

Online Appendix

Trading in the Options Market around the Financial Analysts' Consensus Revision

Darren K. Hayunga and Peter P. Lung

Appendix: Subsamples

The use of clustering and piggybacking filters may raise a question as to the representative nature of the final sample. To address this concern, we examine abnormal stock and options-implied returns over a longer reporting period from Day -30 to Day 30 for three subsamples: (1) the sample of clustered recommendations; (2) the sample of piggybacking events; and (3) the final sample we examine in this paper. Since we lengthen the examination period from $[-8,+8]$ to $[-30,+30]$, the benchmark period is Day -180 to -31.

Figure A1 details the *AR* values in the stock market and the *AIR* magnitudes of the synthetic security for each subsample. The abnormal stock returns (*AR*) for these three subsamples behave similarly. In contrast, the subsamples of clustering and piggybacking observations demonstrate that options investors trading even more days prior to the revision announcement than our final sample, more so for upgrades. This is consistent with the literature.¹ The results in table A1 demonstrate that clustering and piggybacking values demonstrate statistical and economic significance multiple days before we observe the change in behavior in the final sample that filters for these potential confounding events. Accordingly, the final sample we present in our article is more conservative and mitigates potential biases from clustering and piggybacking.

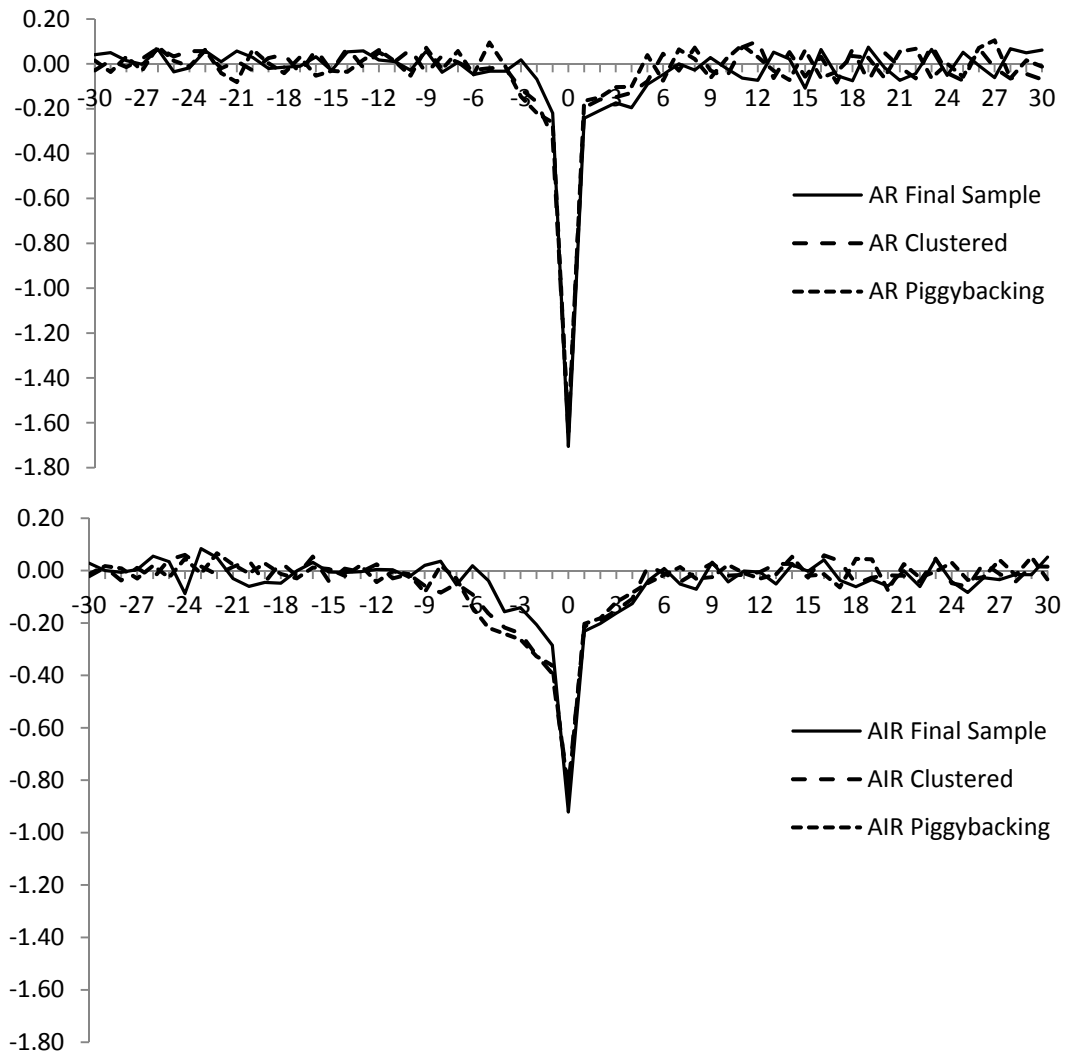
¹ See, for example, Irvine (2000), Welch (2000), Jackson (2005), and Altinkılıç and Hansen (2009).

Figure A1

Final Sample versus Clustering and Piggybacking Subsamples

This figure exhibits event-day abnormal stocks returns from Day -30 to Day +30 for three subsamples: (1) a sample of clustered recommendations, (2) a sample of piggybacking events, and (3) the final sample used in the paper. For firms that experience a downgrade, Graph A details the abnormal stock return (*AR*) using the three subsamples as well as the abnormal implied-options stock return (*AIR*). Graph B reports both (*AR*) and (*AIR*) for upgrades.

Graph A. Downgrades



Graph B. Upgrades

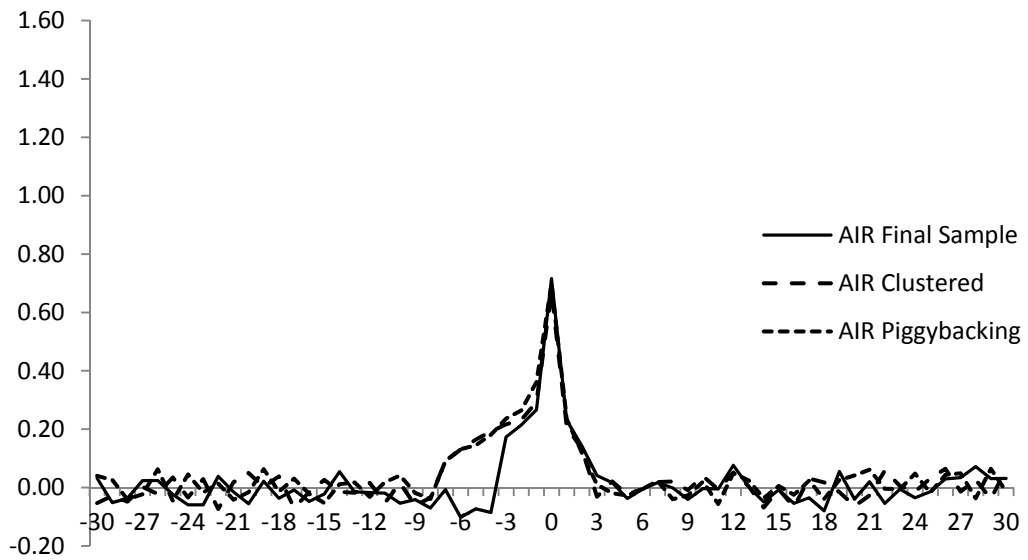
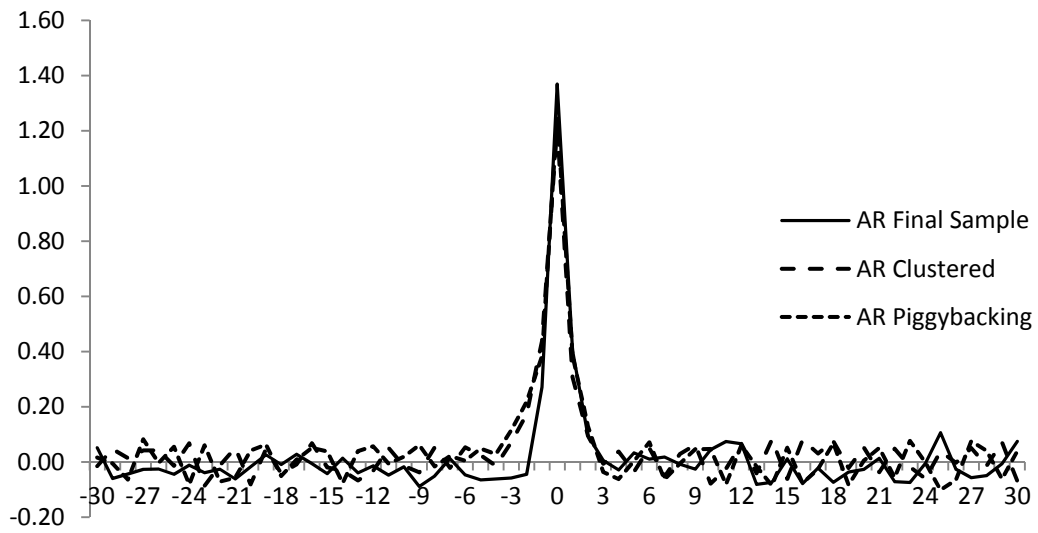


Table A1
Subsamples

The table reports three subsamples of firms that experience a consensus revision—the final sample as well as samples with clustered and piggybacking observations. ** and * denotes statistical significance at the 1% and 5% levels, respectively.

Panel A. Downgrades

Event Day	AR Clustered	AR Corporate Event	AR Final Sample	AIR Clustered	AIR Corporate Event	AIR Final Sample
-30	-0.03%	0.02%	0.04%	-0.02%	-0.01%	0.03%
-29	0.01%	-0.04%	0.05%	0.01%	0.02%	0.00%
-28	-0.01%	0.03%	0.01%	-0.04%	0.01%	-0.01%
-27	0.02%	0.03%	0.00%	0.01%	-0.03%	0.00%
-26	0.03%	-0.01%	0.06%	-0.03%	0.02%	0.06%
-25	0.03%	0.01%	-0.04%	0.04%	-0.03%	0.03%
-24	0.06%	-0.01%	-0.02%	0.06%	0.05%	-0.09%
-23	0.06%	0.06%	0.06%	0.02%	-0.01%	0.08%
-22	-0.02%	-0.04%	0.01%	-0.02%	0.03%	0.05%
-21	0.01%	-0.06%	0.06%	0.01%	0.02%	-0.03%
-20	-0.03%	0.06%	0.03%	0.04%	-0.01%	-0.06%
-19	0.03%	0.00%	-0.02%	-0.04%	0.03%	-0.05%
-18	0.04%	-0.04%	-0.01%	0.03%	-0.01%	-0.05%
-17	-0.04%	0.03%	-0.01%	-0.02%	-0.03%	0.00%
-16	0.06%	-0.05%	0.03%	0.05%	0.01%	0.03%
-15	-0.03%	-0.03%	-0.03%	-0.04%	0.01%	-0.01%
-14	0.07%	-0.04%	0.05%	0.01%	-0.02%	-0.01%
-13	-0.02%	0.02%	0.06%	-0.01%	0.02%	0.00%
-12	0.05%	0.06%	0.02%	0.02%	-0.04%	0.00%
-11	0.01%	0.01%	0.01%	-0.03%	0.00%	0.00%
-10	0.06%	-0.05%	-0.03%	-0.01%	-0.01%	-0.02%
-9	-0.04%	0.07%	0.06%	-0.05%	-0.04%	0.02%
-8	0.04%	-0.02%	-0.04%	-0.04%	0.02%	0.04%
-7	0.01%	-0.06%	0.01%	-0.05%	-0.03%	-0.05%
-6	-0.03%	0.05%	-0.05%	-0.07%	-0.05%	0.02%
-5	-0.02%	0.02%	-0.03%	-0.14% *	-0.17% **	-0.04%
-4	-0.02%	-0.01%	-0.03%	-0.22% **	-0.24% **	-0.16% **
-3	-0.04%	-0.03%	0.02%	-0.24% **	-0.26% **	-0.14% **
-2	-0.08%	-0.11% *	-0.07%	-0.32% **	-0.33% **	-0.21% **
-1	-0.33% **	-0.26% **	-0.22% **	-0.39% **	-0.36% **	-0.29% **
0	-1.62% **	-1.64% **	-1.71% **	-0.83% **	-0.85% **	-0.92% **
1	-0.22% **	-0.22% **	-0.24% **	-0.21% **	-0.20% **	-0.23% **

Event Day	AR Clustered	AR Corporate Event	AR Final Sample	AIR Clustered	AIR Corporate Event	AIR Final Sample
2	-0.19%**	-0.21%**	-0.21%**	-0.19%**	-0.18%**	-0.20%**
3	-0.15%*	-0.18%**	-0.17%**	-0.15%*	-0.12%*	-0.16%**
4	-0.13%*	-0.15%*	-0.20%**	-0.11%*	-0.08%*	-0.13%*
5	-0.08%*	-0.04%	-0.09%*	-0.07%*	-0.05%	-0.04%
6	0.01%	-0.03%	-0.05%	-0.01%	-0.02%	0.01%
7	-0.03%	0.01%	0.00%	-0.04%	0.01%	-0.05%
8	-0.05%	-0.02%	-0.03%	-0.01%	-0.03%	-0.03%
9	-0.03%	-0.04%	0.03%	0.03%	-0.02%	0.03%
10	-0.03%	0.02%	-0.02%	-0.02%	0.02%	-0.04%
11	0.01%	-0.04%	-0.06%	-0.02%	-0.01%	0.00%
12	-0.04%	0.03%	-0.04%	-0.01%	-0.03%	-0.01%
13	-0.03%	-0.03%	0.02%	0.03%	-0.01%	-0.05%
14	0.04%	-0.03%	-0.02%	0.03%	0.05%	0.02%
15	-0.02%	0.01%	-0.05%	-0.03%	-0.02%	0.00%
16	0.03%	-0.04%	0.02%	0.03%	-0.01%	0.04%
17	-0.04%	-0.03%	-0.05%	0.04%	-0.06%	-0.04%
18	-0.05%	0.04%	-0.02%	-0.05%	0.04%	-0.06%
19	-0.03%	-0.03%	0.03%	-0.03%	0.04%	-0.03%
20	0.02%	-0.05%	-0.02%	-0.02%	0.02%	-0.06%
21	-0.01%	0.03%	-0.05%	-0.02%	0.02%	0.00%
22	-0.06%	0.02%	-0.04%	-0.04%	-0.03%	-0.02%
23	0.03%	-0.06%	0.04%	0.05%	0.00%	0.04%
24	-0.04%	-0.03%	-0.05%	-0.05%	0.03%	-0.04%
25	-0.01%	-0.02%	0.05%	-0.06%	-0.04%	0.02%
26	-0.05%	0.03%	0.01%	0.03%	-0.02%	-0.03%
27	0.02%	0.04%	-0.06%	-0.01%	0.04%	-0.03%
28	0.02%	-0.05%	0.00%	-0.04%	-0.02%	-0.02%
29	-0.04%	0.02%	-0.02%	0.02%	0.05%	-0.02%
30	0.01%	0.01%	0.02%	0.01%	-0.03%	0.05%

Panel B. Upgrades

Event Day	AR Clustered	AR Corporate Event	AR Final Sample	AIR Clustered	AIR Corporate Event	AIR Final Sample
Panel B: Upgrades						
-30	-0.02%	0.02%	0.05%	-0.05%	0.04%	0.03%
-29	0.05%	-0.01%	-0.06%	-0.03%	0.03%	-0.05%
-28	0.01%	-0.06%	-0.04%	-0.05%	-0.04%	-0.04%
-27	0.04%	0.02%	-0.03%	0.00%	-0.02%	0.02%
-26	0.04%	0.00%	-0.03%	-0.02%	0.06%	0.02%
-25	-0.01%	0.06%	-0.04%	0.03%	-0.04%	-0.02%
-24	0.03%	-0.05%	-0.01%	-0.03%	0.04%	-0.06%
-23	0.04%	0.06%	-0.04%	0.03%	-0.02%	-0.06%

Event Day	AR Clustered	AR Corporate Event	AR Final Sample	AIR Clustered	AIR Corporate Event	AIR Final Sample
-22	-0.01%	-0.03%	-0.03%	-0.07%	0.01%	0.04%
-21	0.05%	-0.06%	-0.06%	0.02%	-0.04%	-0.01%
-20	-0.04%	0.04%	-0.02%	0.05%	-0.02%	-0.06%
-19	0.05%	-0.06%	0.03%	0.00%	0.06%	0.02%
-18	-0.04%	-0.05%	-0.01%	0.04%	-0.01%	-0.04%
-17	-0.01%	0.01%	0.03%	-0.07%	0.03%	-0.01%
-16	0.04%	0.05%	-0.01%	-0.02%	-0.02%	-0.05%
-15	-0.02%	-0.04%	-0.04%	0.03%	-0.05%	-0.02%
-14	-0.03%	-0.02%	0.01%	-0.01%	0.01%	0.05%
-13	-0.06%	0.04%	-0.04%	-0.02%	0.02%	-0.01%
-12	-0.03%	0.06%	-0.01%	0.02%	-0.03%	-0.02%
-11	0.05%	-0.01%	-0.05%	-0.05%	0.02%	-0.02%
-10	-0.01%	0.02%	-0.02%	0.02%	0.04%	-0.05%
-9	-0.04%	-0.06%	-0.03%	-0.06%	-0.02%	-0.04%
-8	0.05%	-0.02%	-0.05%	-0.03%	-0.04%	-0.07%
-7	-0.02%	-0.02%	0.01%	-0.01%	-0.02%	-0.01%
-6	0.05%	0.00%	-0.05%	0.03%	0.06%	-0.10%
-5	-0.03%	0.05%	-0.06%	-0.04%	0.02%	-0.07%
-4	0.01%	0.03%	-0.06%	0.12% *	0.15% *	-0.09%
-3	0.05%	0.03%	-0.06%	0.22% **	0.24% **	0.17% **
-2	0.11% *	0.09%	-0.04%	0.23% **	0.26% **	0.21% **
-1	0.44% **	0.38% **	0.27% **	0.29% **	0.36% **	0.27% **
0	1.22% **	1.25% **	1.37% **	0.67% **	0.70% **	0.72% **
1	0.31% **	0.39% **	0.40% **	0.21% **	0.24% **	0.23% **
2	0.09% *	0.13% *	0.10% *	0.13% *	0.12% *	0.14% *
3	0.03%	0.04%	0.01%	-0.03%	0.01%	0.04%
4	0.04%	0.06%	-0.03%	0.02%	-0.02%	0.02%
5	-0.01%	0.00%	0.03%	-0.02%	-0.03%	-0.04%
6	0.05%	0.04%	0.01%	-0.01%	0.00%	-0.01%
7	0.01%	-0.02%	0.02%	0.02%	0.02%	0.02%
8	0.03%	-0.01%	-0.01%	0.02%	-0.04%	0.00%
9	0.03%	0.05%	-0.03%	-0.01%	-0.03%	-0.04%
10	-0.02%	0.04%	0.04%	0.04%	0.02%	0.00%
11	-0.02%	-0.01%	0.06%	-0.01%	-0.06%	0.00%
12	0.05%	0.06%	0.02%	0.05%	0.05%	0.05%
13	0.04%	0.02%	-0.02%	0.01%	0.03%	0.00%
14	0.01%	-0.01%	0.02%	0.02%	-0.04%	-0.05%
15	-0.03%	0.05%	0.01%	-0.01%	0.01%	-0.01%
16	-0.02%	0.02%	-0.02%	-0.04%	-0.02%	0.05%
17	0.03%	-0.03%	0.05%	0.03%	0.02%	-0.03%
18	0.06%	0.06%	0.02%	0.02%	-0.04%	0.02%
19	-0.02%	0.00%	-0.01%	-0.02%	0.03%	0.05%
20	0.05%	0.01%	0.03%	-0.06%	0.04%	-0.04%

Event Day	AR Clustered	AR Corporate Event	AR Final Sample	AIR Clustered	AIR Corporate Event	AIR Final Sample
21	-0.01%	0.05%	0.01%	0.03%	0.06%	0.02%
22	0.05%	-0.05%	-0.03%	0.06%	0.00%	-0.05%
23	0.02%	0.04%	0.01%	0.01%	0.00%	-0.01%
24	-0.06%	0.00%	-0.01%	-0.01%	0.05%	-0.04%
25	0.04%	-0.05%	0.05%	0.03%	-0.02%	-0.01%
26	0.00%	-0.02%	-0.03%	0.06%	0.04%	0.03%
27	0.05%	0.03%	-0.01%	-0.01%	0.05%	0.03%
28	-0.01%	0.04%	0.03%	0.03%	-0.04%	0.06%
29	0.02%	-0.06%	-0.01%	-0.04%	0.06%	0.03%
30	0.02%	0.04%	0.03%	0.06%	-0.01%	0.03%

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