that moved up from the Russell 2000 to Russell 1000 experienced significant declines in their stocks' weighting due to sell offs by investment firms attempting to rebalance their portfolios. Taken together, these results explain the discontinuity in the price distributions observed by past studies on Russell indexes (Madhavan (2003), Chen (2006), and Petajisto (2011)) as well as the significance of both the addition and deletion effects.

Cai and Houge (2008) examine the long-term performance of the Russell 2000 over a 1979-2004 period, and found that a buy-and-hold portfolio of the Russell 2000 significantly outperforms the annually rebalanced index by an average of 2.22% over one year and by 17.29% over five years. They also found that the deleted stocks outperform the added stocks by 67 basis points per month rationalizing that the deleted stocks are still strong performers, but became too large to be in the Russell 2000. They found that in the first year, the additions to the Russell 2000 that come from new issues lag the deleted stocks by 67 basis points per month. While Cai and Houge's study examines the long-term effects, we focus on the deletion and addition effects only during the May to July reconstitution period.

Other studies have examined the propensity of managers to use discretion allowed by GAAP to report firm earnings. Studies have found that firms utilize positive earnings management during significant corporate decisions such as in the case of seasoned public offerings (Teoh, Welch, and Wong (1998) and Shivakumar (2000)) and stock-for-stock mergers (Erickson and Wang (1999) and Louis (2004)) where a firm benefits from a higher stock price which is helped by positive earnings management. In contrast, managers could use downward earnings management in share repurchases in order to suppress the stock price prior to a buy back. Gong, Louis, and Sun (2008) found evidence that firms engaged in pre-repurchase negative earnings management.

Testable Hypotheses

Classical finance paradigm asserts that managers pursue strategic plans that will maximize shareholder value. However, when two strategic policies oppose each other it becomes a managerial decision and an empirical question. For example, to maximize shareholder value managers might use accrual accounting methods that will lead to increased earnings, which leads to increased share value. Under most general conditions we expect firms to manage earnings upward leading to higher stock valuation, which we call the performance effect.

However, there are cases where managers might be motivated to use discretion accruals to reduce reported earnings. One such case may occur when firms are on the borderline of the Russell 1000 and aspire to move down to the Russell 2000, expecting to benefit from the Russell addition effect. Therefore, managers may be motivated to utilize downward earnings management. Likewise, remaining in the Russell 2000 would help firms maintain the stock prices instead of realizing a possible decrease if they moved up to the Russell 1000 Index with subsequent stock sell-off by index-tracking funds, thereby motivating managers to manage earnings downward to avoid the Russell deletion effect.

Note that a priori we cannot tell which strategy managers are pursuing. However, by examining whether managers utilize downward or upward earnings we can determine what managers are attempting to exploit – the Russell strategy or the performance strategy. Since the two strategies are not mutually exclusive we can test which strategy dominates. Therefore, while we test the Russell strategy hypothesis if evidence do not supported it, we can presume the performance strategy dominates the Russell strategy. Our hypothesis asserts that managers that decide to follow the Russell strategy will engage in negative earnings management in order to move from Russell 1000 to the Russell 2000 Index.

H1: Firms that utilize the Russell strategy and move from Russell 1000 to the Russell 2000 Index manage earnings downward (i.e., exhibit negative adjusted discretionary abnormal accruals, DAC<0).

Firms that are in the Russell 2000 Index, and want to remain in it will also engage in negative earnings management in order to avoid the Russell deletion effect.

H2: Firms that utilize the Russell strategy and remain in the Russell 2000 use negative earnings management (i.e., DAC<0).

Additionally, we re-examine the cumulative abnormal stock returns (CAR) to determine whether managing earnings lead to different market reactions during the reconstitution period. The subsamples include firms that: move from Russell 1000 to Russell 2000 (Subsample 1); remain in Russell 2000 (Subsample 2); remain in Russell 1000 (Subsample 3), and move from Russell 2000 to Russell 1000 (Subsample 4).

There are two possible effects regarding the index reconstitution. First, firms that move down from Russell 1000 to Russell 2000 could be a result of poor operational performance or, second, they are negatively adjusting earnings to induce lower profits to reduce stock prices in order to take advantage of the addition effect, depicted in Figure 1, Panel A. We conjecture that firms that manage earnings downward will exhibit positive CARs due to the Russell addition effect, and not negative CARs due to poor performance. (See Figure 1, Panel A)

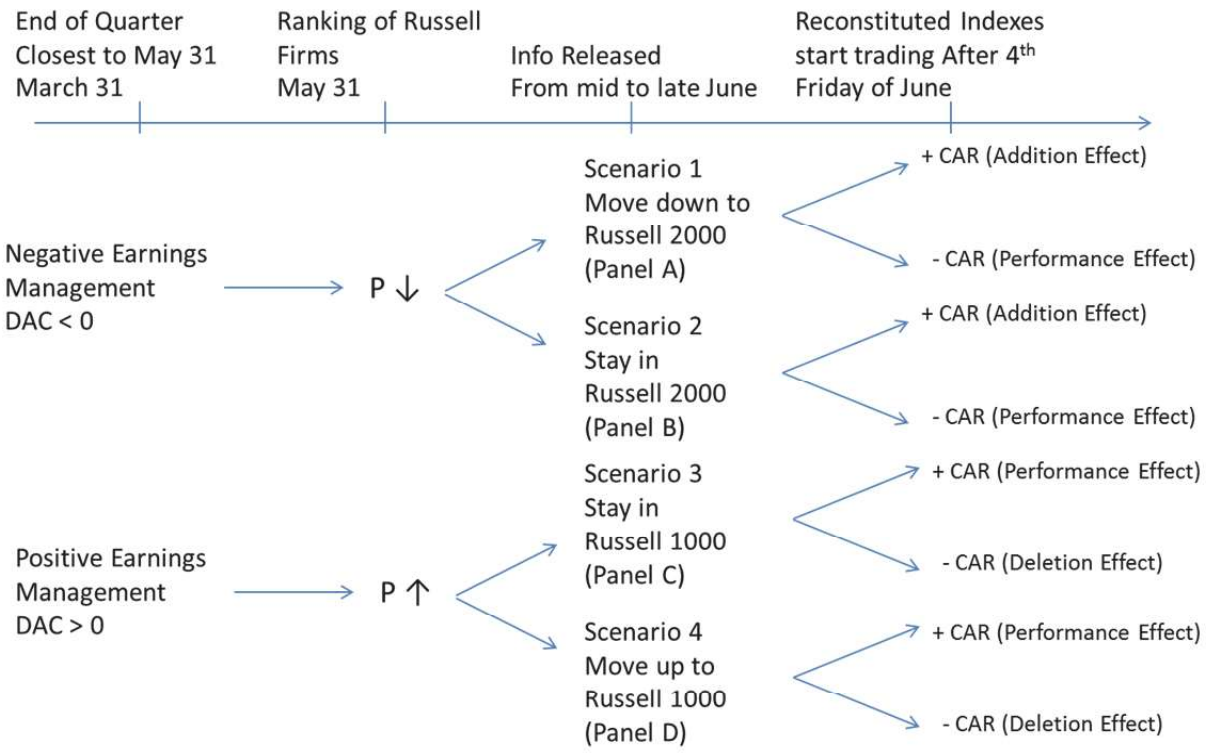
H3: Firms that manage earnings downward and move down to the Russell 2000 exhibit significant positive CARs reflecting the Russell addition effect.

Likewise, we expect firms that remain in the Russell 2000 Index as a result of negative earnings management will exhibit positive CARs during the reconstitution period. We hypothesize that firms that stayed in the Russell 2000 that used negative earnings management will show positive CARs due to the addition effect, and not negative CARs due to poor performance (see Figure 1, Panel B).

H4: Firms that remain in the Russell 2000 and manage earnings downward exhibit significant positive CARs reflecting the Russell addition effect.

For completeness we also examine firms that managed earnings upward. The positive effect on stock prices due to increased earnings leads to two possibilities: firms from Russell 1000 will remain in the Russell 1000 Index and firms from Russell 2000 move up to Russell 1000. In both cases, there are two opposing outcomes: (1) The Russell deletion effect leads to negative CARs or (2) the firm's strong performance leads to positive CARs (see Figure 1, Panels C and D).

FIGURE 1
FOUR SCENARIOS FOR EARNINGS MANAGEMENT



DATA AND METHODOLOGY

Data and summary statistics

To test the hypotheses we utilize a standard accounting earnings management model to examine whether firms managed earnings downward as well as a standard event study methodology to determine the outcome of stock performance for firms on the borders of Russell 1000 and Russell 2000.[7]

Our sample consists of the bottom 100 firms in the Russell 1000 and the top 100 firms in the Russell 2000 indexes identified on the last trading day of May for the years 2004 to 2014.

Table 1, Panel A, displays annual summary statistics for several accounting variables that were extracted from COMPUSTAT. The sample firms for the Russell 1000 Index are larger than the ones in the border of Russell 2000 for the average Gross PP&E, Net PP&E, and Total Assets (in millions of dollars). The reported medians for PP&E and Total Assets are much smaller than the averages, indicating these asset variables are skewed to the right. All other accounting variables, net income, earnings per share (EPS) and total accruals, exhibit statistically significant differences between the 100 firms in each index with the border 100 firms from the Russell 2000 having larger values. Most notably the average net income for the firms on the borderline of the Russell 1000 is negative (-$11.59 million) compared to the positive average net income for the firms in the Russell 2000 sample (+$19.75 million). While the median net income is positive for the Russell 1000 Index firms its value is approximately half of the Russell 2000 median ($11.18 million versus $21.88 million). Also, EPS is much smaller for the Russell 1000 firms ($0.07) compared to the smaller cap firms in the Russell 2000 firms ($0.43). It may suggest that the top Russell 2000 firms are growth firms while the bottom Russell 1000 firms are not. Another interesting difference lies in Total Accruals where the Russell 1000 reports a negative average Total Accruals (TAC) of - $89.20 while the Russell 2000 displays a positive TAC of +$14.63 million.

TABLE 1
SUMMARY STATISTICS OF SAMPLE FIRMS

Table I shows general statistics for the sample of firms occupying positions below 900 in Russell 1000 (or the bottom 100 firms) and above 100 in Russell 2000 (or top 100 firms) as of May each year in years 2004 to 2014 - "borderline" sample firms. Panel A looks at the in-sample differences for firms in the Russell 1000 and the Russell 2000. Panel B combines Russell 1000 firms from the "borderline" sample with a random sample of companies occupying positions between 100 and 800 in Russell 1000 as of May each year, with about 100 firms selected for years 2004 to 2014. Panel C combines Russell 2000 firms from the "borderline" sample with a random sample of firms occupying positions below 100 in Russell 2000 as of May each year, with about 100 firms selected for years 2004 to 2014. All numbers are in millions of dollars, except for EPS. Statistical significance are denoted by *, **, and *** at the 10%, 5%, and 1% level, respectively, for the test of differences in means and medians.

		Full Sample Borderline Firms	Russell 1000 Borderline Firms	Russell 2000 Borderline Firms	Statistical Significance of Difference
Panel A: Borderline Firms in Russell 1000 and Russell 2000					
PP&E, Gross	*Ave*	$1,160.52	$1,331.28	$1,025.09	***
	Med	268.56	312.72	237.32	
Total Assets	*Ave*	2,709.59	3,406.48	2,156.86	***
	Med	1,798.48	2,262.14	1,514.17	***
Net Income	*Ave*	5.89	(11.59)	19.75	***
	Med	17.04	11.18	21.88	***
Market Value	*Ave*	2,034.61	2,011.35	2,053.06	
	Med	2,015.15	1,718.99	2,169.79	***
EPS, including dividends	*Ave*	0.27	0.07	0.43	***
	Med	0.25	0.13	0.39	***
Total Accruals	*Ave*	(31.29)	(89.20)	14.63	*
	Med	7.98	4.41	10.54	***
Panel B: Borderline Firms in Russell 1000 and Randomly Selected Firms in Russell 1000 Index (Control)					
PP&E, Gross	*Ave*	3,098.49	1,331.28	4,243.66	***
	Med	606.01	312.72	912.59	***
Total Assets	*Ave*	7,229.86	3,406.48	9,707.44	***
	Med	3,654.11	2,262.14	5,196.81	***
Net Income	*Ave*	51.10	(11.59)	91.73	***
	Med	36.45	11.18	69.02	***
Market Value	*Ave*	4,983.17	2,011.35	6,908.93	***
	Med	3,109.45	1,718.99	4,837.20	***
EPS, including dividends	*Ave*	0.37	0.07	0.57	***
	Med	0.32	0.13	0.47	***
Total Accruals	*Ave*	(154.83)	(89.20)	(197.42)	
	Med	11.76	4.41	19.85	***

TABLE 1 (Continued)

Panel C: Borderline Firms in Russell 2000 and Randomly Selected Firms in Russell 2000 Index (Control)					
		Russell 2000 Borderline Firms and Control Sample	Russell 2000 Borderline Firms	Russell 2000 Control Sample	Statistical Significance of Difference
PP&E, Gross	*Ave*	763.91	1,025.09	496.04	***
	Med	81.23	237.32	18.42	***
Total Assets	*Ave*	1,621.99	2,156.86	1,073.39	***
	Med	1,076.72	1,514.17	693.19	***
Net Income	*Ave*	11.74	19.75	3.52	***
	Med	12.69	21.88	7.21	***
Market Value	*Ave*	1,435.69	2,053.06	802.48	***
	Med	1,212.84	2,169.79	754.23	***
EPS, including dividends	*Ave*	0.34	0.43	0.24	**
	Med	0.28	0.39	0.20	***
Total Accruals	*Ave*	10.07	14.63	5.39	**
	Med	5.16	10.54	3.35	***

On average, the results show that firms appear to utilize upward earnings if they are in the Russell 2000 but downward if they belong to the Russell 1000 index. Despite these contrasts, the average market values of the two groups are very similar in size, $2,011.35 and $2,053.06 (in millions) for firms in the Russell 1000 and 2000, respectively.

Table 1, Panel B, displays the borderline firms from the Russell 1000 (bottom 100) and compares them to a randomly selected group of firms in the Russell 1000 ranked from 1-900 (Control). The results are as expected, showing that the Control group firms are significantly larger in all variables than the border 100 firms from the Russell 1000. The only variable, Total Accruals, are less negative for the 100 borderline firms equaled to -$89.20 versus -$197.42 for the Control (in millions of dollars). The large negative Total Accruals for the Control firms may reflect the large cash balances held by many of the tech firms in the sample.

Finally, Table 1, Panel C, illustrates the summary statistics for the borderline firms (or the top 100 firms) from the Russell 2000 and compares them to the randomly selected 100 firms from the Russell 2000 Index (Control). As expected, the border firms are larger than the control group for the Russell 2000 for all variables and in most cases more than double in size. For example the average gross PP&E equals $1,025.09 for the borderline firms and $496.04 for the control group. Similar results prevail for Gross PP&E, Total Assets, Net Income, Market Value, EPS, and Total Accruals. The only noteworthy variable is Total Accruals showing positive values of $14.63 million for the borderline firms and $5.39 million for the control group.

In summary, the statistics show that the borderline firms of the Russell 1000 and Russell 2000 Indexes are indeed different from each other and from a randomly selected sample of firms from the respective indexes based on various financial variables. The border firms of the Russell 1000 are significantly smaller than the randomly selected control group, and the border firms of the Russell 2000 are significantly larger than their control group.

Accounting earnings management models

To measure the level of earnings management by firms we utilize a standard methodology applied by Ashbaugh, LaFond, and Mayhew (2003), Kothari, Leone, and Wasley (2005), and Gong, Louis, and Sun (2008). We use the quarter-end that is prior to the month of May (usually March of each year) as the

quarter in which they will manage earnings because firms are ranked based on the price of the last trading day in May (usually May 31). Consequently, the lagged quarter is one quarter prior to the quarter used to calculate earnings management or two quarters prior to May (usually, December of the previous year).

To calculate abnormal accruals, we first identify matching firms that are not in our sample, and paired by two-digit SICs for each quarter for each year for the firms in our sample. For the non-sample (Nonsample) firms we use quarterly COMPUSTAT database to calculate total accruals, TAC.

TAC = ΔCA – ΔCL – ΔCASH + ΔSTD – ΔDEP

where:
ΔCA equals the change in current assets
ΔCL equals the change in current liabilities
ΔCASH equals the change in cash
ΔSTD equals the change in the debt included in CL
ΔDEP equals the change in depreciation and amortization expense

Once TAC is calculated for each quarter of each year we deflate it by total assets from the previous quarter and run the following cross-sectional regression for each portfolio formed by two digit SIC for each year.

$$\frac{TAC_i}{ASSET_{i,t-1}} = b_1 \cdot 1 + b_2 \frac{1}{ASSET_{i,t-1}} + b_3 \frac{\Delta SALE_i}{ASSET_{i,t-1}} + b_4 \frac{PPE_i}{ASSET_{i,t-1}} + b_5 \frac{TAC_{i,t-1}}{ASSET_{i,t-1}} + \varepsilon_i \quad (1)$$

The portfolios must have at least 15 observations for the regression. We also run the regression for portfolios with at least 10 observations. Moreover, to follow past studies, we delete the top and bottom one percentiles of the deflated TAC, ΔSales, PPE, and the lagged total assets (LTA) to avoid outliers.

Discretionary abnormal accruals (DAC) are estimated over lagged quarter (usually Q4 of year t-1) and the quarter prior to May of each year (usually Q1 of year t). DAC for the non-sample firms are equaled to its regression residuals from Equation (1) while the DAC for the sample firms are calculated as:

$$DAC_j = \frac{TAC_i}{ASSET_{j,t-1}} - \left(\hat{b}_1 + \hat{b}_2 \frac{1}{ASSET_{i,t-1}} + \hat{b}_3 \frac{\Delta SALE_i}{ASSET_{i,t-1}} + \hat{b}_4 \frac{PPE_i}{ASSET_{i,t-1}} + \hat{b}_5 \frac{TAC_{i,t-1}}{ASSET_{i,t-1}}\right) \quad (2)$$

The estimated coefficients for Equation (2) come from Equation (1).

Next, we adjust the estimates for firm performance as it affects the amount of total accruals and consequently discretionary abnormal accruals. We adjust for performance in order to control for "random effects arising from other events that may affect accruals or other managerial incentives to manage earnings." [Kothari, Leone, and Wasley (2005)] We follow Ashbaugh, et al. (2003) and Kothari, et al. (2005) to adjust discretionary abnormal accruals for performance. The procedure includes lagged ROA into the accrual regression as shown in Equations (3) and (4).[8]

$$\frac{TAC_i}{ASSET_{i,t-1}} = c_1 + c_2 \frac{1}{ASSET_{i,t-1}} + c_3 \frac{\Delta SALE_i}{ASSET_{i,t-1}} + c_4 \frac{PPE_i}{ASSET_{i,t-1}} + c_5 \frac{TAC_{i,t-1}}{ASSET_{i,t-1}} + c_6 \frac{NI_{i,t-1}}{ASSET_{i,t-1}} + \varepsilon_i \quad (3)$$

$$ADJDAC_j = \frac{TAC_i}{ASSET_{j,t-1}} - \left(\hat{c}_1 \cdot 1 + \hat{c}_2 \frac{1}{ASSET_{i,t-1}} + \hat{c}_3 \frac{\Delta SALE_i}{ASSET_{i,t-1}} + \hat{c}_4 \frac{PPE_i}{ASSET_{i,t-1}} + c_5 \frac{TAC_{i,t-1}}{ASSET_{i,t-1}} + \right.$$
$$\left. + \hat{c}_6 \frac{NI_{i,t-1}}{ASSET_{i,t-1}}\right) \quad (4)$$

Our expectation is that DAC and ADJDAC will be negative for firms that moved down from the Russell 1000 to the Russell 2000 (DAC < 0 and ADJDAC < 0). Moreover, DAC of firms that moved

down to the Russell 2000 should be less than DAC of firms that remained in Russell 1000. Additionally, according to the hypothesis, the DAC of firms that remained in Russell 2000 should be negative.

Event study analysis

We also conduct a standard event study analysis to confirm results from past studies. That is, we expect to find firms that move down to the Russell 2000 to exhibit significant positive cumulative abnormal returns (CARs) while we anticipate that firms that move up to Russell 1000 will display negative cumulative abnormal returns. However, Cai and Houge (2008) find results in the contrary in the long run, stating that deleted firms exhibited higher returns than the Russell 2000 as well as the firms added to the Russell 2000.

First, we use the CRSP database to obtain daily stock returns and prices while we find the number of common shares outstanding from the quarterly COMPUSTAT data set. For each year, the bottom 100 firms in the Russell 1000 Index and the top 100 firms in the Russell 2000 Index were identified as our sample firms, and CRSP and COMPUSTAT data were extracted for these firms.

We also generate a value-weighted benchmark comprised of all firms in the Russell 1000 Index excluding firms from our sample. Using similar logic, we form a benchmark comprised of all firms in the Russell 2000 Index excluding the firms in our sample. For robustness tests we utilize two other benchmarks, a value-weighted index of all CRSP firms with the same 2-digit SIC and a second benchmark comprised of a value-weighted index of firms in the Russell 1000 (Russell 2000) with the same 2-digit SIC.

Given that many event dates exist we form four subperiods: ranking period, May 15 to May 31 (subperiod 1); waiting period, June 1 to second Friday of June for each year (subperiod 2); the reconstitution announcement period, second Friday of June to fourth Friday of June (subperiod 3); and finally, the post-reconstitution period, day after the reconstitution announcement date to July 5 (subperiod 4).

Abnormal returns are calculated as daily stock return minus a benchmark return for each firm in the sample. There are four sets of sample firms: (1) one comprised of firms that moved down from Russell 1000 to Russell 2000 (2) firms that stayed in the Russell 2000 (3) firms that stayed in the Russell 1000, and (4) firms that moved up from Russell 2000 to Russell 1000. Average excess returns are defined as the cross-sectional average of firms in each sample. Cumulative average abnormal returns are calculated as:

$$CAR_t = CAR_{t-1} + \text{Average abnormal return}_t \quad (5)$$

Cumulative average abnormal returns are calculated for each subperiod defined above.

Regression Analysis

Finally, we conduct regression analysis on the cumulative abnormal returns to determine whether negative discretionary earnings affect CARs. We include two control variables, market-to-book and size measured as the Ln of market capitalization, and regress:

$$CAR_{it} = \beta_0 + \beta_1 NegDAC + \beta_2 NegDACxMOV + \beta_3 MTB_{jt} + \beta_4 \mathbf{L}GM_{jt} + \xi_{jt} \quad (6)$$

where:

NegDAC = 1 if the firm used negative earnings management (or DAC < 0)
0 otherwise;

$NegDACxMOV_{jt}$= 1 if the firm used negative earnings management and
moved down (up) to the Russell 2000 (1000) Index in year t
0 otherwise;

MTB_{jt} = market-to-book ratio for firm j in year t; and

LGM_{jt} = the log of firm j's market capitalization in year t.

The regression provides a final analysis of the relationship between CAR and earnings management for the firms in the Russell Indexes.

The next section reports the empirical results for the earnings management analysis as well as the event study analysis incorporating the earnings management information.

EMPIRICAL RESULTS.

Earnings management analysis

We examine the bottom 100 firms of the Russell 1000 where we differentiate the ones that moved versus the ones that remained in the Russell 1000 Index. According to H1, the discretionary abnormal accruals for the firms that moved to the Russell 2000 Index should be negative and be less than for firms that were not in the sample (Nonsample). Table 2, Panel A supports our hypothesis, H1. The DAC for the firms that moved down to the Russell 2000 Index exhibit negative earnings management with DAC numbers of -0.0094 and -0.01253 for the unadjusted DAC using a regression with at least 15 observations (DAC_15) and for DAC adjusted for performance (ADJDAC_15), respectively. Moreover, the managed earnings are less than the Nonsample firms' DAC at a statistical significant level of 4.44% using the performance adjusted measure (ADJDAC_15). The DAC using a regression with at least 10 observations (DAC_10) display similar results.

Next, we examine the DAC for the firms that moved down to the Russell 2000 versus the ones that remained in the Russell 1000 Index. The ADJDAC measure for firms that moved down to the Russell 2000 use downward earnings management (-.01253) while the firms that did not move displays a positive earnings management with ADJDAC_15 equaled to +.00194. Moreover, we find the ADJDAC_15 for the firms that moved down are statistically less than the ones that did not move out of the Russell 1000, and the difference is statistically significant at the 3.77% level. These results provide supporting evidence for H1.[9]

Table 2, Panel B, reports the results for the top 100 firms of the Russell 2000 Index where we separate the firms that moved up to the Russell 1000 Index versus the ones that remained in the Russell 2000. Also, we examine the firms that are not in the sample (Nonsample) used to estimate the total accrual regression coefficients. According to H2, firms that remain in the Russell 2000 Index may have done so by using negative earnings management. However, we find no evidence to support H2. These firms use positive earnings management with DAC_15 equaled to +0.0073 and ADJDAC_15 equaled to +0.0048. While these values are significantly different from the Nonsample, the direction is not as expected. However, the results support the fact that ADJDAC of firms that remained in the Russell 2000 (+0.0048) exhibit, on average, lower adjusted accruals than the ones that moved up to the Russell 1000 (+0.0067) Index, though the difference is not statistically significant.

Event study analysis.

We examine the event study results to determine whether earnings management affects how the market reacts to the firms during the reconstitution period. We use three different benchmarks to ensure that the CAR results are robust. The three benchmarks are: (1) index comprised of all firms in the respective Russell Index, excluding the sample firms (2) firms in CRSP with the same 2-digit SICs as our sample firms, and (3) firms in the respective Russell Index with the same 2-digit SICs excluding the sample firms.

Table 3 shows the cumulative abnormal returns for the borderline firms in the Russell 1000, and the results show significant negative CARs for the entire period using all three benchmarks.[10] The negative CARs of -0.0279, -0.0232, and -0.0185 are statistically significant.[11] During May 15 to 31 (ranking period) the CARs are marginally significant for two benchmarks, at -0.0076 and -0.0075, respectively. In late June or subperiod 3, when the firm names in each list are disseminated, the CARS exhibit significant negative values of -0.0140, -0.0085, and -0.0089, respectively. Finally the post reconstitution or subperiod 4 (Monday after the 4th Friday of June to July 5) displays significant negative CARs equal to -0.0062, -0.0078, and -0.0060, statistically significant at the 5%, 1%, and 10% levels, respectively.

TABLE 2
DISCRETIONARY ABNORMAL ACCRUALS (DAC) AND PERFORMANCE ADJUSTED DAC (ADJDAC)

Panel A contains the discretionary abnormal accruals (DAC) for the bottom 100 firms in the Russell 1000 that moved to the Russell 2000 and those that did not move as well as the non-sample firms. The Nonsample consists of firms not in the sample with the same 2-digit SIC. DAC_15 used a sample of at least 15 firms in the regression of 2-digit SIC firms and DAC_10 used at least 10 firms in the regression. Statistical tests are: Test 1: A one-tailed test with the alternative hypothesis that the DAC of sample firms that moved down from Russell 1000 to Russell 2000 managed earnings downward or DAC(Moved) < DAC(Nonsample); Test 2: A one-tailed test with the alternative hypothesis that the DAC of firms that moved down is less than the DAC of firms that remained in the Russell 1000, or DAC(Moved firms) < DAC(Not Moved). Panel B contains the discretionary abnormal accruals (DAC) for the top 100 firms in the Russell 2000 that moved to the Russell 1000 and those that did not move as well as the non-sample firms. Statistical tests are: Test 1: A one-tailed test with the alternative hypothesis that the DAC of sample firms that moved up from Russell 2000 to Russell 1000 did not manage earnings or DAC(Moved) < DAC(Nonsample); Test 2 A one-tailed test with the alternative hypothesis that the DAC of firms that remained in the Russell 2000 managed earnings downward, or DAC(Moved firms) < DAC(Nonsample); Test 2: A one-tailed test with the alternative hypothesis that DAC of sample firms that remained in Russell 2000 is less than the DAC of firms that moved up to Russell 1000 or DAC(Not moved) < DAC(Moved).

	DAC_15	ADJDAC_15	DAC_10	ADJDAC_10
Panel A - Sample Firms: Bottom 100 (Borderline) Russell 1000 Firms				
(1) Sample firms that moved down to Russell 2000	-0.0094	-0.01253	-0.0089	-0.0119
(2) Sample firms that did not move out of Russell 1000	0.0029	0.00194	$ 0.00	$ 0.00
(3) Non-sample firms	0	0	0	0
Test 1: P-value (one-tailed) (1)<(3)	0.8171	**0.0444****	0.2056	**0.0505***
Test 2: P-value (one-tailed) (1) < (2)	**0.050****	**0.0377****	**0.061***	**0.0429****
Number of Observations for (1)	85	85	87	87
Number of Observations for (2)	316	316	329	329
Number of Observations for (3)	40,242	40,242	41,177	41,177
Panel B - Sample Firms: Top 100 (Borderline) Russell 2000 Firms				
(1) Sample firms that moved up to Russell 1000	0.0064	0.0067	0.0066	0.0069
(2) Sample firms that did not move out of Russell 2000	0.0073	0.0048	0.0072	0.0046
(3) Non-sample firms	0	0	0	0
Test 1: P-value (one-tailed) (1)<(3)	**0.0733***	**0.0563***	**0.0624***	**0.0537***
Test 2: P-value (one-tailed) (1) < (2)	0.4222	0.3549	0.4514	0.3179
Number of Observations for (1)	87	87	89	89
Number of Observations for (1)	321	321	333	333
Number of Observations for (3)	411,590	411,590	421,002	421,002

** and * statistically significant at the 5% and 10% level, respectively.

TABLE 3
CUMULATIVE ABNORMAL RETURNS (CAR) FOR SAMPLE FIRMS

Sample of 100 firms of the lowest ranking of the Russell 1000 are the borderline firms of the Russell 1000 (bottom 100) and the 100 firms of the highest of the Russell 2000 are the borderline firms of the Russell 2000 (top 100). Benchmarks to calculate the cumulative abnormal returns (CAR) are: (1) All firms in the Russell 1000 (Russell 2000) excluding the 100 borderline firms (denoted Russell in the Table) (2) all CRSP firms with the same 2-digit SIC as the firms in the borderline sample firms (denoted CRSP) and (3) firms in the Russell 1000 (Russell 2000) with the same 2-digit SIC as the borderline sample firms, excluding the borderline firms (denoted Russell-SIC). CARS are calculated for four subperiods: subperiod 1 is the ranking period from May 15 to May 31; subperiod 2 is the waiting period, from June 1 to the second Friday of June; subperiod 3 is the reconstitution announcement period - beginning on the second Friday of June, when preliminary lists for the additions and deletions to the indexes are communicated to the marketplace; and finally subperiod 4 is the post-reconstitution period, starting on the first day when the reconstitution goes into effect to July 5.
*, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively. p-values are shown in the parentheses.

Benchmark Index Used:	Entire Period	Subperiod 1	Subperiod 2	Subperiod 3	Subperiod 4
Panel A - Sample Firms: Bottom 100 (Borderline) Russell 1000 Firms (440 observations)					
Russell	-0.0279*** *(0.000)*	-0.0076* *(0.070)*	0.0000 *(0.992)*	-0.0140*** *(0.000)*	-0.0062** *(0.038)*
CRSPC	-0.0232*** *(0.001)*	-0.0075* *(0.060)*	0.0005 *(0.887)*	-0.0085** *(0.011)*	-0.0078*** *(0.007)*
Russell SIC	-0.0185** *(0.015)*	-0.0061 *(0.142)*	0.0025 *(0.543)*	-0.0089** *(0.017)*	-0.0060* *(0.055)*
Panel B - Sample Firms: Top 100 (Borderline) Russell 2000 Firms (624 observations)					
Russell	-0.0056 *(0.235)*	0.0027 *(0.348)*	-0.0080*** *(0.000)*	-0.0035 *(0.176)*	0.0033* *(0.077)*
CRSPC	0.0187*** *(0.000)*	0.0093*** *(0.000)*	-0.0033* *(0.069)*	0.0037 *(0.105)*	0.0090*** *(0.000)*
Russell SIC	-0.0090* *(0.057)*	0.0025 *(0.386)*	-0.0097*** *(0.000)*	-0.0042 *(0.111)*	0.0024 *(0.175)*

Subperiod 4 includes only firms that remained in the Russell 1000 and did not move to the Russell 2000. Therefore, these results support the past studies that find a negative deletion effect for firms excluded from the Russell 2000 Index.

The addition effect, however, is mixed for the borderline firms in the Russell 2000 Index. The CAR is positive (+0.0033) only during the post-reconstitution subperiod, and in fact, negative (-0.0080) during the early June subperiod. When we use the CRSP firms as the benchmark the CAR equals +0.0187 during the entire period and is statistically significant at the 1% level. Using the CRSP benchmark, the May subperiod also exhibits a statistically significant positive CAR of +0.0093, but a reversal occurs during the first 2 weeks of June (-0.0033) though only marginally significant. The CAR becomes positive and significant during the post reconstitution period (+0.0090), also supporting the addition effect. Finally, when the Russell 2000 firms with the same 2-digit SICs are used as the benchmark, CAR over the entire May to July period equals -0.0090, mostly due to the significant CAR during the early June subperiod (-0.0097). In summary, we find some positive Russell addition effect, which is not as strong as in earlier

studies, possibly indicating that in recent years the prominence of the Russell 2000 effect may have diminished.

Next, we conduct a more detailed analysis of the cumulative abnormal returns incorporating the earnings management effect on the Russell Index. Table 4, Panel A, examines the firms that moved from the Russell 1000 to the Russell 2000 Index or we analyze to see whether downward earnings management facilitates the addition effect. In contrast to past studies, we show that no addition effect exists. The CARs are negative and statistically significant for the entire period for all three benchmarks. The CARs are -0.0749, -0.0638, and -0.0665, and are statistically significant at the 1%, 5%, and 5% levels, respectively. Moreover, the CARs are negative and statistically significant during the reconstitution and post reconstitution subperiods. For example, the CARs for the Russell Index benchmark (comprised of the Russell Index firms excluding the sample firms) equal -0.0262 and -0.0326 and significant at the 5% and 1% levels. Rather than evidence of the Russell addition effect, the results imply that the firm performance dominates the Russell effect due to their demotion to the smaller cap index (Russell 2000) from the larger cap index (Russell 1000).

Examining Table 4, Panel B, shows that the firms that remained in the Russell 2000, exhibit a positive and statistically significant CAR for the entire period when the CRSP benchmark is used. The CAR equals +0.0212 and significant at the 1% level. The CARs are also positive and significant (+0.0067, +0.0079, and +0.0101) during 1, 3, and 4 subperiods, respectively. They provide supporting evidence for hypothesis H4 stating that negative earnings management helped these firms to remain in the Russell 2000 Index and were rewarded with significant positive CARs. It supports the hypothesis that firms using downward earnings management to remain in the small cap index benefited from the Russell addition effect.

Table 4, Panel C, displays the results for firms utilizing positive earnings management and remained in the Russell 1000. It shows statistically significant negative CARs during the entire May to July 5 period as well as during the May 15 to May 31 subperiod, and the reconstitution subperiod (2nd Friday to the 4th Friday of June). The CAR results for these firms reflect the Russell deletion effect outweighing any benefits from positive earnings management. Their CARs are -0.0353, -0.0276, and -0.0249 for the entire period for the three different benchmarks, and all statistically significant at the 1%, 1%, and 5% levels.

Finally, the subsample of firms that moved from the Russell 2000 to the Russell 1000 exhibits positive and significant CAR for the entire period when using the benchmark composed of CRSP firms with the same 2-digit SIC. It equals +0.0241 and significant at the 10% level. However, the CARs are not consistently positive. During the ranking period (subperiod 1) it is positive and statistically significant at the 5% level (+0.0210). Then the CAR turns negative during the early part of June (-0.0083), but regains a positive CAR during the post-reconstitution announcement (+0.0151). These results imply that the firms moved up to the Russell 1000 large cap index due to strong performance, and this positive CAR offsets any impact from the Russell deletion effect.

In summary, these results provide supporting evidence that earnings management influences the market reaction to the index changes. Moreover, it shows that the subsequent abnormal returns generated by the firms, on average, depend on earnings management and which index the firms end up in after the reconstitution. If the firms manage earnings downward, their CARs, on average, are positive if the firms remain in the Russell 2000 Index, but will be negative if they move down to the Russell 2000 Index. These results suggest that the Russell addition effect does not exist for all firms, and on average, the firms on the borderline of the Russell 1000 that subsequently move down suffer from poor performance that resulted in moving down to the smaller cap index. In contrast, if the firms manage earnings upward, their CARs, on average, are positive if they move from the Russell 2000 to the Russell 1000 reflecting better performance. However, the firms that remain in the Russell 1000 Index exhibit negative CARs suggesting the effects of the Russell deletion effect.

TABLE 4
Cumulative Abnormal Returns (CAR) for Subsamples

The table reports CARs for four subsamples: Subsample 1 in Panel A includes borderline firms that moved from Russell 1000 to Russell 2000 that managed earnings downward (DAC < 0); Subsample 2 in Panel B includes borderline firms that remained in Russell 2000 and managed earnings downward (DAC < 0); Subsample 3 in Panel C includes borderline firms that remained in Russell 1000 that managed earnings upward (DAC >0); and Subsample 4 in Panel D includes borderline firms that moved from Russell 2000 to Russell 1000 that managed earnings upward (DAC >0). CARS are calculated for four subperiods: subperiod 1 is ranking period from May 15 to May 31; subperiod 2 is the waiting period, from June 1 to the second Friday of June; subperiod 3 is the reconstitution announcement period - beginning on the second Friday of June, when preliminary lists for the additions and deletions to the indexes are communicated to the marketplace; and finally subperiod 4 is the post-reconstitution period, starting on the first day when the reconstitution goes into effect to July 5. Benchmarks to calculate the cumulative abnormal returns (CAR) are: (1) All firms in the Russell 1000 (Russell 2000) excluding the 100 borderline firms (denoted Russell in the Table) (2) all CRSP firms with the same 2-digit SIC as the firms in the borderline sample firms (denoted CRSP) and (3) firms in the Russell 1000 (Russell 2000) with the same 2-digit SIC as the borderline sample firms, excluding the borderline firms (denoted Russell-SIC).
*, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively. p-values are shown in the parentheses.

Benchmark Index Used:	Entire Period	Subperiod 1	Subperiod 2	Subperiod 3	Subperiod 4
Panel A - Companies with negative discretionary accruals that moved from Russell 1000 to Russell 2000 (63 observations)					
Russell	-0.0749*** (0.007)	-0.0203 (0.263)	0.0041 (0.769)	-0.0262** (0.038)	-0.0326*** (0.003)
CRSPC	-0.0638** (0.012)	-0.0230 (0.170)	0.0027 (0.832)	-0.0182* (0.099)	-0.0254** (0.020)
Russell SIC	-0.0665** (0.010)	-0.0212 (0.194)	0.0021 (0.874)	-0.0234** (0.042)	-0.0240** (0.036)
Panel B - Companies with negative discretionary accruals that stayed in Russell 2000 (279 observations)					
Russell	-0.0034 (0.615)	0.0002 (0.959)	-0.0084*** (0.009)	0.0000 (0.990)	0.0048* (0.089)
CRSPC	0.0212*** (0.000)	0.0067** (0.040)	-0.0035 (0.233)	0.0079** (0.014)	0.0101*** (0.000)
Russell SIC	-0.0083 (0.237)	-0.0008 (0.839)	-0.0104*** (0.002)	-0.0007 (0.861)	0.0037 (0.176)

TABLE 4 (Continued)

Benchmark Index Used:	Entire Period	Subperiod 1	Subperiod 2	Subperiod 3	Subperiod 4
Panel C - Companies with positive discretionary accruals that stayed in Russell 1000 (216 observations)					
Russell	-0.0353*** (0.001)	-0.0136*** (0.008)	-0.0052 (0.313)	-0.0152*** (0.002)	-0.0012 (0.790)
CRSPC	-0.0276*** (0.005)	-0.0120** (0.014)	-0.0029 (0.551)	-0.0095** (0.045)	-0.0032 (0.463)
Russell SIC	-0.0249** (0.020)	-0.0117** (0.033)	-0.0013 (0.807)	-0.0104* (0.057)	-0.0015 (0.740)
Panel D - Companies with positive discretionary accruals that moved from Russell 2000 to Russell 1000 (105 observations)					
Russell	0.0041 (0.773)	0.0157 (0.126)	-0.0134*** (0.006)	-0.0051 (0.510)	0.0069 (0.190)
CRSPC	0.0241* (0.069)	0.0210** (0.037)	-0.0083* (0.067)	-0.0037 (0.583)	0.0151*** (0.003)
Russell SIC	-0.0085 (0.546)	0.0111 (0.275)	-0.0127** (0.014)	-0.0116 (0.119)	0.0047 (0.360)

Next, we split the firms into ones that engaged in negative and positive earnings management. Table 5, Panel A, displays the CARs of the sample firms that moved from the Russell 1000 to the Russell 2000 using the benchmark comprised of the Russell Index excluding the sample firms. [12] The firms that engage in negative earnings management exhibit statistically significant negative CARs during the entire period from May 15 to July 5 (-0.0749) as well as during reconstitution subperiod (-0.0262) and the post-reconstitution subperiod (-0.0326). The ones using positive earnings management also display negative CARs for the entire period (-0.0580); however, the reconstitution (-0.0168) and post-reconstitution (-0.0138) subperiods do not exhibit statistical significance. These results suggest that no Russell addition effect is evident for this group regardless of earnings management. The firms display no gains from the Russell addition effect, and instead, exhibit significant negative CARs for the entire period. It appears that the lower market capitalization due to poor performance led these firms to fall out of the Russell 1000, and performance dominated any benefits from reconstitution and higher demand for their stocks.

Table 5, Panel B, gives the results for the sample firms that remained in the Russell 2000 Index. The firms utilizing negative earnings management exhibit marginally significant positive CAR equal to 0.0048 during post reconstitution (subperiod 4) while exhibiting negative CAR during subperiod 2 (-0.0084). Therefore, managing earnings downward helped the firms attain the Russell addition effect after the reconstitution occurred. In contrast, the firms that managed earnings upward fared worse as they experienced no benefits from the Russell addition effect. They display significant negative CARs (-0.0077) during early June subperiod as well as the late June subperiod (-0.0064) with no significant positive CAR during the post reconstitution subperiod. Moreover, the firms using positive earnings manage did not benefit from managing their earnings. In support of H4, these results provide evidence that only the firms managing earnings downward benefited from the Russell addition effect during the post reconstitution subperiod.

TABLE 5
Cumulative Abnormal Returns (CAR) for Negative and Positive Earnings Management

The table compares CARs for firms that were engaged in negative and positive earnings management. Subsample 1 in Panel A includes borderline firms that moved from Russell 1000 to Russell 2000 that managed earnings downward (DAC < 0); Subsample 2 in Panel B includes borderline firms that remained in Russell 2000 and managed earnings downward (DAC < 0); Subsample 3 in Panel C includes borderline firms that remained in Russell 1000 that managed earnings upward (DAC >0); and Subsample 4 in Panel D includes borderline firms that moved from Russell 2000 to Russell 1000 that managed earnings upward (DAC >0). CARs are calculated for four subperiods: subperiod 1 is ranking period from May 15 to May 31; subperiod 2 is the waiting period, from June 1 to the second Friday of June; subperiod 3 is the reconstitution announcement period - beginning on the second Friday of June, when preliminary lists for the additions and deletions to the indexes are communicated to the marketplace; and finally subperiod 4 is the post-reconstitution period, starting on the first day when the reconstitution goes into effect to July 5. The benchmark to calculate the cumulative abnormal returns (CAR) consists of all firms in the Russell 1000 (Russell 2000) excluding the 100 borderline firms. We do not report results for the other two benchmarks reported in Tables 3 and 4 since they are similar. The results are available upon request.
*, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively. Results of the t-test that the CARs are different are given in the parentheses.

DAC	Entire Period	Subperiod 1	Subperiod 2	Subperiod 3	Subperiod 4
Panel A - Companies that moved from Russell 1000 to Russell 2000 (63 negative and 54 positive observations)					
Negative	-0.0749 *** (0.0068)	-0.0203 (0.2633)	0.0041 (0.7692)	-0.0262 ** (0.0378)	-0.0326*** (0.0031)
Positive	-0.0580 *** (0.0088)	-0.0223 * (0.0562)	-0.0051 (0.6232)	-0.0168 (0.1183)	-0.0138 (0.1964)
Difference	-0.0169 (0.6217)	0.002 (0.9226)	0.0092 (0.5973)	-0.0094 (0.5650)	-0.0188 (0.2141)
Panel B - Companies that stayed in Russell 2000 (279 negative and 339 positive observations)					
Negative	-0.0034 (0.6154)	0.0002 (0.9592)	-0.0084*** (0.0092)	0.0000 (0.9903)	0.0048* (0.0886)
Positive	-0.0073 (0.2542)	0.0048 (0.2470)	-0.0077*** (0.0012)	-0.0064 * (0.0799)	0.0020 (0.4100)
Difference	0.0039 (0.6821)	-0.0046 (0.4259)	-0.0007 (0.8679)	0.0064 (0.2249)	0.0028 (0.4600)

TABLE 5 (Continued)

DAC	Entire Period	Subperiod 1	Subperiod 2	Subperiod 3	Subperiod 4
Panel C - Companies that stayed in Russell 1000 (219 negative and 216 positive observations)					
Positive	-0.0353 *** (0.0011)	-0.0136 *** (0.0082)	-0.0052 (0.3129)	-0.0152*** (0.0021)	-0.0012 (0.7898)
Negative	-0.0207 * (0.0644)	-0.0017 (0.7967)	0.0051 (0.4360)	-0.0129 ** (0.0137)	-0.0112*** (0.0040)
Difference	-0.0146 (0.3458)	-0.0119 (0.1559)	-0.0103 (0.2156)	-0.0023 (0.7478)	0.01* (0.0968)
Panel D - Companies that moved from Russell 2000 to Russell 1000 (94 negative and 105 positive observations)					
Positive	0.0041 (0.7725)	0.0157 (0.1259)	-0.0134*** (0.0061)	-0.0051 (0.5101)	0.0069 (0.1901)
Negative	-0.0029 (0.8365)	-0.0155 * (0.0694)	-0.0125 * (0.0673)	0.0102 (0.1739)	0.0148** (0.0116)
Difference	0.007 (0.7266)	0.0312** (0.0193)	-0.0009 (0.9185)	-0.0153 (0.1570)	-0.0079 (0.3054)

Table 5, Panel C, reports results for the sample firms that remained in the Russell 1000 Index. The firms that managed earnings upward display statistically significant and negative CARs during the entire May to July period (-0.0353) as well as the ranking subperiod (-0.0136) and the reconstitution subperiod (-0.0152). These results illustrate that the Russell deletion effect exists for these firms, despite their attempt to engage in positive earnings management. The firms that managed earnings downward also suffered from negative CARs which we attribute to the Russell deletion effect. They also suffered from the Russell deletion effect during the reconstitution subperiod (CAR equals -0.0129) and the post-reconstitution subperiod (-0.0112) with statistical significance at 5% and 1% levels, respectively. Therefore, managing earnings did not help them to avoid the deletion effect whereby the Russell effect dominates performance, regardless of earnings management.

Table 5, Panel D, displays the sample firms that moved up from the Russell 2000 to the Russell 1000. Despite attempting to improve earnings upwardly, the CARs for firms that engaged in positive earnings management showed a negative CAR in subperiod 2 equaled to -0.0134, which is significant at the 1% level. It appears to reflect the Russell deletion effect as the firms are deleted from the Russell 2000 Index and become the 'small fish in a larger pond'. In contrast, the firms that managed earnings downward exhibited a statistically significant positive CAR during the post-reconstitution subperiod (+0.0148) even though they experienced some negative marginally significant CARs during the early and mid-June subperiods (-0.0155 and -0.0125). These results imply that the firms that moved up to the Russell 1000 did not suffer from a Russell deletion effect even if they engaged in downward earnings management. This analysis suggests that upward earnings management does not automatically lead to strong performance, but experienced the negative Russell deletion effect. On the other hand, the firms that managed earnings downward, perhaps, in hopes of remaining in the Russell 2000, exhibit, on average, a positive CAR after the reconstitution, demonstrating that their movement up to the Russell 1000 was a result of strong performance.

TABLE 6

REGRESSION ANALYSIS OF CUMULATIVE ABNORMAL RETURNS (CAR) WHEN USING FIRMS IN RUSSELL INDEX EXCLUDING SAMPLE FIRMS

The table presents the results from the regression analysis with CARs as dependent variables in the regression: $CAR_{it} = \beta_0 + \beta_1$ NegDAC + β_2 NegDAC x MOV + β_3 MTB + β_4 LGM + ξit

CARs are calculated relative to their benchmark for four subperiods: subperiod 1 is ranking period from May 15 to May 31; subperiod 2 is the waiting period, from June 1 to the second Friday of June; subperiod 3 is the reconstitution announcement period - beginning on the second Friday of June, when preliminary lists for the additions and deletions to the indexes are communicated to the marketplace; and finally subperiod 4 is the post-reconstitution period, starting on the first day when the reconstitution goes into effect to July 5.

The independent variables as follows: NegDAC =1 if the firm used negative earnings management (DAC <0) or 0 otherwise; NegDAC x MOV is the interactive term between NegDAC and Index movement (MOV), it equals 1 if the firm used negative earnings management and moved down (up) to the Russell 2000 (1000) Index in year t and 0 otherwise; MTB is the market-to-book ratio for firm i in year t; and LGM is the log of the market capitalization for firm i in year t.

*, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively. p-values are shown in the parentheses

	Entire Period	Subperiod 1	Subperiod 2	Subperiod 3	Subperiod 4
Panel A - Regressions of borderline firms in the bottom 100 of the Russell 1000 index					
Regression intercept	-0.1233 (0.306)	-0.0068 (0.917)	0.0820 (0.235)	-0.1301** (0.015)	-0.0684 (0.204)
NegDAC	0.0336** (0.031)	0.0196** (0.010)	0.0135 (0.166)	0.0040 (0.589)	-0.0035 (0.524)
NegDAC x MOV	-0.0662** (0.025)	-0.0269 (0.124)	-0.0111 (0.508)	-0.0057 (0.684)	-0.0225* (0.073)
MTB, Market to Book Ratio	0.0002 (0.579)	-0.0003** (0.028)	-0.0002 (0.169)	0.0005* (0.056)	0.0003* (0.084)
LGM, Logarithm of Market Capitalization	0.0116 (0.455)	-0.0008 (0.925)	-0.0115 (0.204)	0.0150** (0.031)	0.0088 (0.204)
Adjusted R-squared	0.0181	0.0062	0.0009	0.0169	0.0303
Number of observations	435	435	435	435	435
Panel B - Regressions of borderline firms in the top 100 of the Russell 2000 index					
Regression intercept	-0.4170** (0.049)	-0.3465** (0.033)	0.0036 (0.960)	-0.0055 (0.955)	-0.0686 (0.276)
NegDAC	0.0059 (0.546)	0.0054 (0.355)	0.0013 (0.757)	0.0011 (0.841)	-0.0019 (0.625)
NegDAC x MOV	-0.0066 (0.692)	-0.0299*** (0.003)	-0.0061 (0.435)	0.0155* (0.084)	0.0139** (0.037)
MTB, Market to Book Ratio	-0.00002 (0.385)	0.00003*** (0.008)	0.00003*** (0.002)	0.00001 (0.686)	-0.00002** (0.025)
LGM, Logarithm of Market Capitalization	0.0526* (0.053)	0.0451** (0.032)	-0.0015 (0.873)	-0.0001 (0.993)	0.0091 (0.262)
Adjusted R-squared	0.0194	0.0544	-0.0037	0.0018	0.0109
Number of observations	618	618	618	618	618

Finally, a regression using CARs as the dependent variable is used to determine the effects of earnings management and moving between the Russell 1000 and 2000 Indexes on the stock abnormal returns. Table 6, Panel A, displays the analysis of the bottom 100 stocks on the borderline of Russell 1000. We include two control variables known to affect stock returns, market-to-book ratio and size (measured by the log of market capitalization). The results presented in Table 6, Panel A, display positive CARs for firms that use negative earnings management over the entire period (+0.0336) and the ranking subperiod (+0.0196), both significant at the 5% level. However, when we interact the dummy variables for negative earnings management (NegDAC) and whether the firm moved down to the Russell 2000 Index (MOV) we find a statistically significant negative CAR (-0.0662) over the entire period and a negative post-reconstitution subperiod (-0.0225). It suggests that the borderline firms of the Russell 1000 firms, on average, suffer from bad performance and exhibit no Russell addition effect. However, using negative earnings management appears to generate positive CARs over the entire period.

The results for the borderline firms of the Russell 2000 sample are presented in Table 6, Panel B. The firms that used negative earnings management are not statistically correlated to CARs. However, the coefficient of binary term NegDAC x MOV, showing interaction between negative earnings management and movement up to the Russell 1000 Index, is negative during the ranking subperiod (-0.0299) and significant at the 5% level. The interaction term becomes positive during the last two subperiods with coefficients equaled to +0.0155 in the reconstitution subperiod, and +0.0139 during the post-reconstitution subperiod which is significant at the 5% level. It implies that CAR will be higher during the reconstitution and post-reconstitution subperiods when firms move up to the Russell 1000 and use negative earnings management, thereby showing that performance dominates the Russell deletion effect.

Taken together, it suggests managing earnings downward help firms in the 'bottom' Russell 1000 gain abnormal returns. However, investing in firms that move down to the Russell 2000 do not always benefit from the Russell addition effect. Instead, the movement up to the Russell 1000 may generate a positive effect due to strong performance. Unlike past studies, we find that stocks on the borderline of the Russell Indexes appear to be dominated by stock performance rather than the Russell effect.

SUMMARY AND CONCLUSION

The study examines the firms that comprise the bottom 100 rankings of the Russell 1000 and the ones that make up the top 100 rankings of the Russell 2000 Index on May 31 of each year from 2004 to 2014. Past studies find that firms that move to the Russell 2000 Index exhibit significant positive returns (known as the addition effect) while the ones that move up to the Russell 1000 Index display significant negative returns (known as the deletion effect). Given the dollar value invested by financial investment firms to rebalance their passive indexes that mimic the Russell 2000, corporate managers of borderline firms might be motivated to manage earnings downward in order to move to the Russell 2000 or to remain in the Russell 2000. Our results show that borderline firms in the Russell 1000 that moved to the Russell 2000, indeed, engage in negative earnings management.

Earnings management adds new information to the Russell Index effects. We find, on average, firms that remained in the Russell 2000 exhibit significant positive CARs during the post-reconstitution subperiod only if they utilize negative earnings management. Additionally, firms that move up from the Russell 2000 to the 1000 Index and utilize negative earnings management generate positive CARs during the post-reconstitution subperiod. These results provide supporting evidence that firms will benefit from managing earnings downward during the post-reconstitution subperiod.

In summary, investors or managers attempting to use the Russell effect to take advantage of the stock gains during the reconstitution period may find that it is not a guaranteed strategy. However, we find, on average, firms that manage earnings downward exhibit positive CARs after the reconstitution, implying earnings management is one factor that may affect how the market reacts to the annual changes in the Russell Indexes.

ENDNOTES

1. The Russell 1000 and 2000 stock indexes comprise approximately the first 1000 (approximate rankings of 1-1000) and next 2000 (approximate rankings of 1001-3000) largest firms ranked by market capitalization. Thus, by virtue of index construction, stocks at the bottom of Russell 1000 have larger market capitalization than stocks at the top of the Russell 2000. Exact construction methodology is described in Russell (2015).
2. All common stocks traded in the U.S. are included in the ranking except for ADR, ADS, and stocks with prices below $1.00 on the last trading day of May.
3. Since 2007, Russell uses a banding policy abandoning a strict cutoff between the two indexes, mitigating index turnover.
4. CHL obtained the numbers for the passive asset investment from Russell's internal unaudited survey of their clients at the end of June and the asset benchmark information comes from the Russell Investments' 2008 US Equity Indexes: Institutional Benchmark Survey.
5. The earnings management literature advises researchers to adjust for firm performance as firms may have high accruals due to growth rather than due to managing earnings. We describe the process in Section 3.2.
6. Our study will likely exhibit different results as we examine the top 100 firms of the Russell 2000 Index and not the Russell 2000 Growth Index.
7. We utilize the discretionary accrual calculations used in studies by Kasnik (1999), Klein (2002), Ashbaugh, LaFond, and Mayhew (2003), and Kothari, Leone, and Wasley (2005). The firms in the Russell indexes were obtained from Russell Investments. See also Serbin, Borkovec, and Sun (2011).
8. We also conducted the following alternative method for the performance adjustment which gives us similar results. Firms are identified by the two-digit SIC of the firms in our sample. Quintile portfolios are formed by rank ordering the firms based on Return on Asset (ROA) from year t-1, and portfolios are formed.

$$ADJDACi,t = DACi,t - Median(DAC)p$$

where DAC values are taken from Equation (2) and Median(DAC)p is the median DAC for each quintile sorted by ROA, defined as net income/total assets.

9. Results for DAC_15, DAC_10, and ADJDAC_10 are similar.
10. The Russell Index used in Panel A is the Russell 1000 Index and Panel B uses the Russell 2000 Index.
11. These results may be mixed because we do not differentiate firms in the bottom 100 of the Russell 1000 (Russell 2000) from the ones that remained in the index versus those that subsequently moved out.
12. While Table V reports only the results with a benchmark of firms in the Russell Index excluding the firms on the borderline the other two benchmarks provide similar results, and are available upon request.

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