



2008 Russell Reconstitution Recap

I. Turnover

The number of companies affected by annual Russell Reconstitution has increased dramatically in 2008 relative to 2007. Two contributing factors have been overall increase in market volatility (average VIX went up from 12.8 for June 2006-May 2007 period to 21.8 for June 2007-May 2008 period) and continuing pace of M&A activity despite economic slowdown (the total number of deals in a 12-month July-June window remained in the neighborhood of 15,000 for two years in a row).

Continuing use of 5% bands¹ was not enough to prevent a 32% increase in the number of R2000 additions and 11% increase in the number of R2000 deletions.

Benefit Driven Incorporations (BDIs) continued to be eligible for Russell membership provided they met usual membership criteria, had a US headquarters or traded at US-based primary exchange). However, in 2008 only 2 BDI companies became a new members of the indexes (down from 61 last year).

Table 1 below compares the number of R2000 additions and deletes, including those shifting between the indexes, for the past six years, where the “%” columns represent the percentage change relative to the previous year.

TABLE 1: Percentage Changes of R2000 Adds/Deletes

Year	R2000 Adds		R2000 Deletes	
	#	%	#	%
2002	486	--	386	--
2003	365	-25%	281	-24%
2004	377	3%	272	-3%
2005	288	-24%	306	13%
2006	290	1%	278	-9%
2007	235	-19%	191	-31%
2008	310	32%	212	11%

II. Trading Volume

Table 2 below highlights observed liquidity pressure during reconstitution-related turnover of individual names, measured in typical days of trading. Relative to previous year the liquidity pressure got more pronounced mainly due to a dismal performance of the index over preceding 12 months which led to a lower inclusion cutoff (\$166mn in 2008 down from \$235mn in 2007). This, in turn, led to less liquid stocks being added to the index on effective date, which showed in increased turnover days for R2000 additions: the median number of days grew

¹ In 2007 Russell Company introduced 5% band around market capitalization breakpoints for R1000. In order to be moved from R1000 to R2000 or from R2000 to R1000 the existing index member's market cap had to fall outside the 5% of cumulative market cap breakpoint, which were based on the Russell 3000E Index (in 2008 the corresponding ranks were 821 and 1247). There were approximately 140 members of R1000 and R2000 that did not switch indexes in 2008 due to effect of the band.

from 5.7 to 11.5 days and the mean number of days almost doubled (from 9.6 to 18.9 days). Liquidity pressure for R2000 deletes, on the other hand, did not change much mostly because of the large and liquid names in R2-R1 category.

TABLE 2: Trading Volume Comparison for R2000 Adds/Deletes

Year	R2000 Adds			R2000 Deletes		
	Median	Mean	Max	Median	Mean	Max
2003	1.3	1.8	9.6	1.2	1.6	27.0
2004	5.3	6.0	26.7	6.1	9.1	70
2005	5.8	8.5	71.2	6.1	7.8	52.4
2006	7.2	9.9	56.6	7.6	10.3	59.1
2007	5.7	9.6	305.2	7.9	10.4	53.1
2008	11.5	18.9	169.2	7.1	9.3	45.1

III. Spread Return of Russell 2000 Adds and Deletes

Chart 1 shows a comparison of the R2000 Add/Delete return spread from the beginning of May to the middle of July for the last seven years. The spread is between equally-weighted portfolios of R2000 adds and deletes. Two observations about 2008 spread are worth noting: first the magnitude is one of the largest, and second, like in most of the past years the spread was well into downside mode as of effective day (the only exception is now distant 2002). In all years since 2002 the spread peaked from 4 to 13 days prior to effective days. No outlier was created in 2008: the spread peaked on June 17 (8 days prior to effective date).

CHART 1: R2000 Add/Delete Return Spreads

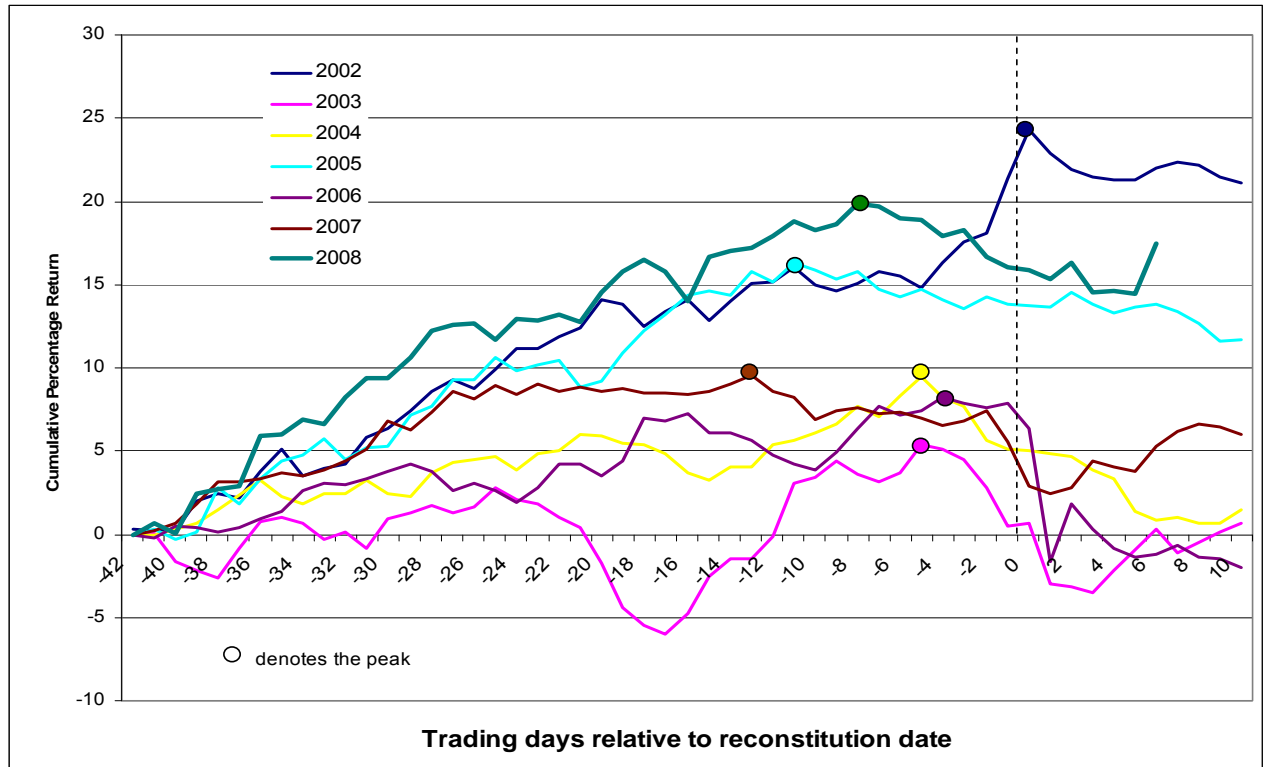
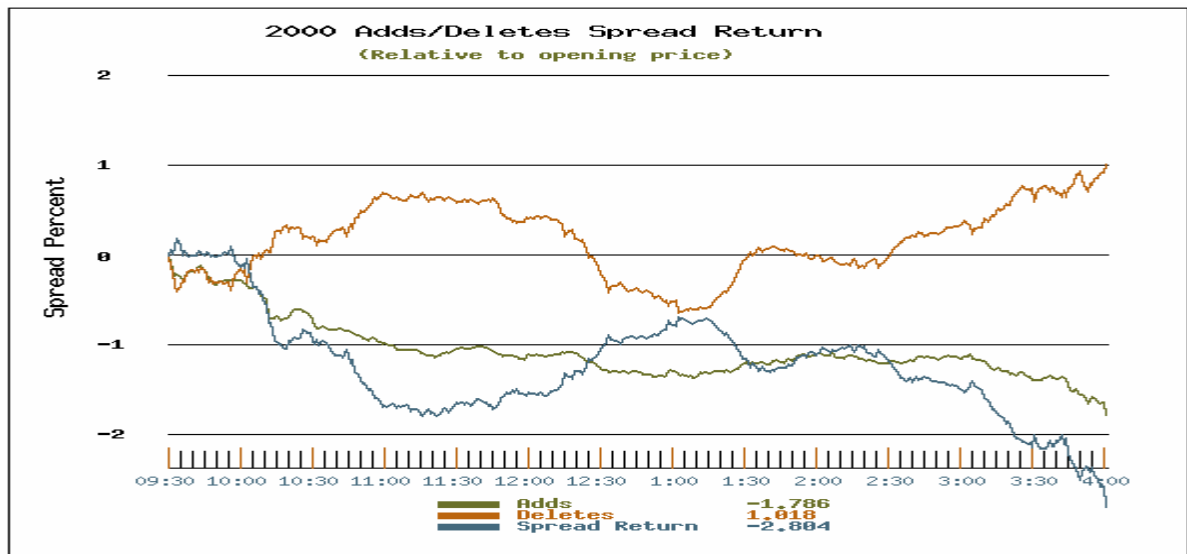
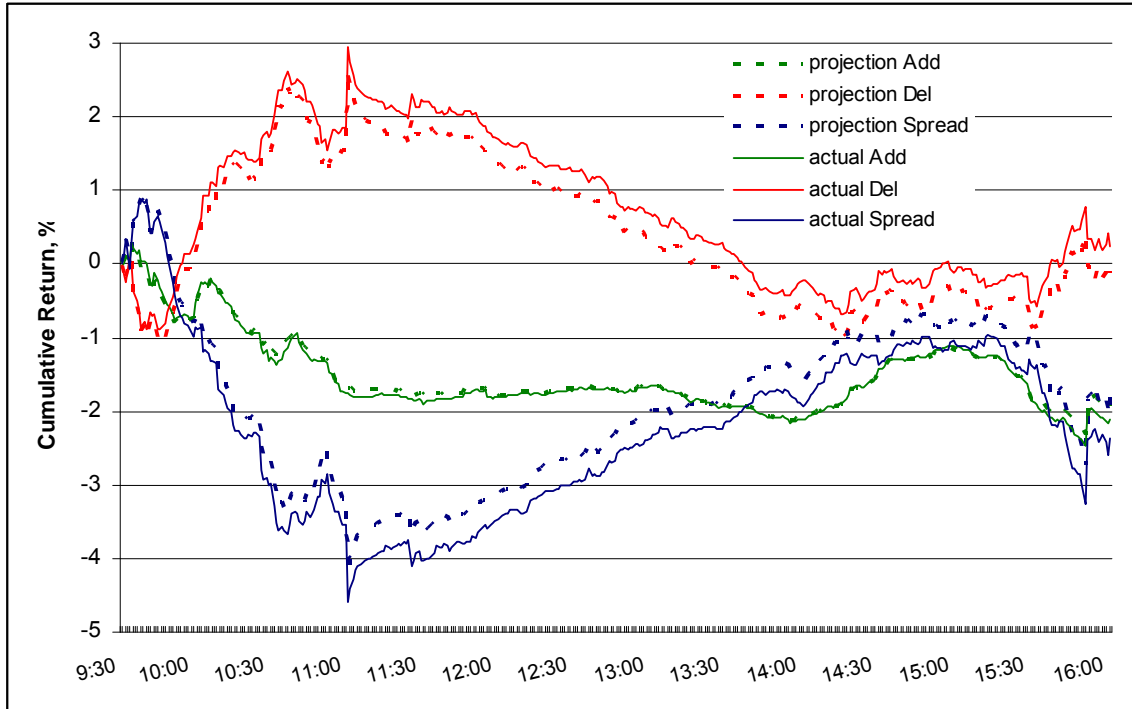


Chart 2 shows the intra-day cumulative spread between the R2000 adds and deletes on June 27, 2008. Below we also present corresponding chart from the previous year for comparison. Interestingly, the dynamics of the spread in both 2007 and 2008 is similar, albeit qualitatively rather than quantitatively. Specifically, in both years the morning trading was dominated by arbitrageurs covering their short positions and selling long positions. However, in 2008 the magnitude of the returns was much higher than in 2007. Starting from approximately 12 pm, trading pressure from index funds dominated, although the return on R2000 additions stubbornly refused to go up, probably, because of abundant supply of liquidity in those stocks from arbitrageurs. Since accumulating short positions is generally more difficult, R2000 deletes did not have as much support and went down nearly 3% between 12pm and 2:15pm. Corresponding phase in 2007 lasted a bit shorter – until around 1pm. Finally, the remainder of the day again saw the dynamics which was similar to the one observed in a year earlier: accumulating (or covering short positions in) deletes and further selling of R2000 adds (although buy side pressure on R2000 adds is also evident). Interestingly, in 2008 the spread return finished the day in the same neighborhood as in 2007: close to -2.5%. Notably, projection-based chart looks very similar to the chart based on actual adds/deletes, which attests to high forecast precision (more on that – in the next section). Notably, the return on R2000 additions is virtually identical whether projections or actual adds/deletes are used. Return on R2000 deletions differs a bit because it is more influenced by stocks in R2000→MicroCap group which are more difficult to predict.

CHART 2: Intra-day spread between R2000 adds and deletes on the effective date (big chart – June 27, 2008; small chart -- June 22, 2007)

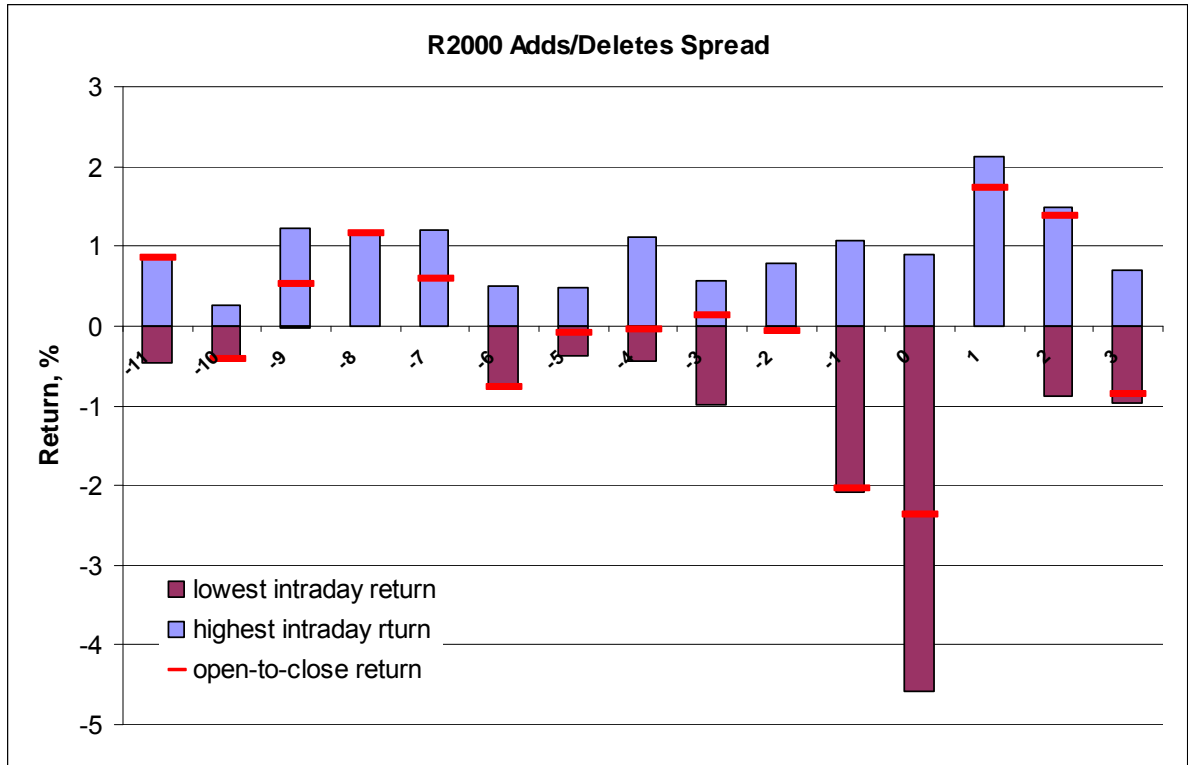


How significant was the magnitude of intraday adds/deletes spread return on June 27th? On Chart 3 we present intraday high, intraday low and open-to-close spread returns from June 12th (day -11) to July 2 (day +3)². While extraordinary dynamics of the spread on effective day is not surprising, the returns on the day

² Returns for adds and deletes portfolios are market-adjusted.

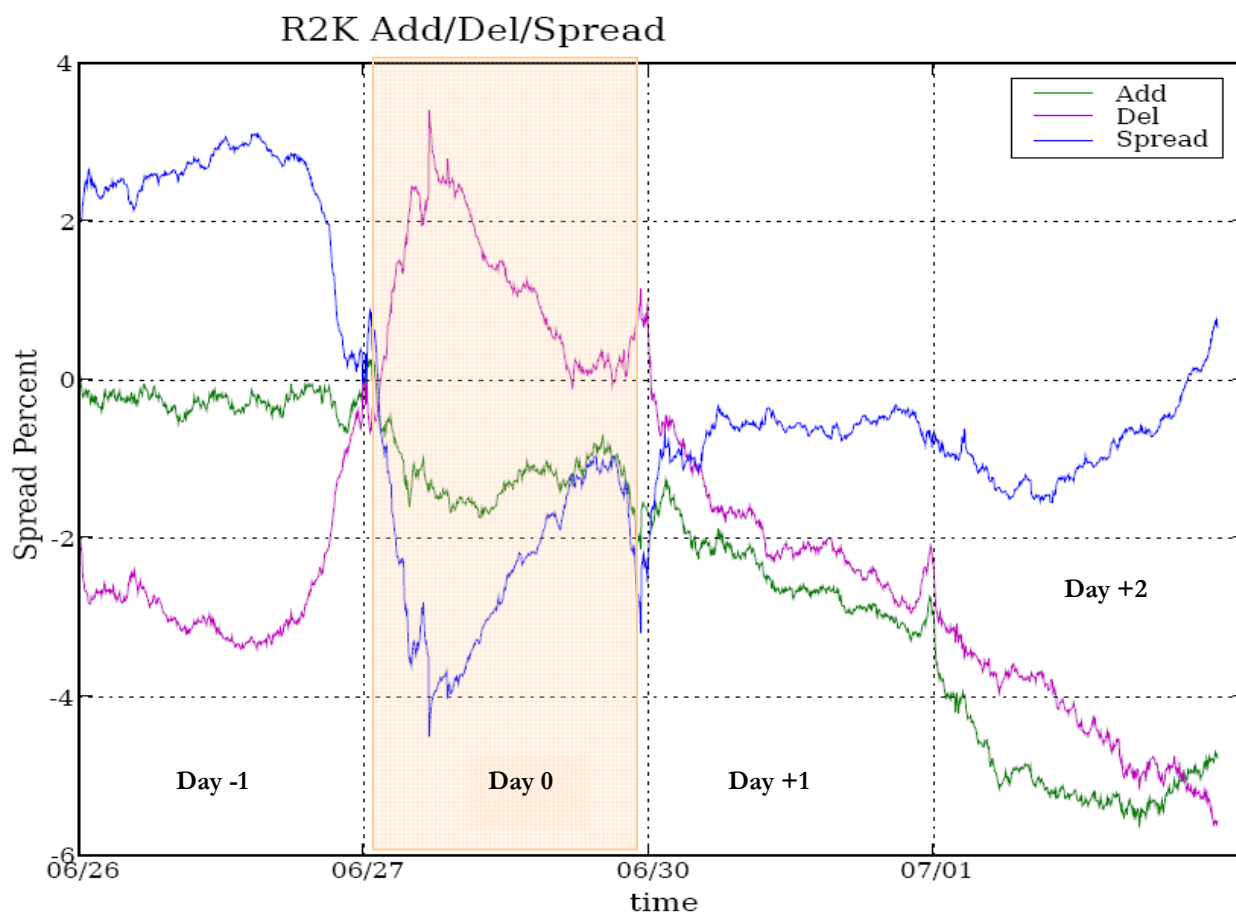
before and the day after effective date also deserve a mention. In the last 2 hours of trading on June 26 (day -1) R2000 deletes exhibited price run-up of 3% (Chart 4) which then continued into the morning of effective date for a total of almost 6% return from around 2pm on June 26 till 11am on June 27th.

CHART 3: R2000 adds/deletes spread for June 12 – July 2



On the other hand, deletes gave up all these gains and then some more during the remainder of trading on effective date and on two days that followed (days +1...+2), going down close to 3% on each of those legs. This behavior of R2000 deletes poses some questions with respect to purported activity of arbitrageurs, the first one being: if speculators had to cover their shorts or initiate long positions in deletes (expecting a rebound in the next 2-3 months) why did not they wait until indexers were done with their trading?

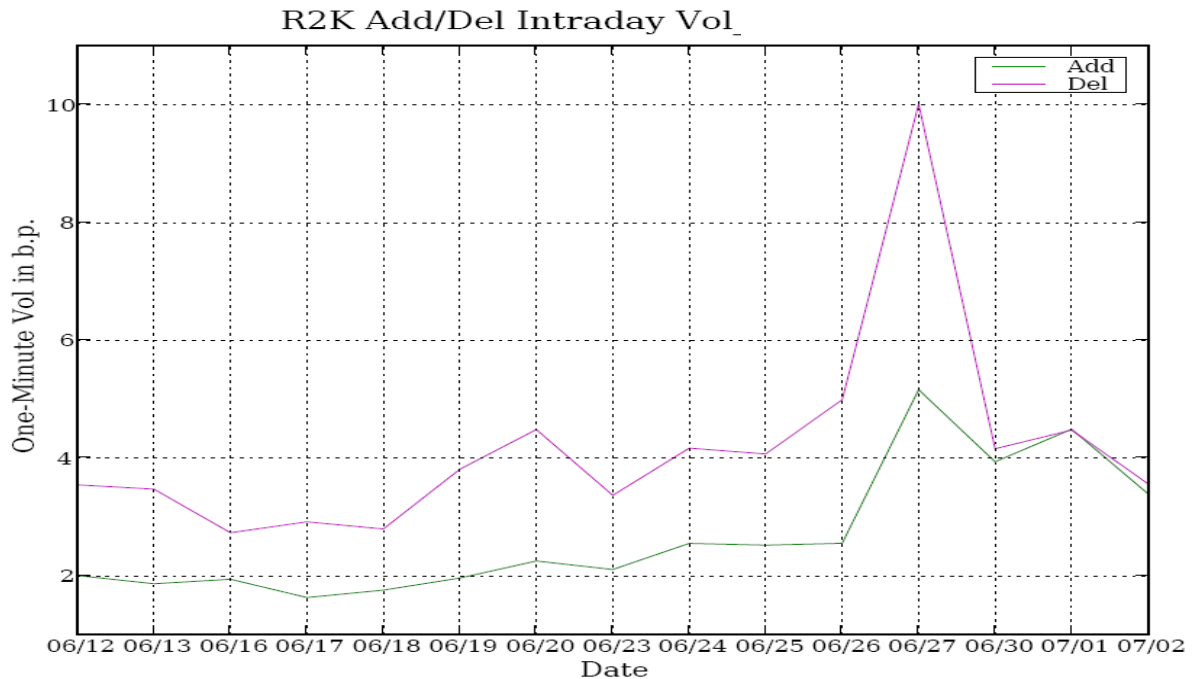
CHART 4: R2000 adds/deletes spread around effective date (days -1...+2)



We believe that arbitrage activity was also evident in R2000 adds. Considering that accumulating long positions is easier than accumulating short ones, the usual arbitrage strategy is to act as a liquidity supplier during the month of June (especially on the effective date). We provide indirect evidence of this on Chart 5, which shows intraday volatilities for R2000 adds and deletes for the period from June 12th till July 2nd. Specifically, abundant supply of R2000 adds offered by arbitragers allowed to attenuate price volatility around effective date. Note that while R2000 deletes are fundamentally more risky than adds, analyzing adds and deletes lists with ITG Logic[®] indicates that different exposures to fundamental risk factors could explain no more than 0.7-0.9bp of the difference in volatility³.

³ Available upon request.

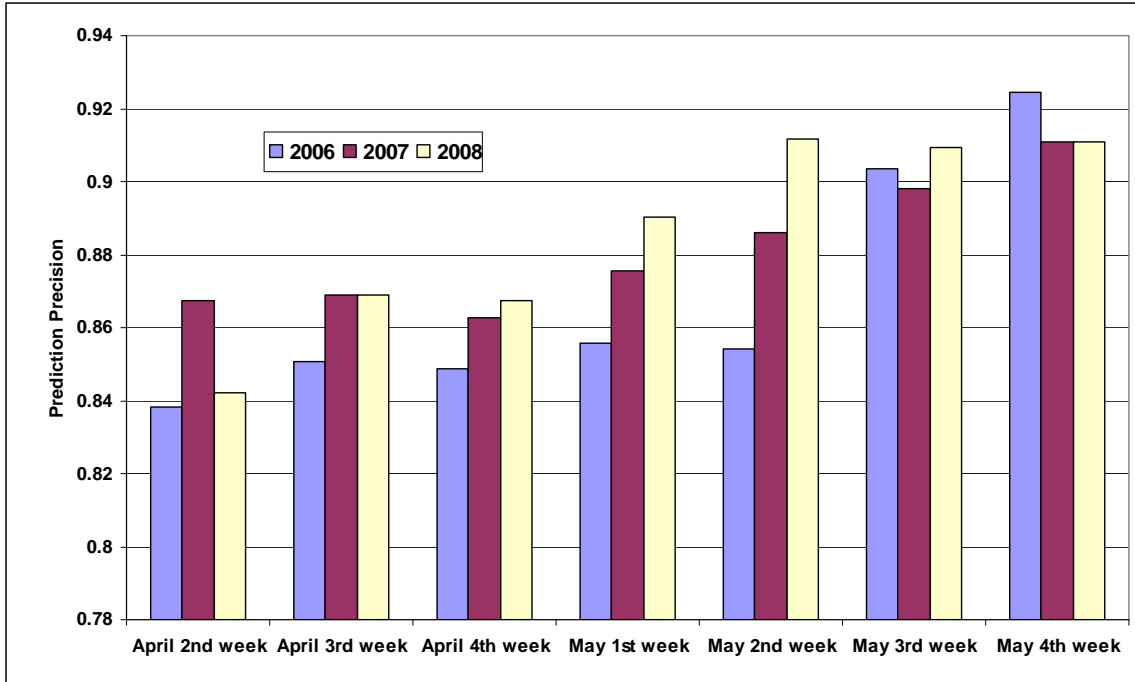
Chart 5: Intraday volatility from tick data



IV. Precision of ITG projections.

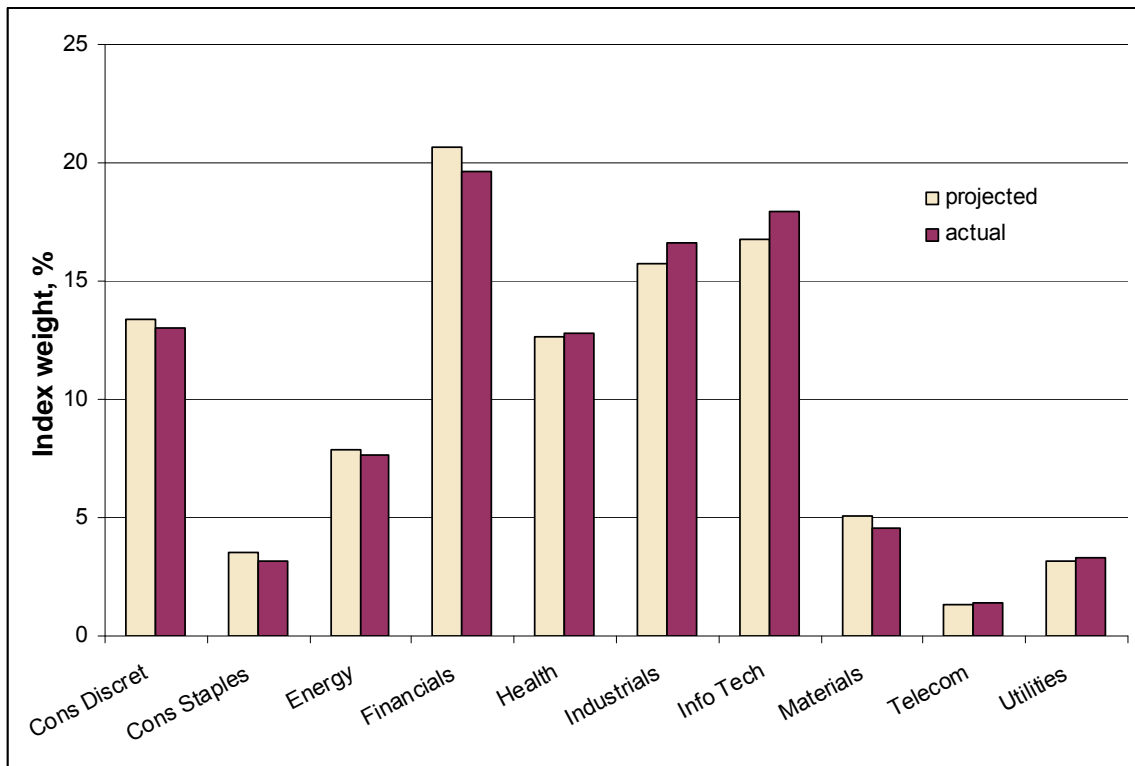
In Chart 6 below we report the precision of ITG projections in 2006-2008. Precision is calculated as 1 minus the ratio of erroneous projections to the total number of R2000 adds and deletes. Quite positively, the speed of convergence of ITG projections to their optimal values has been increasing. While in 2006-2007 the best precision level was not achieved before 3rd week of May, in 2008 that level was reached a week earlier. The absolute precision level as of the end of May remains quite stable at 91-92% during the last three years. Given that the total number of R2000 adds and deletes is approximately 500 (568 in 2006, 426 in 2007 and 522 in 2008), a 1% in the graph roughly corresponds to 5 companies. In absolute dimensions, we wrongly predicted 29 additions to and 18 deletions from R2000. However, only 9 of those errors were in the stocks that have (or had) non-negligible weight in the index: 4 erroneous R2-R1 and 5 erroneous R1-R2 projections.

CHART 6: Overall precision of ITG R2000 projections



On Chart 7 we present precision of ITG forecasts of sector weight in R2000 index.

CHART 7: Precision of ITG R2000 sector weight projections



Overall, ITG projection accuracy depicted on Chart 5 translates quite well into accurate prediction of sector weights: the largest over-prediction is for Financials (20.6% vs. 19.6% actual) and the largest under-prediction is for Information Technology (16.8 vs. 17.9 actual). For 7 out of 10 sectors projected weight is within 0.5% of the actual one.

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