

The Financial Impact of ISO 9000 Certification in the US: An Empirical Analysis

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Abstract

This document contains the full results of the event studies discussed in the paper. We show the descriptive statistics of the sample, and report the results using matching by industry, ROA and ASSETS, industry and ROA only, and industry and ASSETS only, using both single control firms and portfolios of control firms, for all 6 performance measures.

Descriptive statistics

		N	mean	median	st.dev.	min.	max.
certified firms	TOTAL ASSETS	554	1629.32	218.82	5717.09	1.57	74293.00
	SALES	554	1649.11	252.77	5546.70	3.43	79557.00
	ROA	554	15.72	15.26	8.12	-33.08	60.69
	ROS	554	13.28	12.52	8.30	-60.44	52.93
	Tobin's Q	501	1.51	1.04	1.49	0.10	14.25
	COGS/SALES	554	63.03	65.45	15.72	17.57	94.80
	SALES/ASSETS	554	127.40	121.62	45.42	18.34	395.47
control firms (matched by industry, ROA and ASSETS)	TOTAL ASSETS	554	1662.83	197.10	6266.39	1.32	86343.00
	SALES	554	1749.33	266.84	7097.30	1.70	110496.00
	ROA	554	15.66	15.16	8.03	-32.14	58.16
	ROS	554	13.30	12.52	15.65	-295.66	48.53
	Tobin's Q	449	1.50	1.18	1.22	-0.83	11.58
	COGS/SALES	554	63.67	66.48	16.98	12.93	147.36
	SALES/ASSETS	554	127.08	118.65	54.20	10.87	382.25
control firms (matched by industry, ROA)	TOTAL ASSETS	554	1681.39	71.71	9749.92	0.23	121307.70
	SALES	554	1577.76	96.27	8953.79	0.27	118571.60
	ROA	554	15.71	15.31	8.12	-32.14	62.82
	ROS	554	12.81	12.38	15.66	-295.66	42.67
	Tobin's Q	438	1.58	1.14	1.41	-0.07	11.58
	COGS/SALES	554	62.86	64.21	17.30	8.91	147.36
	SALES/ASSETS	554	133.08	124.34	59.88	10.87	456.15
control firms (matched by industry, ASSETS)	TOTAL ASSETS	554	1643.90	218.76	6275.25	1.48	85280.00
	SALES	554	1588.92	254.20	5755.14	1.25	78394.00
	ROA	554	12.73	12.80	10.55	-32.89	58.79
	ROS	554	9.31	11.15	25.01	-334.40	48.10
	Tobin's Q	457	1.37	1.00	1.13	-0.51	9.36
	COGS/SALES	554	63.33	65.72	18.10	10.38	162.75
	SALES/ASSETS	554	119.61	114.23	53.62	2.02	372.06

Note: the statistics are those for year $t - 2$ of the population of all certified firms in the sample and their control firms (matching one to one), after removing firms with insufficient financial information and after trimming. TOTAL ASSETS and SALES are in million US dollars; ROA, ROS, COGS/SALES and SALES/ASSETS are expressed as percentages; Tobin's Q is a dimensionless measure.

Table A1a: Summary of sample statistics, one-to-one matching

		N	mean	median	st.dev.	min.	max.
certified firms	TOTAL ASSETS	554	1629.32	218.82	5717.09	1.57	74293.00
	SALES	554	1649.11	252.77	5546.70	3.43	79557.00
	ROA	554	15.72	15.26	8.12	-33.08	60.69
	ROS	554	13.28	12.52	8.30	-60.44	52.93
	Tobin's Q	501	1.51	1.04	1.49	0.10	14.25
	COGS/SALES	554	63.03	65.45	15.72	17.57	94.80
	SALES/ASSETS	554	127.40	121.62	45.42	18.34	395.47
control portfolio (matched by industry, ROA and ASSETS)	TOTAL ASSETS	554	1690.09	200.72	6113.32	2.21	86343.00
	SALES	554	1770.13	254.16	6941.21	2.24	110496.00
	ROA	554	15.54	15.15	7.91	-31.38	58.16
	ROS	554	13.86	13.27	9.60	-115.14	53.68
	Tobin's Q	515	1.49	1.28	0.98	-0.83	5.62
	COGS/SALES	554	63.46	63.06	13.71	12.93	145.48
	SALES/ASSETS	554	125.76	121.31	44.49	20.99	382.22
control portfolio (matched by industry, ROA)	TOTAL ASSETS	554	1713.34	289.53	4519.50	7.83	50674.63
	SALES	554	1720.15	330.71	4750.46	5.36	53180.35
	ROA	554	15.66	15.35	8.02	-32.75	60.49
	ROS	554	12.69	13.04	8.72	-136.12	32.72
	Tobin's Q	548	1.57	1.35	0.98	0.11	7.90
	COGS/SALES	554	62.37	61.93	10.03	32.52	91.62
	SALES/ASSETS	554	137.59	135.69	28.33	47.50	250.52
control portfolio (matched by industry, ASSETS)	TOTAL ASSETS	554	1679.87	212.17	5806.56	2.16	65985.54
	SALES	554	1656.42	254.87	5744.50	2.64	68241.78
	ROA	554	10.58	11.40	7.01	-48.09	24.07
	ROS	554	1.33	9.73	33.81	-302.28	26.22
	Tobin's Q	554	1.43	1.31	0.73	0.12	4.82
	COGS/SALES	554	70.65	67.16	27.21	35.76	335.28
	SALES/ASSETS	554	117.82	121.69	25.46	55.11	242.46

Note: the statistics are those for year $t - 2$ of the population of all certified firms in the sample and their control firms (matching to portfolios), after removing firms with insufficient financial information and after trimming. TOTAL ASSETS and SALES are in million US dollars; ROA, ROS, COGS/SALES and SALES/ASSETS are expressed as percentages; Tobin's Q is a dimensionless measure.

Table A1b: Summary of sample statistics, portfolio matching

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	0.742	0.423		0.0695 *	0.0595 *	0.0745 *
-2 to -1	554	0.620	0.124		0.0824 *	0.0766 *	0.2220
-1 to 0	554	1.508	0.584	s	0.0075 **	0.0017 ***	0.0167 **
0 to +1	363	-0.288	-0.246		0.6913	0.7809	0.7847
+1 to +2	233	0.417	0.469		0.2219	0.1151	0.0839 *
+2 to +3	147	-0.525	0.108		0.7594	0.6171	0.4345
-2 to 0	554	2.128	0.996		0.0009 ***	0.0002 ***	0.0097 ***
-2 to +1	363	1.911	1.035		0.0014 **	0.0006 ***	0.0090 ***
-2 to +2	233	3.183	2.437		0.0001 ***	0.0000 ***	0.0000 ***
-2 to +3	147	3.936	2.575	s	0.0001 ***	0.0001 ***	0.0008 ***
-1 to +1	363	1.343	0.953		0.0177 **	0.0296 **	0.0090 ***
-1 to +2	233	2.230	2.597		0.0040 ***	0.0001 ***	0.0000 ***
-1 to +3	147	3.575	3.371	s	0.0010 ***	0.0002 ***	0.0158 **

Note: “N” indicates total number of certified firms in the corresponding sample; AP mean and median indicate the mean and median abnormal performance; an “s” in column “sk” indicates that the absolute value of the skewness is greater than one; the *p*-values shown are those for the one-sided test of the null hypothesis of no abnormal performance, using a *t*-test, Wilcoxon signed rank test, and sign test respectively; *** denotes significance at the 1% level, ** at the 5% level, and * at the 10% level. In all cases, the hypothesis of normally distributed abnormal performance was rejected by the Shapiro-Wilk test with *p*-values below 1%, so the *t*-test is never appropriate, but reported for completeness; if the skewness is substantial the sign test is appropriate, otherwise one can use the WSR test.

Table A2: Abnormal performance in ROA; one-to-one matching, by industry, ROA, ASSETS

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	-0.0173	0.0000		0.5161	0.4905	0.5000
-2 to -1	554	0.8906	0.9124		0.0102 **	0.0001 ***	0.0002 ***
-1 to 0	554	1.6709	1.3656	s	0.0018 ***	0.0000 ***	0.0000 ***
0 to +1	363	0.2498	0.3803		0.3197	0.0990 *	0.0944 *
+1 to +2	233	0.5664	0.3695		0.0813 *	0.0738 *	0.1624
+2 to +3	147	0.0851	0.6468		0.4519	0.3445	0.1241
-2 to 0	554	2.5615	1.6100		0.0000 ***	0.0000 ***	0.0000 ***
-2 to +1	363	2.8874	1.8706		0.0000 ***	0.0000 ***	0.0000 ***
-2 to +2	233	3.7216	1.9982		0.0000 ***	0.0000 ***	0.0000 ***
-2 to +3	147	4.1047	2.9681	s	0.0000 ***	0.0000 ***	0.0000 ***
-1 to +1	363	2.3241	1.6970	s	0.0000 ***	0.0000 ***	0.0000 **
-1 to +2	233	2.9311	2.1526		0.0000 ***	0.0000 ***	0.0000 ***
-1 to +3	147	3.5600	2.9978	s	0.0003 ***	0.0001 ***	0.0103 **

Table A3: Abnormal performance in ROA; portfolio matching, by industry, ROA, ASSETS

	N	AP mean	AP median	sk	p -value (t -test)	p -value (WSR test)	p -value (sign test)
-3 to -2	405	-0.926	-0.772		0.9359	0.9698	0.9104
-2 to -1	554	2.666	1.301	s	0.0000 ***	0.0000 ***	0.0000 ***
-1 to 0	554	2.197	0.905		0.0005 ***	0.0001 ***	0.0042 ***
0 to +1	363	0.978	0.028	s	0.0884 *	0.2114	0.3964
+1 to +2	233	-0.585	0.171	s	0.7070	0.8539	0.3230
+2 to +3	147	1.701	0.444		0.0750 *	0.0619 *	0.0346 **
-2 to 0	554	4.863	2.620		0.0000 ***	0.0000 ***	0.0000 ***
-2 to +1	363	5.633	2.824	s	0.0000 ***	0.0000 ***	0.0000 ***
-2 to +2	233	5.714	2.688	s	0.0000 ***	0.0000 ***	0.0000 ***
-2 to +3	147	8.976	3.751	s	0.0000 ***	0.0000 ***	0.0040 ***
-1 to +1	363	3.424	1.364		0.0004 ***	0.0002 ***	0.0118 **
-1 to +2	233	3.166	2.172		0.0123 **	0.0013 ***	0.0035 ***
-1 to +3	147	6.965	4.604		0.0006 ***	0.0001 ***	0.0065 ***

Table A4: Abnormal performance in ROA; one-to-one matching, by industry, ROA

	N	AP mean	AP median	sk	p -value (t -test)	p -value (WSR test)	p -value (sign test)
-3 to -2	405	-1.338	-1.304		0.9998	1.0000	1.0000
-2 to -1	554	2.314	2.377		0.0000 ***	0.0000 ***	0.0000 ***
-1 to 0	554	1.395	1.710	s	0.0004 ***	0.0000 ***	0.0000 ***
0 to +1	363	0.552	0.573	s	0.1303	0.0219 **	0.0293 **
+1 to +2	233	0.936	0.945		0.0108 **	0.0035 ***	0.0179 **
+2 to +3	147	0.888	1.179		0.0328 **	0.0048 ***	0.0008 ***
-2 to 0	554	3.709	3.550	s	0.0000 ***	0.0000 ***	0.0000 ***
-2 to +1	363	4.577	3.934		0.0000 ***	0.0000 ***	0.0000 ***
-2 to +2	233	5.760	4.458		0.0000 ***	0.0000 ***	0.0000 ***
-2 to +3	147	7.039	5.037		0.0000 ***	0.0000 ***	0.0000 ***
-1 to +1	363	2.438	2.543		0.0000 ***	0.0000 ***	0.0000 ***
-1 to +2	233	3.632	3.504		0.0000 ***	0.0000 ***	0.0000 ***
-1 to +3	147	5.280	4.353		0.0000 ***	0.0000 ***	0.0000 ***

Table A5: Abnormal performance in ROA; portfolio matching, by industry, ROA

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	0.530	0.559		0.1542	0.1026	0.0896 *
-2 to -1	554	0.232	0.073		0.2997	0.4058	0.3353
-1 to 0	554	0.561	0.097		0.1710	0.4231	0.4325
0 to +1	363	1.029	0.315	s	0.0866 *	0.2375	0.3181
+1 to +2	233	-0.709	0.384		0.8817	0.4644	0.2351
+2 to +3	147	2.766	0.800	s	0.0025 ***	0.0112 **	0.0103 **
-2 to 0	554	0.794	-0.151		0.1307	0.3626	0.7380
-2 to +1	363	2.026	-0.533	s	0.0204 **	0.2535	0.7847
-2 to +2	233	1.847	2.300		0.0255 **	0.0208 **	0.0654 *
-2 to +3	147	5.825	3.610	s	0.0001 ***	0.0002 ***	0.0005 ***
-1 to +1	363	1.850	0.150	s	0.0159 **	0.2526	0.3565
-1 to +2	233	1.384	1.097		0.0578 *	0.0407 **	0.0283 **
-1 to +3	147	5.021	2.264	s	0.0005 ***	0.0026 ***	0.0158 **

Table A6: Abnormal performance in ROA; one-to-one matching, by industry, ASSETS

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	0.8539	0.9685		0.0103 **	0.0021 ***	0.0019 ***
-2 to -1	554	0.5841	0.6719		0.0385 **	0.0006 ***	0.0029 ***
-1 to 0	554	0.2966	0.4386		0.2204	0.0148 **	0.0804 *
0 to +1	363	0.1412	0.1225	s	0.3735	0.3820	0.3373
+1 to +2	233	0.3289	0.6346		0.1481	0.0295 **	0.0578 *
+2 to +3	147	0.6515	1.0701		0.0727 *	0.0204 **	0.0103 **
-2 to 0	554	0.8807	1.1045	s	0.0251 **	0.0001 ***	0.0009 ***
-2 to +1	363	0.7244	0.3369		0.0605 *	0.0353 **	0.1241
-2 to +2	233	1.3506	1.1356		0.0047 ***	0.0035 ***	0.0179 **
-2 to +3	147	2.3401	1.1860		0.0005 ***	0.0018 ***	0.0494 **
-1 to +1	363	0.5884	0.4219		0.0812 *	0.0906 *	0.1469
-1 to +2	233	1.0446	0.9561		0.0129 **	0.0039 ***	0.0019 ***
-1 to +3	147	2.1729	2.2921		0.0007 ***	0.0007 ***	0.0040 ***

Table A7: Abnormal performance in ROA; portfolio matching, by industry, ASSETS

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	0.266	0.024		0.2340	0.3584	0.4603
-2 to -1	554	0.442	0.347	s	0.2113	0.0097 ***	0.0306 **
-1 to 0	554	1.074	0.255		0.0053 ***	0.0030 ***	0.0252 **
0 to +1	363	0.201	-0.058		0.3199	0.4565	0.6036
+1 to +2	233	0.887	0.604	s	0.0579 **	0.0910 *	0.0208 **
+2 to +3	147	-0.177	0.245		0.6121	0.3175	0.3396
-2 to 0	554	1.516	0.973	s	0.0034 ***	0.0001 ***	0.0022 ***
-2 to +1	363	2.024	0.810		0.0003 ***	0.0001 ***	0.0155 **
-2 to +2	233	3.343	1.792		0.0000 ***	0.0000 ***	0.0004 ***
-2 to +3	147	4.121	2.788		0.0000 ***	0.0000 ***	0.0000 ***
-1 to +1	363	1.161	0.498		0.0114 **	0.0081 ***	0.0201 **
-1 to +2	233	2.161	1.682		0.0026 ***	0.0002 ***	0.0004 ***
-1 to +3	147	3.275	2.069		0.0002 ***	0.0000 ***	0.0000 ***

Table A8: Abnormal performance in ROS; one-to-one matching, by industry, ROA, ASSETS

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	-0.6960	-0.1584	s	0.9483	0.9547	0.8277
-2 to -1	554	0.8851	0.9911		0.0060 ***	0.0000 ***	0.0000 ***
-1 to 0	554	1.4446	0.8984		0.0001 ***	0.0000 ***	0.0000 ***
0 to +1	363	0.3139	0.4402		0.2145	0.0172 **	0.0118 **
+1 to +2	233	0.4563	0.1955		0.1354	0.1437	0.2773
+2 to +3	147	0.3055	0.2454		0.2768	0.1046	0.1410
-2 to 0	554	2.3298	1.3384		0.0000 ***	0.0000 ***	0.0000 ***
-2 to +1	363	2.6612	1.7270		0.0000 ***	0.0000 ***	0.0000 ***
-2 to +2	233	3.4234	2.0797	s	0.0000 ***	0.0000 ***	0.0000 ***
-2 to +3	147	3.9593	2.9617		0.0000 ***	0.0000 ***	0.0000 ***
-1 to +1	363	1.9229	1.1713		0.0000 ***	0.0000 ***	0.0000 ***
-1 to +2	233	2.5668	1.7293		0.0000 ***	0.0000 ***	0.0001 ***
-1 to +3	147	3.1821	2.3978		0.0000 ***	0.0000 ***	0.0000 ***

Table A9: Abnormal performance in ROS; portfolio matching, by industry, ROA, ASSETS

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	-1.287	-0.662		0.9977	0.9964	0.9937
-2 to -1	554	1.890	0.562	s	0.0030 ***	0.0000 ***	0.0019 ***
-1 to 0	554	1.628	0.730		0.0011 ***	0.0001 ***	0.0011 ***
0 to +1	363	1.801	0.130	s	0.0073 ***	0.1694	0.2153
+1 to +2	233	-0.730	-0.119		0.8087	0.9210	0.7227
+2 to +3	147	2.924	0.353	s	0.0053 ***	0.0168 **	0.1072
-2 to 0	554	3.519	1.540		0.0000 ***	0.0000 ***	0.0000 ***
-2 to +1	363	5.378	2.381	s	0.0000 ***	0.0000 ***	0.0000 ***
-2 to +2	233	5.015	1.921	s	0.0000 ***	0.0000 ***	0.0001 ***
-2 to +3	147	9.007	2.837	s	0.0000 ***	0.0000 ***	0.0001 ***
-1 to +1	363	3.710	1.765	s	0.0002 ***	0.0000 ***	0.0000 ***
-1 to +2	233	3.043	1.637		0.0043 ***	0.0010 ***	0.0010 ***
-1 to +3	147	7.484	3.152	s	0.0003 ***	0.0000 ***	0.0040 ***

Table A10: Abnormal performance in ROS; one-to-one matching, by industry, ROA

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	-1.724	-1.327		1.0000	1.0000	1.0000
-2 to -1	554	1.790	1.832		0.0000 ***	0.0000 ***	0.0000 ***
-1 to 0	554	2.323	1.627	s	0.0000 ***	0.0000 ***	0.0000 ***
0 to +1	363	0.645	0.830	s	0.1360	0.0009 ***	0.0000 ***
+1 to +2	233	1.271	0.801	s	0.0320 **	0.0212 **	0.0246 **
+2 to +3	147	3.606	0.697	s	0.0012 ***	0.0011 ***	0.0065 ***
-2 to 0	554	4.113	2.989		0.0000 ***	0.0000 ***	0.0000 ***
-2 to +1	363	5.388	4.001	s	0.0000 ***	0.0000 ***	0.0000 ***
-2 to +2	233	7.063	4.166	s	0.0000 ***	0.0000 ***	0.0000 ***
-2 to +3	147	10.653	4.759	s	0.0000 ***	0.0000 ***	0.0000 ***
-1 to +1	363	3.584	2.623	s	0.0000 ***	0.0000 ***	0.0000 ***
-1 to +2	233	5.288	3.146	s	0.0000 ***	0.0000 ***	0.0000 ***
-1 to +3	147	9.190	3.423	s	0.0000 ***	0.0000 ***	0.0000 ***

Table A11: Abnormal performance in ROS; portfolio matching, by industry, ROA

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	0.775	0.187	s	0.1495	0.2298	0.2428
-2 to -1	554	-0.026	0.060		0.5196	0.2223	0.3049
-1 to 0	554	0.367	0.119	s	0.3013	0.2056	0.2220
0 to +1	363	0.807	0.319		0.0824 *	0.0973 *	0.0944 *
+1 to +2	233	-0.887	0.128		0.9721	0.7738	0.3230
+2 to +3	147	2.107	0.730	s	0.0014 ***	0.0011 ***	0.0283 **
-2 to 0	554	0.341	0.082		0.3479	0.1715	0.3511
-2 to +1	363	1.548	0.035		0.0512 *	0.0375 **	0.3964
-2 to +2	233	0.592	0.755	s	0.2929	0.0133 **	0.0208 **
-2 to +3	147	4.045	2.286		0.0005 ***	0.0001 ***	0.0031 ***
-1 to +1	363	1.619	0.351		0.0167 **	0.0352 **	0.0944 *
-1 to +2	233	0.536	1.539	s	0.2719	0.0131 **	0.0051 ***
-1 to +3	147	3.459	2.204		0.0004 ***	0.0001 ***	0.0002 ***

Table A12: Abnormal performance in ROS; one-to-one matching, by industry, ASSETS

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	-5.7486	0.3457	s	0.9996	0.2354	0.1165
-2 to -1	554	5.6668	0.2530	s	0.0007 ***	0.0321 **	0.0939 *
-1 to 0	554	1.2178	0.2484	s	0.2895	0.0240 **	0.0186 **
0 to +1	363	0.3621	0.1261	s	0.4552	0.3401	0.1469
+1 to +2	233	2.7453	0.0281	s	0.2446	0.4894	0.3967
+2 to +3	147	5.1095	1.1778	s	0.0355 **	0.0000 ***	0.0002 ***
-2 to 0	554	6.8846	0.5532	s	0.0034 ***	0.0139 **	0.0186 **
-2 to +1	363	4.4028	-0.0133	s	0.0754 *	0.3537	0.5418
-2 to +2	233	3.5700	0.5232	s	0.2101	0.0760 *	0.0747 *
-2 to +3	147	5.3939	2.0015	s	0.0148 **	0.0004 ***	0.0008 ***
-1 to +1	363	0.2927	0.3543	s	0.4689	0.0231 **	0.0465 **
-1 to +2	233	0.1015	0.9422	s	0.4909	0.0025 ***	0.0019 ***
-1 to +3	147	3.7825	2.3751	s	0.0005 ***	0.0000 ***	0.0001 ***

Table A13: Abnormal performance in ROS; portfolio matching, by industry, ASSETS

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	282	0.031	-0.002		0.3321	0.7853	0.5711
-2 to -1	406	0.083	0.052		0.0973 *	0.0211 **	0.0368 **
-1 to 0	468	0.097	0.065		0.0315 **	0.0089 ***	0.0080 ***
0 to +1	315	-0.020	0.018		0.6295	0.4997	0.1987
+1 to +2	200	-0.076	-0.003		0.8763	0.4930	0.7146
+2 to +3	126	-0.122	-0.067		0.9792	0.9606	0.9634
-2 to 0	405	0.186	0.179		0.0069 ***	0.0002 ***	0.0000 ***
-2 to +1	256	0.167	0.209		0.0248 **	0.0011 ***	0.0003 ***
-2 to +2	160	0.212	0.200		0.0375 **	0.0015 ***	0.0034 ***
-2 to +3	102	0.195	0.179		0.0436 **	0.0308 **	0.0364 **
-1 to +1	298	0.057	0.057		0.2176	0.1279	0.0656 *
-1 to +2	182	0.061	0.090	s	0.2870	0.0208 **	0.0265 **
-1 to +3	116	0.149	0.164		0.0738 *	0.0221 **	0.0124 **

Table A14: Abnormal performance in Tobin's Q; one-to-one matching, by industry, ROA, ASSETS

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	334	-0.0331	-0.0015		0.7258	0.7743	0.5867
-2 to -1	463	0.0717	0.0455		0.0769 *	0.0253 **	0.0113 **
-1 to 0	501	0.0952	0.0504		0.0153 **	0.0038 ***	0.0973 *
0 to +1	335	-0.0201	0.0265		0.6508	0.3838	0.2385
+1 to +2	211	-0.0841	-0.0180		0.9453	0.7430	0.7327
+2 to +3	132	-0.0454	-0.0315		0.7789	0.8741	0.8088
-2 to 0	462	0.1608	0.1703		0.0033 ***	0.0001 ***	0.0001 ***
-2 to +1	299	0.1796	0.1809		0.0025 ***	0.0001 ***	0.0001 ***
-2 to +2	184	0.1096	0.1373		0.1189	0.0109 **	0.0059 ***
-2 to +3	118	0.1933	0.1554		0.0150 **	0.0088 ***	0.0977 *
-1 to +1	324	0.0886	0.0765		0.0641 *	0.0326 **	0.0475 **
-1 to +2	198	0.0285	0.0388		0.3697	0.1053	0.1271
-1 to +3	124	0.1442	0.0415		0.0538 *	0.0739 *	0.2354

Table A15: Abnormal performance in Tobin's Q; portfolio matching, by industry, ROA, ASSETS

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	286	-0.005	-0.025	s	0.5230	0.9438	0.7797
-2 to -1	392	0.092	0.080		0.0947 *	0.0114 **	0.0075 ***
-1 to 0	464	0.118	0.107		0.0142 **	0.0011 ***	0.0046 ***
0 to +1	322	-0.008	-0.015		0.5510	0.6949	0.6311
+1 to +2	208	-0.084	0.000		0.8390	0.6055	0.5553
+2 to +3	130	0.012	-0.044		0.4547	0.6240	0.8547
-2 to 0	391	0.232	0.151		0.0024 ***	0.0002 ***	0.0049 ***
-2 to +1	248	0.349	0.265		0.0002 ***	0.0000 ***	0.0001 ***
-2 to +2	166	0.336	0.249		0.0088 ***	0.0008 ***	0.0015 ***
-2 to +3	105	0.478	0.286		0.0007 ***	0.0007 ***	0.0310 **
-1 to +1	300	0.218	0.151		0.0031 ***	0.0005 ***	0.0013 ***
-1 to +2	189	0.127	0.109		0.1613	0.0288 **	0.0243 **
-1 to +3	116	0.307	0.244		0.0085 ***	0.0102 **	0.0309 **

Table A16: Abnormal performance in Tobin's Q; one-to-one matching, by industry, ROA

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	366	-0.014	0.011		0.6086	0.4122	0.1871
-2 to -1	496	0.041	0.005		0.2010	0.1201	0.4464
-1 to 0	527	0.120	0.075		0.0009 ***	0.0001 ***	0.0011 ***
0 to +1	350	0.013	0.057		0.3948	0.0518 *	0.0080 ***
+1 to +2	224	-0.027	-0.019		0.6910	0.7039	0.7261
+2 to +3	140	0.088	0.010		0.0650 *	0.1204	0.4663
-2 to 0	496	0.164	0.072		0.0026 ***	0.0000 ***	0.0013 ***
-2 to +1	322	0.239	0.199		0.0001 ***	0.0000 ***	0.0000 ***
-2 to +2	204	0.233	0.199		0.0046 ***	0.0007 ***	0.0002 ***
-2 to +3	132	0.310	0.113		0.0003 ***	0.0004 ***	0.0224 **
-1 to +1	343	0.136	0.089		0.0036 ***	0.0008 ***	0.0064 ***
-1 to +2	216	0.192	0.157		0.0061 ***	0.0010 ***	0.0330 **
-1 to +3	136	0.315	0.234		0.0000 ***	0.0000 ***	0.0001 ***

Table A17: Abnormal performance in Tobin's Q; portfolio matching, by industry, ROA

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	293	0.100	0.000		0.0613 *	0.2097	0.5000
-2 to -1	413	0.009	0.042		0.4399	0.0755 *	0.1504
-1 to 0	466	0.093	0.030		0.0430 **	0.0404 **	0.0574 *
0 to +1	314	-0.090	-0.076		0.9196	0.9432	0.9551
+1 to +2	204	-0.016	0.004		0.5955	0.5281	0.5000
+2 to +3	131	-0.080	-0.004		0.8690	0.6439	0.6694
-2 to 0	409	0.134	0.125		0.0292 **	0.0017 ***	0.0032 ***
-2 to +1	263	0.131	0.103		0.0630 *	0.0598 *	0.1202
-2 to +2	175	0.169	0.191		0.0663 *	0.0205 **	0.0748 *
-2 to +3	119	0.147	0.215		0.1050	0.0307 **	0.0169 **
-1 to +1	297	0.042	0.000		0.3109	0.3487	0.5692
-1 to +2	188	0.081	0.109		0.2187	0.1107	0.0717 *
-1 to +3	126	0.091	0.087		0.2141	0.1006	0.0535 *

Table A18: Abnormal performance in Tobin's Q; one-to-one matching, by industry, ASSETS

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	368	0.0469	0.0555		0.1435	0.0229 **	0.1152
-2 to -1	500	0.0368	0.0506		0.1851	0.0021 ***	0.0069 ***
-1 to 0	529	0.0616	0.0639		0.0411 **	0.0022 ***	0.0020 ***
0 to +1	351	-0.0669	0.0141	s	0.9410	0.6624	0.2275
+1 to +2	225	-0.0448	-0.0034		0.8337	0.6939	0.5530
+2 to +3	141	-0.0467	-0.0285		0.8343	0.8566	0.9354
-2 to 0	500	0.0967	0.0911		0.0229 **	0.0001 ***	0.0001 ***
-2 to +1	324	0.0575	0.0965		0.1546	0.0052 ***	0.0062 ***
-2 to +2	206	0.0473	0.0924	s	0.2927	0.0216 **	0.0298 **
-2 to +3	133	0.0934	0.0390		0.1219	0.0428 **	0.2240
-1 to +1	344	-0.0077	0.0254		0.5620	0.3089	0.2766
-1 to +2	217	-0.0181	0.0191	s	0.5939	0.4427	0.2487
-1 to +3	137	0.0619	0.0793		0.2005	0.1151	0.0619 *

Table A19: Abnormal performance in Tobin's Q; portfolio matching, by industry, ASSETS

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	-0.432	-0.217	s	0.1155	0.1140	0.0970 *
-2 to -1	554	-0.215	-0.398	s	0.2566	0.0191 **	0.0067 ***
-1 to 0	554	-0.812	-0.242	s	0.0055 ***	0.0253 **	0.0625 *
0 to +1	363	-0.240	-0.299		0.2011	0.1052	0.0413 **
+1 to +2	233	-0.848	-0.404	s	0.0367 **	0.1380	0.0654 *
+2 to +3	147	0.349	0.444		0.7561	0.7076	0.8928
-2 to 0	554	-1.027	-0.533		0.0037 ***	0.0088 ***	0.0107 **
-2 to +1	363	-1.328	-1.143		0.0024 ***	0.0006 ***	0.0067 ***
-2 to +2	233	-2.503	-1.559		0.0002 ***	0.0000 ***	0.0000 ***
-2 to +3	147	-3.283	-2.129		0.0000 ***	0.0000 ***	0.0001 ***
-1 to +1	363	-0.890	-0.592		0.0135 **	0.0077 ***	0.0779 *
-1 to +2	233	-1.803	-1.163		0.0026 ***	0.0010 ***	0.0006 ***
-1 to +3	147	-2.348	-1.460		0.0014 ***	0.0006 ***	0.0065 ***

Table A20: Abnormal performance in COGS/SALES; one-to-one matching, by industry, ROA, ASSETS

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	0.0391	0.0764		0.5594	0.7041	0.7079
-2 to -1	554	-0.3569	-0.6624	s	0.0733 *	0.0001 ***	0.0000 ***
-1 to 0	554	-0.8556	-0.4523		0.0016 ***	0.0022 ***	0.0108 **
0 to +1	363	-0.1659	-0.4132		0.2711	0.0290 **	0.0201 **
+1 to +2	233	-0.6088	-0.2057		0.0358 **	0.0990 *	0.2773
+2 to +3	147	0.1107	-0.0534		0.6149	0.5884	0.4670
-2 to 0	554	-1.2125	-0.9509		0.0003 ***	0.0000 ***	0.0000 ***
-2 to +1	363	-1.5617	-1.6444		0.0001 ***	0.0000 ***	0.0000 ***
-2 to +2	233	-2.4130	-2.1055		0.0000 ***	0.0000 ***	0.0000 ***
-2 to +3	147	-2.8740	-2.6741		0.0000 ***	0.0000 ***	0.0000 ***
-1 to +1	363	-1.2215	-0.9188		0.0005 ***	0.0002 ***	0.0090 ***
-1 to +2	233	-1.8787	-1.6131		0.0001 ***	0.0001 ***	0.0010 ***
-1 to +3	147	-2.1623	-1.9328		0.0008 ***	0.0001 ***	0.0014 ***

Table A21: Abnormal performance in COGS/SALES; portfolio matching, by industry, ROA, ASSETS

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	-0.186	0.000	s	0.3325	0.5721	0.5000
-2 to -1	554	-0.909	-0.590	s	0.0269 **	0.0027 ***	0.0002 ***
-1 to 0	554	-0.678	-0.407		0.0436 **	0.0036 ***	0.0204 **
0 to +1	363	-0.934	-0.733	s	0.0066 ***	0.0095 ***	0.0026 ***
+1 to +2	233	0.656	-0.015		0.8562	0.5373	0.4738
+2 to +3	147	-1.963	0.000	s	0.0365 **	0.2369	0.5330
-2 to 0	554	-1.588	-1.188		0.0001 ***	0.0001 ***	0.0000 ***
-2 to +1	363	-2.947	-1.935		0.0000 ***	0.0000 ***	0.0000 ***
-2 to +2	233	-2.228	-1.491		0.0018 ***	0.0002 ***	0.0000 ***
-2 to +3	147	-4.433	-1.950	s	0.0009 ***	0.0008 ***	0.0023 ***
-1 to +1	363	-2.170	-1.418		0.0000 ***	0.0000 ***	0.0001 ***
-1 to +2	233	-1.370	-1.379		0.0351 **	0.0107 **	0.0023 ***
-1 to +3	147	-3.242	-1.846	s	0.0105 **	0.0083 ***	0.0494 **

Table A22: Abnormal performance in COGS/SALES; one-to-one matching, by industry, ROA

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	0.603	0.546		0.9926	0.9992	0.9995
-2 to -1	554	-0.662	-0.847	s	0.0007 ***	0.0000 ***	0.0000 ***
-1 to 0	554	-1.130	-0.760	s	0.0002 ***	0.0000 ***	0.0000 ***
0 to +1	363	0.243	-0.390	s	0.7027	0.0118 **	0.0230 **
+1 to +2	233	-0.555	-0.305		0.0181 **	0.0228 **	0.0747 *
+2 to +3	147	-0.049	0.323		0.4431	0.4973	0.6388
-2 to 0	554	-1.792	-1.253	s	0.0000 ***	0.0000 ***	0.0000 ***
-2 to +1	363	-2.141	-2.248		0.0000 ***	0.0000 ***	0.0000 ***
-2 to +2	233	-2.866	-2.900		0.0000 ***	0.0000 ***	0.0000 ***
-2 to +3	147	-3.256	-2.619		0.0000 ***	0.0000 ***	0.0000 ***
-1 to +1	363	-1.370	-1.494		0.0000 ***	0.0000 ***	0.0000 ***
-1 to +2	233	-2.034	-1.979		0.0000 ***	0.0000 ***	0.0000 ***
-1 to +3	147	-2.380	-2.431		0.0000 ***	0.0000 ***	0.0000 ***

Table A23: Abnormal performance in COGS/SALES; portfolio matching, by industry, ROA

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	-0.002	-0.182	s	0.4978	0.1666	0.0970 *
-2 to -1	554	-0.511	-0.119	s	0.1078	0.1061	0.1971
-1 to 0	554	-0.450	-0.044		0.1210	0.1231	0.2755
0 to +1	363	-0.347	-0.178	s	0.1665	0.1874	0.1858
+1 to +2	233	0.355	-0.367	s	0.7667	0.2119	0.0503 *
+2 to +3	147	-1.957	-0.872	s	0.0003 ***	0.0002 ***	0.0050 ***
-2 to 0	554	-0.961	-0.197		0.0154 **	0.0313 **	0.1340
-2 to +1	363	-1.233	-0.701		0.0210 **	0.0274 **	0.1348
-2 to +2	233	-1.311	-1.171		0.0816 *	0.0044 ***	0.0075 ***
-2 to +3	147	-4.023	-3.021	s	0.0027 ***	0.0000 ***	0.0001 ***
-1 to +1	363	-0.928	-0.218		0.0345 **	0.0493 **	0.2816
-1 to +2	233	-0.802	-0.761	s	0.1390	0.0102 **	0.0503 *
-1 to +3	147	-2.804	-2.018	s	0.0071 ***	0.0000 ***	0.0008 ***

Table A24: Abnormal performance in COGS/SALES; one-to-one matching, by industry, ASSETS

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	4.9366	-0.0275	s	0.9995	0.7652	0.5000
-2 to -1	554	-5.3574	-0.3411	s	0.0005 ***	0.1635	0.0338 ***
-1 to 0	554	0.0436	-0.1375		0.5091	0.0390 **	0.1642
0 to +1	363	3.3747	0.0087	s	0.9408	0.5321	0.5418
+1 to +2	233	-0.4186	-0.0530	s	0.3906	0.4994	0.5000
+2 to +3	147	-4.0802	-0.3240	s	0.0554 *	0.0173 **	0.0346 *
-2 to 0	554	-5.3130	-0.2294	s	0.0027 ***	0.1174	0.0939 ***
-2 to +1	363	-0.6033	-0.3650	s	0.3025	0.1359	0.2005
-2 to +2	233	-0.6871	-0.5967	s	0.3265	0.0439 **	0.0332
-2 to +3	147	-4.3905	-1.7778	s	0.0384 **	0.0083 ***	0.0237 **
-1 to +1	363	4.0358	-0.3398	s	0.9488	0.0913 *	0.0861
-1 to +2	233	3.6174	-0.6284	s	0.9301	0.0624 *	0.0246
-1 to +3	147	-2.2711	-0.9392	s	0.0104 **	0.0030 ***	0.0934 **

Table A25: Abnormal performance in COGS/SALES; portfolio matching, by industry, ASSETS

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	-0.023	-0.011		0.8829	0.9858	0.8847
-2 to -1	554	0.010	-0.018		0.2976	0.8068	0.9427
-1 to 0	554	0.037	0.014		0.0049 ***	0.0119 **	0.0625 *
0 to +1	363	0.049	0.015		0.0071 ***	0.0082 ***	0.0460 **
+1 to +2	233	0.006	0.019		0.4056	0.1911	0.1785
+2 to +3	147	0.044	0.034		0.0225 **	0.0347 **	0.0673 *
-2 to 0	554	0.070	0.000		0.0303 **	0.2785	0.5000
-2 to +1	363	0.091	0.031		0.0965 *	0.0301 **	0.1342
-2 to +2	233	0.118	0.016		0.1038	0.1205	0.3466
-2 to +3	147	0.220	0.049	s	0.1099	0.1585	0.2533
-1 to +1	363	0.090	0.028		0.0099 ***	0.0018 ***	0.0938 *
-1 to +2	233	0.116	0.049		0.0291 **	0.0280 **	0.1462
-1 to +3	147	0.236	0.116	s	0.0192 **	0.0253 **	0.0919 *

Table A26: Abnormal relative SALES growth; one-to-one matching, by industry, ROA, ASSETS

Note: “Abnormal relative sales growth” is defined by comparing $\frac{SALES_t - SALES_{t-1}}{SALES_{t-1}}$ of certified firms with that of the control firms.

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	-0.0675	-0.0415	s	0.9956	1.0000	0.9999
-2 to -1	554	0.0031	-0.0232	s	0.4233	0.9936	0.9998
-1 to 0	554	0.0351	0.0064		0.0053 ***	0.0131 **	0.1748
0 to +1	363	0.0532	0.0042	s	0.0005 ***	0.0555 *	0.2816
+1 to +2	233	0.0144	0.0076	s	0.2416	0.4510	0.2773
+2 to +3	147	0.0501	0.0300		0.0090 ***	0.0210 **	0.1072
-2 to 0	554	0.0622	-0.0222	s	0.0323 **	0.7407	0.8656
-2 to +1	363	0.1252	0.0000	s	0.0061 ***	0.2381	0.5210
-2 to +2	233	0.1460	-0.0034	s	0.0479 **	0.4102	0.5780
-2 to +3	147	0.2857	0.0128	s	0.0606 *	0.3406	0.4020
-1 to +1	363	0.0988	0.0130		0.0007 ***	0.0116 **	0.3181
-1 to +2	233	0.1461	0.0279	s	0.0043 ***	0.0690 *	0.3714
-1 to +3	147	0.2733	0.0685	s	0.0092 ***	0.0544 *	0.2813

Table A27: Abnormal performance in SALES; portfolio matching, by industry, ROA, ASSETS

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	-0.069	-0.030		0.9979	0.9992	0.9993
-2 to -1	554	0.007	-0.003		0.3554	0.6127	0.8147
-1 to 0	554	0.033	0.035		0.0248 **	0.0065 ***	0.0041 ***
0 to +1	363	0.056	0.022		0.0028 ***	0.0133 **	0.1462
+1 to +2	233	0.021	0.023	s	0.1979	0.1398	0.1181
+2 to +3	147	0.064	0.034		0.0055 ***	0.0091 ***	0.0919 *
-2 to 0	554	0.055	0.026		0.0898 *	0.0697 *	0.0737 *
-2 to +1	363	0.092	0.019		0.0815 *	0.0425 **	0.2146
-2 to +2	233	0.165	0.050		0.0505 *	0.0914 *	0.1181
-2 to +3	147	0.345	0.164	s	0.0421 **	0.0615 *	0.0919 *
-1 to +1	363	0.095	0.037		0.0048 ***	0.0109 **	0.0631 *
-1 to +2	233	0.145	0.091		0.0144 **	0.0257 **	0.0571 *
-1 to +3	147	0.319	0.151	s	0.0067 ***	0.0070 ***	0.0229 **

Table A28: Abnormal performance in SALES; one-to-one matching, by industry, ROA

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	-0.066	-0.081		1.0000	1.0000	1.0000
-2 to -1	554	-0.001	-0.048	s	0.5398	1.0000	1.0000
-1 to 0	554	0.005	-0.019		0.3427	0.9658	0.9879
0 to +1	363	0.009	-0.018	s	0.3565	0.7600	0.9424
+1 to +2	233	0.017	-0.009	s	0.1750	0.6354	0.7841
+2 to +3	147	0.018	0.012		0.1667	0.1848	0.2048
-2 to 0	554	0.013	-0.116	s	0.3393	1.0000	1.0000
-2 to +1	363	0.026	-0.161	s	0.2953	0.9997	1.0000
-2 to +2	233	0.045	-0.187	s	0.3011	0.9992	1.0000
-2 to +3	147	0.185	-0.225	s	0.1567	0.9874	0.9976
-1 to +1	363	0.036	-0.044	s	0.1123	0.9412	0.9984
-1 to +2	233	0.088	-0.091	s	0.0544 *	0.8571	0.9957
-1 to +3	147	0.203	-0.064	s	0.0407 **	0.6104	0.8759

Table A29: Abnormal performance in SALES; portfolio matching, by industry, ROA

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	-0.221	0.020	s	0.9701	0.3442	0.0970 *
-2 to -1	554	-0.012	0.000		0.7435	0.4963	0.4830
-1 to 0	554	0.026	0.015		0.0600 *	0.0242 **	0.0737 *
0 to +1	363	0.062	0.036	s	0.0171 **	0.0001 ***	0.0022 ***
+1 to +2	233	0.026	0.023		0.1299	0.1615	0.1181
+2 to +3	147	0.045	0.030		0.0327 **	0.0412 **	0.0673 *
-2 to 0	554	0.023	-0.001		0.2860	0.2716	0.6009
-2 to +1	363	0.070	0.012		0.1588	0.0717 *	0.2146
-2 to +2	233	0.118	0.026		0.1380	0.0781 *	0.2149
-2 to +3	147	0.243	0.094		0.1609	0.0355 **	0.1224
-1 to +1	363	0.114	0.037		0.0017 ***	0.0019 ***	0.0255 **
-1 to +2	233	0.196	0.081		0.0014 ***	0.0045 ***	0.0241 **
-1 to +3	147	0.339	0.121	s	0.0076 ***	0.0069 ***	0.0229 **

Table A30: Abnormal performance in SALES; one-to-one matching, by industry, ASSETS

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	-0.0831	-0.0630		1.0000	1.0000	1.0000
-2 to -1	554	-0.0329	-0.0388		0.9835	1.0000	1.0000
-1 to 0	554	0.0069	-0.0139		0.3035	0.7622	0.9513
0 to +1	363	0.0243	-0.0134		0.0878 *	0.6041	0.8961
+1 to +2	233	0.0154	-0.0005	s	0.1972	0.4762	0.5521
+2 to +3	147	0.0066	0.0018		0.3627	0.5224	0.4345
-2 to 0	554	-0.0290	-0.0779		0.8089	1.0000	1.0000
-2 to +1	363	0.0392	-0.0912	s	0.2036	0.9988	0.9992
-2 to +2	233	0.0760	-0.0771	s	0.1784	0.9796	0.9937
-2 to +3	147	0.1572	-0.0844	s	0.1856	0.9698	0.9506
-1 to +1	363	0.0556	-0.0307	s	0.0300 **	0.6346	0.9535
-1 to +2	233	0.0876	-0.0301	s	0.0554 *	0.5612	0.8205
-1 to +3	147	0.1753	0.0037	s	0.0645 *	0.6945	0.5000

Table A31: Abnormal performance in SALES; portfolio matching, by industry, ASSETS

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	2.468	0.891		0.0765 *	0.1579	0.1850
-2 to -1	554	-2.511	-0.947		0.9648	0.8630	0.8463
-1 to 0	554	3.486	3.472		0.0039 ***	0.0004 ***	0.0008 ***
0 to +1	363	-1.506	-0.863		0.8252	0.8400	0.9221
+1 to +2	233	-3.674	-0.555		0.9672	0.7120	0.6770
+2 to +3	147	-4.926	-2.601		0.9956	0.9943	0.9717
-2 to 0	554	0.975	1.097		0.2636	0.1619	0.1344
-2 to +1	363	-0.500	0.250		0.5935	0.4675	0.3369
-2 to +2	233	-2.465	0.004		0.7836	0.4360	0.4738
-2 to +3	147	-6.796	-3.309	s	0.9436	0.8368	0.7187
-1 to +1	363	2.152	2.156		0.1256	0.1042	0.0413 **
-1 to +2	233	-1.198	2.428		0.6666	0.2602	0.3230
-1 to +3	147	-1.833	-2.469		0.6967	0.4527	0.7187

Table A32: Abnormal performance in SALES/ASSETS; one-to-one matching, by industry, ROA, ASSETS

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	0.8312	1.0641		0.2623	0.0777 *	0.1262
-2 to -1	554	-1.2268	0.9881		0.8632	0.6111	0.2220
-1 to 0	554	1.7222	2.8131		0.0568 *	0.0018 ***	0.0003 ***
0 to +1	363	-0.5484	-0.6255		0.6564	0.7199	0.8410
+1 to +2	233	-2.9175	-0.3360	s	0.9744	0.8315	0.6286
+2 to +3	147	-0.9038	-0.5098		0.7028	0.8129	0.6604
-2 to 0	554	0.4954	2.1440		0.3497	0.0612 *	0.0135 **
-2 to +1	363	-1.0356	-0.7740		0.7226	0.6292	0.6819
-2 to +2	233	-2.9846	-0.2187		0.8938	0.7709	0.6770
-2 to +3	147	-2.1534	0.1846		0.7462	0.5846	0.4670
-1 to +1	363	1.6600	1.4819		0.1554	0.0784 *	0.0637 *
-1 to +2	233	-0.6950	2.1919		0.6239	0.3725	0.2773
-1 to +3	147	1.9742	0.7686		0.2392	0.1729	0.3396

Table A33: Abnormal performance in SALES/ASSETS; portfolio matching, by industry, ROA, ASSETS

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	3.029	-0.754		0.0783 *	0.4586	0.8634
-2 to -1	554	1.234	0.662		0.2232	0.1180	0.1537
-1 to 0	554	1.604	2.995		0.1401	0.0268 **	0.0370 **
0 to +1	363	-0.559	-1.307		0.6156	0.7301	0.8142
+1 to +2	233	-1.682	0.453		0.7981	0.4019	0.3230
+2 to +3	147	2.628	1.649		0.1616	0.3045	0.1410
-2 to 0	554	2.838	3.112		0.0640 *	0.0189 **	0.0068 ***
-2 to +1	363	0.992	1.474		0.3615	0.3179	0.1999
-2 to +2	233	0.986	1.944		0.3902	0.1901	0.2773
-2 to +3	147	5.956	7.630		0.1137	0.0625 *	0.0578 *
-1 to +1	363	0.767	0.513		0.3833	0.4293	0.2472
-1 to +2	233	0.705	1.679		0.4163	0.2384	0.2773
-1 to +3	147	9.552	5.517		0.0198 **	0.0225 **	0.1072

Table A34: Abnormal performance in SALES/ASSETS; one-to-one matching, by industry, ROA

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	0.932	0.409		0.2253	0.1009	0.3455
-2 to -1	554	3.314	4.315		0.0017 ***	0.0000 ***	0.0000 ***
-1 to 0	554	1.653	2.910		0.0521 *	0.0007 ***	0.0004 ***
0 to +1	363	-0.569	1.331		0.6718	0.2887	0.1469
+1 to +2	233	-0.859	1.174	s	0.7161	0.1148	0.2159
+2 to +3	147	0.752	1.444		0.3054	0.0819 *	0.2548
-2 to 0	554	4.967	5.921		0.0000 ***	0.0000 ***	0.0000 ***
-2 to +1	363	2.760	6.175		0.0608 *	0.0004 ***	0.0000 ***
-2 to +2	233	3.517	5.117		0.0622 *	0.0009 ***	0.0008 ***
-2 to +3	147	4.372	6.086		0.0609 *	0.0056 ***	0.0346 **
-1 to +1	363	0.973	3.633		0.2643	0.0470 **	0.0078 ***
-1 to +2	233	1.740	4.554		0.2041	0.0124 **	0.0001 ***
-1 to +3	147	5.074	5.391		0.0166 **	0.0070 ***	0.0065 ***

Table A35: Abnormal performance in SALES/ASSETS; portfolio matching, by industry, ROA

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	-0.583	-0.280		0.6413	0.6338	0.7250
-2 to -1	554	-3.582	-2.187		0.9967	0.9974	0.9865
-1 to 0	554	-0.528	0.093		0.6652	0.3785	0.4325
0 to +1	363	-0.270	-0.117		0.5643	0.7922	0.6036
+1 to +2	233	-2.130	2.302		0.8464	0.2960	0.0654 *
+2 to +3	147	-2.938	-1.565		0.9309	0.8849	0.8928
-2 to 0	554	-4.110	-1.501		0.9943	0.9954	0.9371
-2 to +1	363	-6.772	-7.046		0.9970	0.9997	0.9996
-2 to +2	233	-8.074	-4.987		0.9935	0.9801	0.8939
-2 to +3	147	-7.175	-2.828		0.9731	0.9311	0.8187
-1 to +1	363	-2.048	-3.927		0.8448	0.9574	0.9742
-1 to +2	233	-3.591	-2.103		0.8858	0.7464	0.8678
-1 to +3	147	-3.734	-1.892		0.8626	0.7175	0.7718

Table A36: Abnormal performance in SALES/ASSETS; one-to-one matching, by industry, ASSETS

	N	AP mean	AP median	sk	<i>p</i> -value (<i>t</i> -test)	<i>p</i> -value (WSR test)	<i>p</i> -value (sign test)
-3 to -2	405	0.1334	1.1654		0.4534	0.0824 *	0.0294 **
-2 to -1	554	-2.7115	-0.4504		0.9962	0.8947	0.6489
-1 to 0	554	-1.0802	0.4945		0.8760	0.4238	0.2351
0 to +1	363	-1.9551	-0.8762		0.9479	0.8800	0.8531
+1 to +2	233	-1.1704	0.5277	s	0.7897	0.2206	0.3002
+2 to +3	147	-1.7105	-1.4486		0.8861	0.8627	0.9654
-2 to 0	554	-3.7917	-1.3160		0.9995	0.9840	0.9593
-2 to +1	363	-7.7610	-4.1925		1.0000	1.0000	0.9977
-2 to +2	233	-7.7112	-3.8157	s	0.9950	0.9982	0.9957
-2 to +3	147	-5.7206	-2.7800		0.9797	0.9694	0.9654
-1 to +1	363	-3.1952	-2.8439		0.9859	0.9913	0.9942
-1 to +2	233	-3.9580	-1.6063		0.9674	0.6008	0.7438
-1 to +3	147	-0.9868	-0.4278		0.6612	0.6794	0.6896

Table A37: Abnormal performance in SALES/ASSETS; portfolio matching, by industry, ASSETS

		industry, ROA, ASSETS				industry, ROA				industry, ASSETS			
		one-to-one		portfolio		one-to-one		portfolio		one-to-one		portfolio	
	N	WSR	sign	WSR	sign	WSR	sign	WSR	sign	WSR	sign	WSR	sign
-3 to -2	405	*	*								*	***	***
-2 to -1	554	*		***	***	***	***	***	***			***	***
-1 to 0	554	***	**	***	***	***	***	***	***			**	*
0 to +1	363			*	*			**	**				
+1 to +2	233		*	*				***	**			**	*
+2 to +3	147					*	**	***	***	**	**	**	**
-2 to 0	554	***	***	***	***	***	***	***	***			***	***
-2 to +1	363	***	***	***	***	***	***	***	***			**	
-2 to +2	233	***	***	***	***	***	***	***	***	**	*	***	**
-2 to +3	147	***	***	***	***	***	***	***	***	***	***	***	**
-1 to +1	363	**	***	***	***	***	**	***	***			*	
-1 to +2	233	***	***	***	***	***	***	***	***	**	**	***	***
-1 to +3	147	***	**	***	**	***	***	***	***	***	**	***	***

Table A38: Significance of abnormal performance in ROA under all 6 matching criteria, using Wilcoxon signed-rank test (WRS) and sign test. *** denotes significance at the 1% level, ** at the 5% level, and * at the 1% level.

		industry, ROA, ASSETS				industry, ROA				industry, ASSETS			
		one-to-one		portfolio		one-to-one		portfolio		one-to-one		portfolio	
	N	WSR	sign	WSR	sign	WSR	sign	WSR	sign	WSR	sign	WSR	sign
-3 to -2	405												
-2 to -1	554	***	**	***	***	***	***	***	***			**	*
-1 to 0	554	***	**	***	***	***	***	***	***			**	**
0 to +1	363			**	**			***	***	*	*		
+1 to +2	233	*	**					**	**				
+2 to +3	147					**		***	***	***	**	***	***
-2 to 0	554	***	***	***	***	***	***	***	***			**	**
-2 to +1	363	***	**	***	***	***	***	***	***	**			
-2 to +2	233	***	***	***	***	***	***	***	***	**	**	*	*
-2 to +3	147	***	***	***	***	***	***	***	***	***	***	***	***
-1 to +1	363	***	**	***	***	***	***	***	***	**	*	**	**
-1 to +2	233	***	***	***	***	***	***	***	***	**	***	***	***
-1 to +3	147	***	***	***	***	***	***	***	***	***	***	***	***

Table A39: Significance of abnormal performance in ROS under all 6 matching criteria, using Wilcoxon signed-rank test (WRS) and sign test. *** denotes significance at the 1% level, ** at the 5% level, and * at the 1% level.

N	varies across matching methods	industry, ROA, ASSETS one-to-one portfolio				industry, ROA one-to-one portfolio				industry, ASSETS one-to-one portfolio			
		WSR	sign	WSR	sign	WSR	sign	WSR	sign	WSR	sign	WSR	sign
		-3 to -2	**	**	**	**	**	***			*		**
-2 to -1	***	***	***	*	***	***	***	***	**	*	***	***	
-1 to 0							*	***					
0 to +1													
+1 to +2													
+2 to +3													
-2 to 0	***	***	***	***	***	***	***	***	***	***	***	***	
-2 to +1	***	***	***	***	***	***	***	***	*		***	***	
-2 to +2	***	***	**	***	***	***	***	***	**	*	**	**	
-2 to +3	**	**	***	*	***	**	***	**	**	**	**	**	
-1 to +1		*	**	**	***	***	***	***					
-1 to +2	**	**			**	**	***	**		*			
-1 to +3	**	**	*		**	**	***	***		*		*	

Table A40: Significance of abnormal performance in Tobin's Q under all 6 matching criteria, using Wilcoxon signed-rank test (WRS) and sign test. *** denotes significance at the 1% level, ** at the 5% level, and * at the 1% level.

N	varies across matching methods	industry, ROA, ASSETS one-to-one portfolio				industry, ROA one-to-one portfolio				industry, ASSETS one-to-one portfolio			
		WSR	sign	WSR	sign	WSR	sign	WSR	sign	WSR	sign	WSR	sign
		-3 to -2	405		*							*	
-2 to -1	554	**	***	***	***	***	***	***				**	
-1 to 0	554	**	*	***	**	***	***	***			**		
0 to +1	363		**	**	**	***	***	**					
+1 to +2	233		*	*				**	*				
+2 to +3	147									***	***	**	**
-2 to 0	554	***	**	***	***	***	***	***	***	**			*
-2 to +1	363	***	***	***	***	***	***	***	***	**			
-2 to +2	233	***	***	***	***	***	***	***	***	***	***	**	**
-2 to +3	147	***	***	***	***	***	***	***	***	***	***	***	**
-1 to +1	363	***	*	***	***	***	***	***	***	**		*	*
-1 to +2	233	***	***	***	***	**	***	***	***	**	*	*	**
-1 to +3	147	***	***	***	***	***	**	***	***	***	***	***	*

Table A41: Significance of abnormal performance in COGS/SALES under all 6 matching criteria, using Wilcoxon signed-rank test (WRS) and sign test. *** denotes significance at the 1% level, ** at the 5% level, and * at the 1% level.

		industry, ROA, ASSETS one-to-one portfolio				industry, ROA one-to-one portfolio				industry, ASSETS one-to-one portfolio			
N		WSR	sign	WSR	sign	WSR	sign	WSR	sign	WSR	sign	WSR	sign
-3 to -2	405										*		
-2 to -1	554												
-1 to 0	554	**	*	**		***	***			**	*		
0 to +1	363	***	**	*		**				***	***		
+1 to +2	233												
+2 to +3	147	**	*	**		***	*			**	*		
-2 to 0	554					*	*						
-2 to +1	363	**				**				*			
-2 to +2	233					*				*			
-2 to +3	147					*	*			**			
-1 to +1	363	***	*	**		**	*			***	**		
-1 to +2	233	**		*		**	*			***	**		
-1 to +3	147	**	*	*		***	**			***	**		

Table A42: Significance of abnormal relative SALES growth under all 6 matching criteria, using Wilcoxon signed-rank test (WRS) and sign test. *** denotes significance at the 1% level, ** at the 5% level, and * at the 1% level.

Note: “Abnormal relative sales growth” is defined by comparing $\frac{SALES_t - SALES_{t-1}}{SALES_{t-1}}$ of certified firms with that of the control firms.

		industry, ROA, ASSETS one-to-one portfolio				industry, ROA one-to-one portfolio				industry, ASSETS one-to-one portfolio			
N		WSR	sign	WSR	sign	WSR	sign	WSR	sign	WSR	sign	WSR	sign
-3 to -2	405			*								*	**
-2 to -1	554							***	***				
-1 to 0	554	***	***	***	***	**	**	***	***				
0 to +1	363										*		
+1 to +2	233												
+2 to +3	147							*					
-2 to 0	554			*	**	**	***	***	***				
-2 to +1	363							***	***				
-2 to +2	233							***	***				
-2 to +3	147					*	*	***	**				
-1 to +1	363		**	*	*			**	***				
-1 to +2	233							**	***				
-1 to +3	147					**		***	***				

Table A43: Significance of abnormal performance in SALES/ASSETS under all 6 matching criteria, using Wilcoxon signed-rank test (WRS) and sign test. *** denotes significance at the 1% level, ** at the 5% level, and * at the 1% level.